Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	1.2.3.4	海洋科學概論	Introduction to Oceanography	This class aims to descriptively introduce the general physics, chemistry, geology, and biology of the ocean to non-ocean science major freshman undergraduate students, and brings an overview of the oceanography as well to help the students understand the marine science	本課程針對非海洋科學主修之大一學生，以描述性講授與宏觀的角度，簡介海洋的物理、化學性質、與海洋地質及生物。期能使學生對海洋科學有概括性認識與了解。	2	Required Course	共同教育中心博雅教育組	SDG14、SDG 17
2021	Undergraduate	1	A	卓越大師講座(民主)	Lectures of Excellent Masters	There are many life artists in our society, and their social status is obvious to all. They have a unique taste for life, a discerning and insightful view of society, and a compassion for the people. However, these masters of life may not be able to come to school to give regular classes. Through the invitation of the Masters of Excellence Lecture, students and the community can meet the masters and experience the attitude of life in art and art in life, so that they can appreciate the value of life and broaden their horizons.	在社會上有許多生活藝術家，他們的社會地位是有目共睹的。他們對生命有著獨到的品味，對社會能明察秋毫、能發表真知灼見，對百姓有悲天憫人的情懷。然而這些生活大師或許無法到校定期上課，透過「卓越大師講座」的邀請，可以讓學生及社區民眾親炙大師，感受生活於藝術、藝術於生活的態度，進而體會人生的價值、開拓通達的視野。	2	Elective Course	共同教育中心博雅教育組	SDG 4
2021	Undergraduate	1	A	魚文化與文學(美學)	Fish Culture And Literature	Surrounded by sea, Taiwan is rich in marine resources and aquatic products play an important role in people's diet. However, with the advancement of technology and social changes, the decline of fishing villages and the increasing depletion of marine resources, it is not only our responsibility to research and restore the marine ecology, but also to emphasise and practise marine related cultural and humanistic activities. This course will help students understand the value of fish and aquatic life in human life and cultural activities through a review of fish-related records in ancient and modern texts, and a discussion and study of modern fishery and fishing village related issues.	台灣四面環海，海洋資源豐富，水產品在民眾的飲食中佔有重要的地位，「魚」與相關水中動物看似平凡，卻與人們有密切的關係。然而隨著科技的進步與社會變遷，漁村沒落，海洋資源的日益枯竭，除了針對海洋生態環境的研究復育之外，對於海洋相關文化與人文活動的重視與實踐，更是我們刻不容緩的責任。本課程透過梳理古今典籍中與魚類相關的記載，並結合現代漁業漁村相關議題的討論與探研，有助於修課學生了解魚類、水族在人類的生活與文化活動中的價值意義。	2	Elective Course	共同教育中心博雅教育組	SDG 4、SDG12、SDG13、SDG14
2021	Undergraduate	1	A	海洋生態與全球變遷(自然)	Marine Ecology and Global Change	Students will learn about the types and functions of the marine ecosystem and the impact of global change on the marine ecosystem. It is hoped that by cultivating students' knowledge and love of the sea, they will be inspired to pursue a career in marine science.	使學生了解海洋生態環境的種類與功能，以及全球變遷對海洋生態環境的衝擊。希望藉由培養學生知海、愛海的情操，進而啟發其投身海洋科學研究的熱情。	2	Elective Course	共同教育中心博雅教育組	SDG13、SDG14
2021	Undergraduate	1	A	臺灣海洋巡護政策與經驗之永續經營(全球)	Sustainable Development of Marine Patrols Protects Policies and Experience in Taiwan	In addition, the students will be able to understand the changes in the Marine Patrol Policy, the various patrol facilities and duties of the Marine Patrol Department from the past to the present, as well as the actual implementation of the Marine Patrol Service and the legal basis, so as to build up their basic knowledge on the implementation of the Marine Patrol Service, laws and regulations, technology and service management. This will enable students to understand not only the basic maritime law and regulations, but also the enforcement methods and international affairs of China's maritime patrols, so that they will be able to understand and apply basic practical issues when they wish to enter the maritime patrol-related workplace in the future, and expand the basis for their future career planning.	配合時事與海洋巡護案例，使學生能夠初步了解我國海巡署從前至今之海洋巡護政策的變遷、各類巡護設施與任務職責所在，並輔以實際執行海巡勤務的方式與法源依據，堆砌其具備對海巡任務執掌、法規、科技、勤務管理等基本素養；其次，藉由海洋巡護的歷年經典案例之經驗，介紹我國於執行上之永續經營方針，以使學生除認知基礎海洋事務法令智能外，能對我國海洋巡護的執行方式與國際事務處理上能夠有所知悉，使其未來如欲投入海巡相關職場時，能對基礎實務問題有所認知與應用，並拓展未來生涯規劃的基礎。	2	Elective Course	共同教育中心博雅教育組	SDG11
2021	Undergraduate	1	A	韓國電影中的近當代日韓互動(歷史)	odern and Contemporary Japan-Korea Interactions in Korean Films	A study of gender relations in Korea and their connection to related cultures through various films and other media. The course is similar to A1 in that it involves an understanding of the differences between Korean and Chinese cultures. The aim of this course is to develop and critique students' existing gender consciousness in our country through film and other media, and to develop a new and integrated understanding of the similarities and differences with our East Asian neighbour, Korea.	由多部電影等媒體，探討韓國的性別關係及其與相關文化之扣連。涉及韓國文化與我國文化差異之認識，故在課程領域別上與A1相近。 本課程之教學目標在於，藉電影等媒體，培養並反省批判學生在我國既有的性別意識，藉由與東亞鄰國，韓國，在同與異方面的比較而能有綜合性的新認識。	2	Elective Course	共同教育中心博雅教育組	SDG10、SDG16、SDG17
2021	Undergraduate	1	A	電影詮釋與文化研究(美學)	Film Interpretation & Cultural Study	It is the role of culture to guide the understanding of film as a social practice, and to understand the production and consumption of film as well as its pleasure and meaning.	引導了解電影乃是一種社會實踐,並了解電影的生產與消費以及其快感與意義都是文化的作用。	2	Elective Course	共同教育中心博雅教育組	SDG10
2021	Undergraduate	1	A	傳播倫理與媒體素養(民主)	Communication Ethics and Media Literacy	Media ethics is a set of guidelines and ethical norms that address the impact of the actions of media practitioners on the recipients of their content. Media literacy is not a professional education for the media, but rather a media education for the general public to use, analyse, evaluate and produce information. With the growing importance and influence of the media, education in media ethics and media literacy has become an essential part of everyday life and lifelong learning, relevant to the building of democratic rule of law and civic awareness. The course covers topics ranging from professional autonomy of the media, freedom of expression and social responsibility, to fake news, media credibility, embedded marketing, advertising and viewership, close use of power and media oversight, media literacy and behavioural dynamics, etc. At the same time, along with various new forms of media, major cases, key issues, self-regulation, accountability mechanisms, policies and regulations, media trust crisis, solutions, etc. in different media industries covered by communication ethics. Students will learn about the core concepts of media ethics, and the thinking and judgement, communication and expression, and media literacy skills required in the age of media.	傳播倫理（Communication Ethics）是針對媒體從業人員傳播內容行為對接收者產生影響所涉行動方針與道德規範；媒體素養（Media Literacy）不同於培養媒體專業教育，而是針對一般公眾近用、分析、評估及產製訊息的媒體教育。隨著傳播媒介所涉重要議題及影響力日深且廣，傳播倫理教育及媒體素養/識讀已漸成日常生活所需能力、終身學習課題之一，與民主法治及公民意識建立，至為相關。本課程授課內容從媒體專業自主、言論自由、社會責任，到探討假新聞、媒體可信度、置入性行銷、廣告與收視率、近用權與媒體監督、媒體識讀行動力等議題，同時隨著各式新型態傳播媒體，傳播倫理所涉不同媒體產業之重大案例、關鍵課題、自律規範、問責機制、政策法規、媒體信任危機、解決方案等，逐步培養學生認知傳播倫理核心觀念，以及全媒體時代所需思考判斷、溝通表達與媒體素養行動力。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG5、SDG10
2021	Undergraduate	1	A B	當代傳播問題(科技)	Contemporary Communication Issues	This course focuses on both theory and practice, guiding students' concern for and understanding of major social communication issues, familiarising them with contemporary communication ecology, and examining contemporary communication issues to equip them with the ability to think and judge. The course instructors update and adjust the course materials according to major or immediate communication issues, so that students can reflect on contemporary communication issues, imagine future trends in the field of communication and industry, innovate and respond to new technological developments and rapid dissemination of information, and develop communication/information literacy, diversified perspectives, communication and expression, thinking and judgement, and action skills in the technological and social fields, as well as the ability to actively identify This course is not limited to Taiwan. The programme is not limited to Taiwan, but also explores contemporary global communication issues in order to enhance students' international outlook.	本課程理論與實務並重，引導學生對社會重大傳播議題之關心與認識，熟悉當代傳播生態，進而檢視當代傳播問題，具備思考判斷能力。授課教師依據重大或即時傳播議題，隨時更新調整編製教材，使修課同學藉由反思當代傳播所面臨課題，同步想像未來傳播領域與產業趨勢，在新科技發展、訊息高速傳播下，如何創新應變，培養於科技與社會領域之傳播/資訊素養、多元視野、溝通表達、思考判斷及行動力，並且能主動發現新型態傳播現象與網路社群媒體所涉關鍵議題。本課程不以臺灣為限，同步探討全球當代傳播問題，以提升學生國際宏觀視野。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG9、SDG10、SDG17
2021	Undergraduate	1	A B	傳播技能-媒體聲音表達專題(美學) 學	Communication Competencies-Speaking Voice Training Programs	From radio, television, online video, live streaming, video games to emerging media, 'voice' is always a key element in content presentation. The training of voice" expression has been a fundamental and important skill to be developed in communication, and is also the most basic and practical introduction to communication skills for non-news and media related students.	媒體類型發展愈趨多元，從廣播、電視、網路影音、直播、電玩遊戲到新興媒體，「聲音」始終是內容呈現的關鍵元素之一；然而，廣播劇、廣告配音、戲劇、電玩遊戲配音、有聲書、新聞報導、節目主持、線上直播等，不同型態之媒體內容於有效傳播所需之聲音表情、說話表演、言說技巧、論述能力等，均涉及不同專業及聲音技巧運用，因此，「聲音」表達訓練至今一直是傳播亟需培養之基本且重要技能，也是非新聞傳播媒體相關科系學生，學習傳播技能最基礎且極具實用性之入門課程。	2	Elective Course	共同教育中心博雅教育組	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	人文、科學的相遇(科技)	The Encounter between Humanity and Science	This course aims to enable students to develop an understanding of the relationship between scientific development and the humanities. The course aims to enable students to understand the relationship between scientific development and humanistic elements, so that they can further develop a dialogue between the natural sciences and the humanities. The course aims to enable students to understand the relationship between the development of science and the humanities, so that they can further the dialogue between natural science and the humanities. It is hoped that students will realise that the physical nature and the spiritual humanities are two parallel lines. The motivation for each person's life does not only come from natural science, but also from the understanding of everything in the universe.	此課程希望讓學生能?解科學發展和人文元素的關係，進而可以進?自然科學與人文深處的對話。希望學生體認物質自然與心靈人文?是兩條平行線，而每一個人生活的原動力不單單是從自然科學來，是從你瞭解了宇宙萬事萬物，統合起來的。	2	Elective Course	共同教育中心博雅教育組	SDG3、SDG4、SDG11、SDG16
2021	Undergraduate	1	A	影像配樂編曲製作(美學)	Music Composing and Arranging for Film and Video	Composition and arrangement are the most comprehensive and complete application of the art of musical expression in personal self-representation, and the most extensive and complex of all music-related fields. Through the technical understanding and execution of scales, harmonies, counterpoint, and multiple layers of instrumental progression and organisation, the core creativity is naturally integrated to produce the message that one is expected to convey, fusing rationality with sensibility to enrich narrative, diversity, and expression with a powerful and deep inner language. The course focuses on a common foundation of practical practice, creative inspiration, genre experimentation, and audio-visual work appreciation experiences to achieve the breadth of students' possibilities through self-realisation in this field.	論作曲，及編曲，為音樂藝術表達於個人自我呈現中，屬最為全面，完整之應用途徑，同時在音樂相關領域中，範圍亦牽涉最為廣闊，繁複多樣。經由對音階，和聲，對位等，及多層次樂器行進組織的技術認識，執行，至將核心創意與之自然結合，產生將自身所期待傳遞的訊息，以理性融合感性，可豐富敘述，多樣貌，表達強大和深層的內在語言。 舉凡流行音樂，交響樂，室內樂，電影，影像音樂等，技術與創意皆各有其方向特殊性，本課程著重於針對共同基礎進行技巧實作練習，創意啟發，類型嘗試，影音作品欣賞體驗，達成學生透過此領域自我實現其可能性的廣度。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG10
2021	Undergraduate	1	A	氣象與災變天氣(自然)	Meteorology and Severe Weather	Provide student basic concept of meteorology and environment. including climate change , global warming , sustainable development. climate change and severe weather of Taiwan. and then to love earth and Taiwan in final. The teaching objectives: understand the basic concepts of meteorology and the main severe weather in Taiwan(typhoon, drought, cold wave,mud-flow..etc) Talk about the causes and impact of related disasters, Establish disaster prevention concepts from the aspects of usual preparations disaster response, and post-disaster reconstruction；Build risk manage capabilities in the fact of severe crises.	本課程旨在藉由全球環境問題和對策、氣候變遷、全球暖化、臭氧破洞、酸雨、聖嬰現象，環境的衝擊，人與自然之互動（環境保護和生態保育），綠色思想和科技，以及永續發展等課題之導引和探討，使學生瞭解全球變遷乃為跨國性、跨世代和跨領域之科學，地球村公民維護地球環境必備之知識。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG7、SDG11、SDG13、SDG15、SDG17
2021	Undergraduate	1	A	氣象與氣候變遷(自然)	Meteorology and Climate Change	provide student basic concept of meteorology and environment. including climate change , global warming , sustainable development. climate change and severe weather of Taiwan. and then to love earth and Taiwan in final.	本課程旨在藉由全球環境問題和對策、氣候變遷、全球暖化、臭氧破洞、酸雨、聖嬰現象，環境的衝擊，人與自然之互動（環境保護和生態保育），綠色思想和科技，以及永續發展等課題之導引和探討，使學生瞭解全球變遷乃為跨國性、跨世代和跨領域之科學，地球村公民維護地球環境必備之知識。 本課程亦重點介紹氣象學概論、包含氣象因子與大氣輻射、大氣的水分、大氣的水平運動、大氣環流、熱帶氣旋、天氣分析與發展和資料觀測以及氣候變遷與災變天氣，兼具基礎性與實用性。特別強調台灣氣候變遷與衝擊，以培養學生立足台灣胸懷世界，以期邁向地球永續發展，屬博雅領域之自然科學課程。	2	Elective Course	共同教育中心博雅教育組	SDG
2021	Undergraduate	1	A	傳承與創新--王光祥講座(全球)	Inheritance and Innovation	1. to combine theoretical and practical experiences to cultivate a broad perspective in students. 2. to enable students to understand the mechanisms and trends of contemporary social development in Taiwan through the discussion of practical cases. 3. enriching students' knowledge and experience, strengthening their understanding of the world and increasing their appreciation of the meaning and value of life	1. 結合理論與實務經驗探討、培養學生具備廣闊視野。 2. 實際案例的多元討論，讓學生了解當代台灣社會發展機制及趨勢。 3. 豐富學生的知能與經驗，強化對世界的理解、增加對生活意義和價值的體悟	2	Elective Course	共同教育中心博雅教育組	SDG1、SDG4、SDG16、SDG17
2021	Undergraduate	1	A	刑法概要(民主)	A Summary of the Criminal Law	This course provides students with an understanding of the fundamental concepts, guiding principles, effects and application of criminal law; and an overall awareness of the types of offences, the basis of judgement of culpability and doctrine	藉由本課程使學生理解刑法基礎概念、指導原則、效力與適用關係；並對犯罪類型、罪責判斷基礎、學說有整體認知。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG5、SDG6、SDG10、SDG11、SDG16
2021	Undergraduate	1	A	臺灣文化史(歷史)	Cultural History of Taiwan	This course is designed to help students understand the history of Taiwan over the past 400 years. This course aims to provide students with an overview of 400 years of Taiwanese history, including important people, events and the evolution and importance of history, and to help them analyse the various national and international issues facing Taiwan at the time. This course is a basic training course in Taiwanese history, providing students with knowledge of Taiwanese history and culture, with the aim of helping them to understand Taiwanese culture and to recognise the strengths of their own culture. It aims to help students to understand Taiwan's culture and to affirm their own cultural superiority.	生於斯，長於斯，不可不知台灣事。本課程旨在幫助修課同學瞭解四百年台灣歷史的梗概，包括重要人物、事件以及歷史的沿革與重要性，裨益同學分析當前台灣所面臨的國內和國際的種種問題。本課程屬於台灣歷史的基礎訓練課程，主要提供台灣歷史與文化的知識授與學生，旨在幫助學生瞭解台灣文化，進而肯定自身文化的優越性。增進學生對於台灣文化發展的瞭解，透過各個不同時期的歷史文化，使學生明白台灣文化的多樣性，進而凝聚「軟實力」的向心力量。	2	Elective Course	共同教育中心博雅教育組	SDG3
2021	Undergraduate	1	A	海洋文化與城市歷史(歷史)	Ocean Culture & City History	Marine Culture and Urban History is an emerging and comprehensive discipline that encompasses both humanities and social sciences and fundamental theoretical disciplines, and has significant academic value and potential for development. This course aims to help students understand the impact of maritime culture on urban history, including its history, events and so on, and to help them understand the various issues of maritime countries, so that they can understand the diversity of maritime culture and build up their "soft power" for future cultural and creative endeavours or tourism.	海洋文化與城市歷史是一門新興的綜合性學科，既包含了人文科學，也包含了社會科學與基礎理論學科，具有重要的學術價值和發展潛力。本課程旨在幫助修課同學瞭解海洋文化對城市歷史的影響，包括歷史的沿革、事件等等，裨益同學了解海洋國家的種種問題，使學生明白海洋文化的多樣性，進而凝聚未來從事文創或觀光的「軟實力」。	2	Elective Course	共同教育中心博雅教育組	SDG11、SDG14
2021	Undergraduate	1	A	永續發展保護環境與健康(自然)	Sustainable Developmental Coals for Protecting Environment and Human Health	Through the concept of "sustainable development" and the two main themes of "environment" and "health", this course enables students to understand the relationship between environment and health, identify the impact of environmental hazards on health, and discuss how to control environmental pollution and promote health.	透過「永續發展」（sustainable development）的概念，以「環境」與「健康」這兩大主軸議題，讓學生瞭解環境與健康之關係、辨識環境危害物對健康之影響，並探討如何控制環境污染的方法與促進健康。	2	Elective Course	共同教育中心博雅教育組	SDG3、SDG4、SDG6、SDG7、SDG11、SDG12、SDG13、SDG14、SDG15、SDG16
2021	Undergraduate	1	A	巨量資料分析與應用(全球)	Big Data Fundamentals	This course will provide a quick overview of Big Data related technologies, develop students' thinking on data analysis, establish the basic concepts of data science and Big Data data exploration, combine with industry case studies and practical work, and enable students to establish an overview of the industrial applications of Big Data.	本課程將針對大數據相關技術進行快速瀏覽，並培養學生數據分析思維，建立資料科學與大數據資料探勘的基本概念，結合產業案例的分析與實作，讓學生對於大數據的產業應用能建立概觀。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG9、SDG11、SDG17
2021	Undergraduate	1	A	海洋永續在地參與(自然)	Local participation in marine sustainable development	The SDGs are important development guidelines for international society, public participation is a key action to achieve the SDG 14 (marine sustainable development). This course will be of considerable value to students who desire to learn about the capacities and skills to involve in marine sustainable issues. Besides, we also provide cases to enhance students' motivation and basic ability to participate in sustainable activities	SDGs永續發展目標是當前全球依循的發展方向，SDGs 14所關注海洋資源永續利用更需要所有人參與。本課程著重在如何實踐海洋永續利用，以及在地參與的管道與方法。藉由案例提升學生參與公海洋永續活動的動機與基本能力，貢獻自身所學與技能在海洋永續議題。	2	Elective Course	共同教育中心博雅教育組	SDG14

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	生涯規劃與投資理財(全球)	Life Planning & Investment Management	To guide students to develop a positive outlook on life and values, and to lead a life that they enjoy and contribute to their surroundings.	引導學生建立正面的人生觀及價值觀,過一個自己喜歡又對周遭有貢獻的人生.	2	Elective Course	共同教育中心博雅教育組	SDG2、SDG3、SDG4、SDG5、SDG9
2021	Undergraduate	1	A	世界名歌欣賞(經典)	An Appreciation of The World Famous Songs	1. This course is an interactive and life-like introduction to the classic series of songs from around the world, exploring their musical connotations and diverse styles. The course introduces the songwriting styles inspired by different countries and languages and the factors that have influenced the development of songs, with the aim of developing appreciation and singing skills. 2. Learn the pronunciation of the lyrics of classic songs from different countries through fun and practical exercises, gaining experience and learning the basic pronunciation of various languages and understanding the artistic beauty of the combination of words and songs. 3. Students will learn about the various types and vocal styles of the world's most famous songs, so that they can feel a sense of kinship with the places where they live and grow up, and develop a love of the land to which they belong and an international world view. 4. The introduction of songs in different singing styles and group activity reports in the classroom present the beauty and artistry of different song voices, which will be useful for the students' life adjustment and future vocational learning skills orientation.	1.本課程以互動式、生活化介紹世界各地名歌之經典系列介紹，探討其音樂藝術之內涵及其多樣貌風格。介紹不同國家、語言所激發出的歌曲創作，其影響到歌曲之發展因素等，藉以培養鑑賞能力及歌唱技能之素養為導向。 2.從趣味化的實際習唱中，學習到不同國家經典名歌中其歌詞語言的發音，從中獲取經驗的累積，能學習多種語言之基本發音，了解到歌曲的詞與曲結合過程中所呈現的藝術之美。 3.認識世界名歌各種類型、聲樂演唱方式呈現，使學生與其生活、生長背景之鄉土具有親切感，更能產生認同歸屬的土地之愛與國際世界觀。 4.從不同的演唱方式之歌曲介紹與課堂分組活動報告，呈現出不同的歌謠聲音之美與藝術化的境界，對於學生生活調劑及未來就職學習技能導向皆能有所助益。	2	Elective Course	共同教育中心博雅教育組	SDG3、SDG5、SDG17
2021	Undergraduate	1	A	音樂劇場(經典)	The Theater of Music	1.To approach the Art of Theater include of music forms, facility, backstage crew, different Theater performance stage….etc, to their appreciation with open minds and open ears. 2.To know the essential elements of Theater performance space from various stages, the evolution history of Opera Vs. Musical Theatre. The Theatre of dance with the body movement, music of tempo, melody, emotion. Animation film in music express the magic power attractive. Traditional music with the Theater perform to the folk theme of soul. 3.Form different kind of The Theatre of Music to know－literature and theatre, Classical music , popular music , Traditional music, as well as designs and expenses, have the good fun and intensive appreciation life. 4.The Theater games for improving creation by team work arrangement, this course aims to cultivate students' ability to body reaction, memory, concentration, imagination, body relaxing, improving student to learn and have	1.認識經典劇場之藝術形式、演出，各式舞台的種類名稱，藉以培養學生欣賞能力的建立。 2.學習到劇場美學涵蓋音樂元素的多元展演空間，如歌劇、音樂劇的比較及其演變發展的歷史，舞蹈劇場肢體與音樂節奏、線條、旋律情感的相關性，動畫電影配合音樂魔力吸引人的魅力風情，地方劇種中戲曲音樂又為其靈魂的主體。 3.從諸多的音樂劇場中認識各種風格的音樂類型、動聽的歌曲，從中認識文學與戲劇、古典音樂、流行音樂、傳統音樂間的互動，進而使其生活能活潑化，且能有豐富的欣賞饗宴。 4.安排創作性戲劇課程訓練分組活動進行，以遊戲為目標，激發身體的反應，對於學生	2	Elective Course	共同教育中心博雅教育組	SDG3、SDG5、SDG17
2021	Undergraduate	1	A	物聯網實務應用(科技)學分	Practices for Internet of Things	With control system from Internet of Things, this class will guide the attendee to create a practical system. In this class, Raspberry will be the target system, besides, web, database, Restful API will also be applied as control system. Then we will have a practical system in the end of the class, attendee can combine the subjects in their focus to define the final project.	本課程旨在引導同學了解物聯網的架構，並學習以物聯網的控制裝置(本課程會以Raspberry作為練習裝置)製作出可控制各種感應器的系統，再搭配網站與資料庫、Restful API、App, 製作出可透過手機遙控的物聯網系統，該系統可以依照修課同學的科系訂定題目，結合不同系所的主題進行發揮。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG7、SDG10、SDG13、SDG17
2021	Undergraduate	1	A	海洋環境體驗與影視創作(人格)	Marine Environment Experience and Film Creation	Combining the issues of ocean, society and humanity, the student"s team will work with the spirit of cooperation to create a documentary that incorporates aesthetic and affectionate attitudes.	結合海洋及社會人文相關議題，發揮學生團隊合作精神，製作融入美感與情意態度的紀錄片。	2	Elective Course	共同教育中心博雅教育組	SDG11、SDG12
2021	Undergraduate	1	E	人工智慧概論	Introduction to Artificial Intelligence	This course covers fundamental theories, operation principles, and cutting-edge research in artificial intelligence.	本課程旨在介紹人工智慧的發展與應用。修課同學在課程結束後會對人工智慧技術有基本的認知。	2	Required Course	共同教育中心博雅教育組	SDG3、SDG 4、SDG 7、SDG 11、SDG17
2021	Undergraduate	1	A	海港城市與文化(人格)	Seaport City and Its Culture		本課程旨在透過對臺灣與中國不同海港城市的歷史發展與文化內涵之說明，呈現海港城市因不同歷史經驗形塑出之多元文化特色與包融整合風格；期望學生由此掌握近代外力入侵造成開港之城市，其以往狀況與後來發展情形，並比較不同海港城市的同質性與差異性，作為現況觀察及未來展望之參考依據。課程設計主要選擇基隆、上海兩大城市為標的，將兩個海港城市之歷史發展過程，及該城市最重要之社會與文化內容予以詳細介紹及深入分析說明，顯示其重要歷史意涵與多元文化價值觀。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	A B	中國社會史(歷史)	History of Chinese Society		本課程旨在透過數種不同性質與模式的社會運動，呈現傳統中國社會中的四民大眾對生存環境不滿而產生的反抗行動或自力救濟行為。同學可因此對若干個案有較深入地了解，並藉此吸取經驗，以為檢視當今社會運動的參考。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG10、SDG11、SDG16
2021	Undergraduate	1	A B	中國文化史(歷史)	History of Chinese Culture		本課程旨在透過各個專題探討傳統中國文化的發展與演變，使學生對傳統中國文化的特色及若干面相能有較深入而廣泛地瞭解，並藉此吸取經驗，以為檢視當今社會文化的參考。課程設計除導論外，分為政治（制度）、社會（階層）、經濟（生計活動）及思想（科技）四大領域，自各領域中選擇重要課題予以說明。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG11、SDG16
2021	Undergraduate	1	A	西遊記精讀(經典)	Deep Exploration on the Story of "Pilgrimage to the West"		1、通過對《西遊記》文本內容的欣賞，初步能夠親近經典，進而感受中國古典小說名著的豐富性和創意性。 2、透過對文本的閱讀，進而對小說創作的技巧與方法有所理解，並培養同學鑑賞與分析的能力。 3、針對《西遊記》一書的內容，能帶領同學感受古代生活中的人文精神，並進而內化成為厚實個人生命的能量。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG16
2021	Undergraduate	1	A B	世界文明與發展(全球)	Civilizations and Development of the World		立足台灣、放眼世界，如何以更開闊的視野面向世界，是台灣世界文明課程的重要主題。本課程將簡明扼要地介紹世界文明的特色與精髓，經由客觀理性的文化認知，豐富學生的世界觀。 本課程設計為一學期課程；從浩瀚的世界歷史當中，選擇八個具有代表性與歷史意義的主題，做精要的介紹。其中包含與歐洲文化起源有關的四個古文明：西亞、埃及、希臘、羅馬；以及四個與西方現代性的產生，有著密切相關的文化：中古文化、文藝復興、近代都市文化、啟蒙運動。希望透過古文明與現代性的鋪陳，依循從古而今的時代脈絡，拓展學生視野、增進對世界的瞭解。	2	Elective Course	共同教育中心博雅教育組	SDG5、SDG10、SDG16、SDG17
2021	Undergraduate	1	A B	近代中外關係史（歷史）	History of Modern Sino--foreign Relationship		自鴉片戰爭以降，中國遭遇五千年未有之大變局。傳統中國自成體系的天下觀，與西方列國制度下的國際觀，發生碰觸與摩擦。經由一連串的戰爭與外交，中國被迫走出原有的世界，承認西方國際法觀點，成為條約體系的一份子。本課程目標即在透過簡明扼要的史實陳述，鋪陳出近代以來中國與西方國家接觸的真實歷程。 本課程為一學期課程，著重晚清時期的中外關係，探究列強如何在將中國納入條約體系的同時，樹立在華的特權。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG10、SDG16、SDG17
2021	Undergraduate	1	A B	東亞海權發展與演變(科技)	Development and Change of Sea Powers in East Asia		控制海洋等於控制世界。古往今來，東亞海權爭奪，誰領風騷？蒙古鐵騎曾經橫掃歐亞大陸，無人敢攖其鋒，自信滿滿的蒙古人，不以陸上霸主為滿足，也曾建起巨艦、張帆邁向海洋。明朝鄭和下西洋時所率領的龐大海軍艦隊與貿易商隊，遠航至印度、阿拉伯半島，以至於東非，更是跨時代的創舉。鄭和的艦隊，無疑告訴世人，大明帝國是當時全世界最強大的海權國家。之後，隨著大航海時代的來臨，西方的歐洲人，擺脫陸路的重重限制，航向大海，來到東方，既追求商業利益，也競逐東亞海權的領導地位。從此，亞洲不再只是亞洲人的亞洲，新的東亞海權格局於焉開展。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A B	中日關係史(歷史)	A History of Sino-Japanese Relation		過去二千年來的中日關係，日本受惠於中國者甚厚，但自日本明治政府成立（1868年）以後，以殖產興業、富國強兵作基本國策，並且由富國擁有強大的軍隊，進而邁向世界強國，中國卻開始飽受日本之害，此因中國不瞭解日本之故。更且，近年來日本學者研究中國（台灣）者頗為豐碩，但台灣之學者研究日本者特少，因此大學的歷史課程中則不可或缺。是以，透過是項課程的教學，讓學生對於日本歷史的發展以及文化特色等有所認識。進而以增進中（台）、日兩國之間的瞭解與互動，建立雙方的友好關係，此為是項課程教學之計畫及目標。	2	Elective Course	共同教育中心博雅教育組	SDG10、SDG17
2021	Undergraduate	1	A B	臺灣海洋文化與觀光產業(人格)	Taiwan Oceanic Culture and Tourism Industry		臺灣是西太平洋上的島嶼，海島的地緣關係、地理條件、海岸港口、洋流潮汐、產業經貿、渡海移民等諸多歷史因素，建構出臺灣海洋文化的特質。但由於自1987年解嚴之後，臺灣本土意識以及臺灣海洋文化才受到重視，海洋觀光休閒活動也在這之後逐漸被國人注意。因此臺灣海洋文化的內涵以及與觀光之間的相互關係，需要瞭解與認識。是以期望能透過本課程的教學，讓學生瞭解臺灣在地的海洋文化特性；並與觀光活動結合，以提振臺灣海洋文化特色的觀光活動。	2	Elective Course	共同教育中心博雅教育組	SDG3、SDG 11、SDG12
2021	Undergraduate	1	A	海巡法規概要(民主)	Introduction to Coast Guard Law		使學生能夠初步了解我國海巡署執行任務之相關法源依據、安檢勤務執法準則、培養學生基礎海洋事務法令智能外，使其奠定投入海巡相關職場時，能對基礎實務問題有所認知與應用。[修習本課程可增加同學未來準備海巡特考、一般警察人員考試水上警察職科(航海組、輪機組)裡之單科專業考試科目(海巡法規)上，能夠更加得心應手!	2	Elective Course	共同教育中心博雅教育組	SDG16
2021	Undergraduate	1	A B	性別平權教育(民主)	Education of Gender Equality		1.瞭解性別平權的重要性，同時藉由性別平權發現人權的多樣面貌，以及在全球化脈絡下思考如何看待性別及其轉變。 2.透過多元評量方式評量學生的學習過程。 3.透過願景工作坊養成學生批判、思考及創造能力。	2	Elective Course	共同教育中心博雅教育組	SDG5
2021	Undergraduate	1	A	漁村學習與公民行動(民主)	Learning and Civic Action of Fishing Viliage		1.培養學生對海洋人文相關議題的關注與公共事務參與的態度與熱情 2.培養學生獨立思考及將知識轉化為具體行動策略之能力 3.培養學生具備民主機制操作的能力 4. 培養學生成為一個具有行動力的海洋公民	2	Elective Course	共同教育中心博雅教育組	SDG14、SDG 17
2021	Undergraduate	1	A	《論語》人文思想的現代解讀 (經典)	Contemporary meaning in the Analects of Confucius		經由對經典性文獻的研討分析過程，使學生熟悉人文思維的程序與方法，對人文傳統有深一層的認識。並經由課堂討論與報告寫作，一方面增長學生的思考及表達能力，一方面促進學生能反思己身之生命處境，及待人處事之態度，使經典思想得以融入個	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG10
2021	Undergraduate	1	A B	文化創意產業發展(全球)	Development of Cultural Creative Industry		使學習者了解文化創意產業發展、創意思考、創意元素與產品開發、海洋文創產品設計、台灣文化創意產業政策及發展的重要知識，並深入探討文創產業發展案例（包括視覺藝術、音樂及表演藝術、文化資產應用及展演設施、工藝、電影、廣播電視、出版、廣告、產品設計、視覺傳達設計、設計品牌時尚、建築設計、數位內容、創意生活、流行音樂及文化內容…等產業）。	2	Elective Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	A B	新能源與環境治理(科技)	New Energy and Environmental Governance		1. 使學習者了解全球氣候變遷、環境治理、新能源發展與技術、各國新能源發展經驗與限制等知識，並反思台灣的發展經驗，引導學生從「科技的社會形塑」觀點，去探討與思辯綠能科技發展與人類社會的互動影響。 2. 使學習者於期末針對各國新能源發展提出個案報告（日本、德國、丹麥、英國、美國、中國大陸、南韓、印度、法國、巴西…等國家），提升學生對於未來就業職場及綠能產業技術實務的理解與認識。	2	Elective Course	共同教育中心博雅教育組	SDG7、SDG13
2021	Undergraduate	1	A	海洋生態與經濟永續發展(科技)	Sustainable Development of Marine Ecology and Economics		海洋面積3.6億平方千米，約佔地球面積5.1億平方千米的70.8%，蘊藏豐富的自然資源量，世界各主要海岸國家不但視"21世紀是海洋的世紀"，並積極發展以海洋、島嶼及海岸為主體的海洋經濟產業。臺灣四面環海，所管轄的海域面積約17萬平方公里，為陸域面積3萬6千餘平方公里的4.72倍，擁有豐富的海洋資源與海岸環境。海洋與臺灣的經濟活動有著很密切關係，諸如糧食安全、貿易、運輸、造船、觀光休閒等。海洋與我們的生活息息相關，惟目前海洋面臨許多危機，包括過漁(Overfishing)、不負責任的養殖漁業(Irresponsible Fish Farming)、幽靈撈捕(Ghost Fishing)、垃圾(Garbage)、酸化(Acidification)、死海(Dead Zones)、汞污染(Mercury Pollution)、海上鑽油(Offshore Drilling)、濫捕鯊魚翅及鯨魚(Shark Finning/Whaling)，使得如何對海洋生態合理利用、保育與管理，是海洋永續發展的重要議題之一。本課程之教學目標即是希望學生能瞭解海洋生態的現況，以及其面臨之問題與管理策略。另一方面，不論是社會群體或個人，每天皆有經濟問題與行為發生，舉凡市場、供給、需求、時間分配、公共決策、環境污染等問題亦是本課程所希望探討的範圍。課程將以深入淺出的案例分析討論，藉此訓練學生如何將其實際運用於日常生活之中，以期未來投入相關行業或研究領域	2	Elective Course	共同教育中心博雅教育組	SDG11、SDG12、SDG14
2021	Undergraduate	1	A	台灣之美(人格)	The Beauty of Formosa	This course is designed as the introduction to the multifaceted beauty of Taiwan. This course will enable students to appreciate the various aspects of Taiwan's culture and famous tourist attractions. By the completion of this course, the student should be able to: - Understand the historical development and geographical location of Taiwan; - Appreciate the distinctive nature of Taiwan's food culture;		2	Elective Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	A	永續發展EMI - 與臺灣相遇：一場文化與人文的體驗行銷(人格)	Encounter with Taiwan: an experiential marketing of culture and humanities	Students can actually experience Taiwan's humanities, history, and natural customs through lectures, practical visits, and through the five senses to learn about Taiwan's past, history, the people and affairs of Taiwan now, and the growth momentum of Taiwan in the future.	課程特色是讓學生可以經由專題演講、實務參訪以及經由五感來來實際體驗臺灣的人文、歷史與自然風情，讓學生能夠知道臺灣的過去的歷史、臺灣現在的人事物，以及未來臺灣的成長動力，是一門理論與實務並重的跨領域科目。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG11、SDG12、SDG14、SDG15、SDG17
2021	Undergraduate	1	A	問題分析與解決方法(科技)	Innovation Problem Analysis and Solution Method	Faced with the rise of AI, enterprises are faced with a rapidly changing environment. In the competitive environment of pursuing quality and service, how to achieve sustainable operation and create reasonable profits is an important management issue. How to enable enterprise members to improve human quality, improve overall team, strengthen the organizational ability and improve competitiveness through the training courses in problem analysis and solving activities, problem analysis, and solution methods are very important. This course will build students' ability to think and analyze problems and help students develop problem-solving skills.	面對AI的崛起，企業面臨快速變遷的環境，在追求品質服務至上的競爭環境下，企業要如何達到永續經營，創造合理利潤的目標就是一項重要的管理課題。如何讓企業成員能夠透過問題分析與解決活動的訓練課程，以達到人力素質提昇、全面團隊改善、強化組織能力以致提高競爭力，問題分析與解決方法就很重要。本課程將建構學生問題思考與分析的能力，並協助學生具有解決問題方法的能力。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG10、SDG11、SDG12、SDG17
2021	Undergraduate	1	A	中國崛起與新大國關係(民主)	Rising China and New Great Power		美俄歐或世界可適應變強後的中國嗎？百年的苦悶與夢想 自甲午戰爭，中國悲憤發願重建作為強國的地位。今天，無論是中國人還是世界其他各國，正面對中國崛起的新情勢。和平崛起或者中國威脅論？本課程以此為焦點培育公民意識與民主相關思考能	2	Elective Course	共同教育中心博雅教育組	SDG16、SDG17
2021	Undergraduate	1	A	韓國的性別意識與文化變遷(人格)	The Gender Consciousness and Cultural Change in South Korea.		由多部電影等媒體，探討韓國的性別關係及其與相關文化之扣連。涉及韓國文化與我國文化差異之認識，故歸類於此所選之領域別。本課程之教學目標在於，藉電影等媒體，培養並反省批判學生在我國既有的性別意識，藉由與東亞鄰國，韓國，在同與異方面的比較而能有綜合性的新認識。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG5、SDG10
2021	Undergraduate	1	A	全球化、朝聖與旅遊(全球)	Globalization, Pilgrimage and Tourism		以全球性的角度，廣泛對旅遊進行人類學與社會學論述。人們怎樣短期離開自己日常工作和生活的地方。 在西元前8 世紀興起宗教朝聖旅行，古埃及規模隆重的慶典，尼羅河沿岸各國的朝聖者順江而至；希臘的奧林皮亞節盛典，更是讓宗教朝覲逐漸成為了一種世界性的活動；還有盛行於中世紀時期的伊斯蘭教徒去參加朝聖，基督教徒去耶路撒冷、羅馬和聖地牙哥朝聖，本課程亦一併探討。	2	Elective Course	共同教育中心博雅教育組	SDG10、SDG16、SDG17
2021	Undergraduate	1	A	戰爭、武器、流亡詩人與全球公民(科技)	War, Weapons, Poets in Exile & Global Citizenship		戰爭與槍炮的傳播與管制已成國際重視的大議題，尤其是武器科技的發展大大改變了現代戰爭與戰略。本課程討論人類如何由早期的武器發展至今天的資訊戰與空天，空海一體戰。但許多媒體仍以渲染戰爭為重點，本課程串連文獻與戰爭、武器，提升學生對武器科技與和平反思的重視，增進對全球公民的認識。	2	Elective Course	共同教育中心博雅教育組	SDG16、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	性別、身體與意識型態(科技)	Gender, Body and Ideology		在近代的醫療科技與生命科學觀點下，人體結構及功能通常被認為基本上是舉世相同、全球一致的。一旦回顧性別與身體之歷史，便不禁有所動搖。不同傳統對於身體的敘述通常有如在描述彼此相異、而且幾乎毫不相關的世界。西方身體觀與醫學史於近代如何建構一種客觀的身體，如何藉由近代科學的經驗主義與實證主義，打造出了意識形態，課程將予以解析，並就中國與西方身體觀與醫學史及哲學在觀念方向上的歧異，指出理解性別與科技之社會實踐的差異觀點。	2	Elective Course	共同教育中心博雅教育組	SDG3、SDG4、SDG5
2021	Undergraduate	1	A	海洋觀光旅遊實踐與規劃(人格)	Marine Tourism Practices and Plan		1.瞭解永續觀光發展的概念。 2.瞭解和平島人文與自然資源。 3.瞭解國內外旅客休閒與觀光需求。 4.能夠應用自身專長規劃和平島國際旅遊島推動方案。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG9、SDG11、SDG12、SDG14
2021	Undergraduate	1	A	海洋事務概論 (全球)	Introduction to Marine Affairs		台灣四面環海，國家安全、經濟發展與民眾福祉都與海洋息息相關，近年來海洋的永續管理逐漸受到重視，本課程的目標，旨在呼應國內外情勢，提供學生對於海洋事務全盤的概念，包括國際間相關海洋管理法規、組織運作，以及國內的海巡政策、海洋保育、產業經營，著重理論與實務的結合，並激發學生思考、分析、討論和表達的能力，以培養未來參與國家海洋事務的能力。	2	Elective Course	共同教育中心博雅教育組	SDG12、SDG13、SDG14
2021	Undergraduate	1	A	硬筆書法與書道美學(美學)	Hardnik Calligraphy and Aesthetics of Traditional		課堂透過範例介紹與實務操作，讓同學具備掌握文字書寫的基本美學觀與鑑賞能力，並透過硬筆書寫帶入文字造形、線條與空間美學，同時賞析歷代書法名家之古典與經	2	Elective Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	臺灣美術與社會(美學)	Taiwan Art and Society		課程以日治前、後的臺灣美術為目標，探討本土藝術家於前者移民美術，和後者殖民美術的深耕與發展，再從日治臺灣美術看日本、西洋美術史，可發現臺灣透過日本來理解歐洲後期印象派以後的風尚，並能銜接對西洋美術的理解，進程探討臺灣現代與當代藝術與社會、區域的美學。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	A	跨場域藝術表達(USR)(人格)	Cross-Field And Artistic Expression(USR)		1.場域的移動教學外，透過藝術的觀察和實踐進行跨領域思考與表達。 2.「取之於自然用之於自然」：裝置藝術的里山、里海倡議。 3.透過裝置藝術表達議題；利用綜合媒材的藝術創作為議題敘事力。 4.培養大學生的社會責任和聯合國「永續發展目標」（SDGs）素養。 5.課程融合美感、生態和公民教育。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG11、SDG14、SDG15
2021	Undergraduate	1	A	藝術敘事力（USR）（美學）	Art Narrative（USR）		1.場域的移動教學外，透過藝術的觀察和實踐進行跨領域思考與表達。 2.「取之於自然用之於自然」：裝置藝術的里山、里海倡議。 3.透過裝置藝術表達議題；利用綜合媒材的藝術創作為議題敘事力。 4.培養大學生的社會責任和聯合國「永續發展目標」（SDGs）素養。 5.課程融合美感、生態和公民教育。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG11、SDG14、SDG15
2021	Undergraduate	1	A B	傳播技能-媒體聲音表達專題(美學)	Communication Competencies-Speaking Voice Training Programs		本課程目標在於培養學生對於數位匯流趨勢之媒體聲音產業生態現況及未來發展有所瞭解，訓練具備製播聲音媒介內容之技巧與專長，除啟發學生對媒體聲音創意設計及表達，更進一步具備聲音媒介內容企畫/製作/主持/配音/聲音表演等所需之條件與實務能力，得以靈活應用於其不同專業領域工作，開展相關潛力與傑出要件。	2	Elective Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	傳播技能 - 新聞採訪寫作(民主)	Communication Competencies - News Reporting and Writing		本課程主要採課堂講授、實作示範與解析、隨堂/分組討論、專題報告、新聞現場採訪寫作、實作評鑑、名人專題演講、媒體參訪、採訪寫作評鑑等多元方式進行教學，主要培養並增進「非新聞傳播科系」學生具備媒體製作所需之組織企劃、採訪、寫作、表達等基本技能及要件，使「非新聞傳播科系」學生學習得以專業製作成果內容廣	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG5、SDG10、SDG16
2021	Undergraduate	1	A	傳播技能 - 海洋新聞採訪寫作(民主)	Communication Competencies-Ocean News Reporting and Writing		本課程指導修課學生海洋新聞實作，具體掌握不同媒體特性，學習判別海洋相關新聞線索、企劃前置、消息來源/佈線、採訪設計/提問、新聞寫作及新聞處理模式等，並於各階段學習告一段落，透過實作/評鑑強化學習成效，提升修課學生新聞採訪寫作專業能力，尤其聚焦培養海洋新聞內容產製能量，以期未來產製出精準、邏輯完整、具深度、意義與價值之海洋新聞專題報導，有效提升海洋議題影響性。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG14
2021	Undergraduate	1	A	微生物與疾病((科技)	Microbes and diseases	This course aims to give a general understanding of microbial pathogens of human,infectious diseases, and disease transmission in a perspective of public science, which could help to enhance the awareness of public health.	使學生對造成人類疾病之微生物有更多認識，了解疾病的發生與傳播，提升健康維護與公共衛生意識。	2	Elective Course	共同教育中心博雅教育組	SDG3、SDG11
2021	Undergraduate	1	A	聽覺識別與流行創作(美學)	Music Recognition and Song Writing		本課程引導及培養學生建立在音樂調性上使用聽覺分辨其不同頻率的確切位置，以達成對流行歌曲及流行音樂進行寫作的能力，具有敏銳的音頻正確性聽覺辨識是一項在於音樂寫作上必備的條件，課程採用各種範例工具提升學生建構此條件並進而可嘗試自行創作，達到產生個人獨特作品為本課程實現實務的目標。	2	Elective Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	基礎小提琴演奏與聽覺應用藝術(美學)	The art of basic violin technique and aural application		本課程將基礎音樂素養包含：鑑賞、聽力訓練、基礎樂理及樂器演奏...等融為一體，搭配本校教學中心所提供之學生自製小提琴，從小提琴訓練中培養音樂鑑賞、解析以及練習演奏之能力，目標指向為拓展學生對於音樂美學之認知以及透過演奏練習更為貼近音樂實務本質。 透過小提琴基礎演奏訓練以及曲目聆聽分析，建立學生對於音感與美感的認知，並且以準確的練習方式以及自我分析能力為主，旨在希望學生修習課程完畢後，能掌握全	2	Elective Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	原創電影數位音樂音效設計製作〈美學〉	Digital Sound, Music and Film Production		1. 發展學生數位音效理論認知。 2. 發展學生數位音樂原創概念認知。 3. 培養學生數位音效專業技術。 4. 培養學生數位音效環境製作應用化模擬技術。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG9、SDG12
2021	Undergraduate	1	A	氣象與氣候變遷(自然)	Meteorology and Climate Change	provide student basic concept of me4teorology and environment. including climate change , global warming , sustainable development. climate change and severe weather of Taiwan. and then to love earth and Taiwan in final.	本課程旨在藉由全球環境問題和對策、氣候變遷、全球暖化、臭氧破洞、酸雨、聖嬰現象，環境的衝擊，人與自然之互動（環境保護和生態保育），綠色思想和科技，以及永續發展等課題之導引和探討，使學生瞭解全球變遷乃為跨國性、跨世代和跨領域之科學，地球村公民維護地球環境必備之知識。	2	Elective Course	共同教育中心博雅教育組	SDG1、SDG2、SDG7、SDG11、SDG13、SDG17
2021	Undergraduate	1	A	面對AI智能機器人的時代(科技)	Facing the era of AI intelligent robots		課程目標希望學生聽聞此一專業從過去、現在的概貌來看未來，並針對各科系專業方向來講述、推演、遙想、討論...，甚至大至一國之廣大無盡的需求，直至如地球暖化、氣候變遷的根本源頭：全球人口爆增等，提供了解方的期望等等，提醒大學生該去面對，並終身思考那無窮想像的空間，養成在學校以至出社會都必須隨時觀聽反應這件事，才不致被殘酷淘汰，反能在各行各業永遠站在世代的前鋒。值此之際，期望本通識課程開啓學生耳目，依據教材的初步整理分類，激盪自我活潑的思想，延伸在各系的專業學習，隨時操練天馬行空及如何自處的創意：如果AI機器人能...，me自然	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG8、SDG9、SDG11、SDG13、SDG17
2021	Undergraduate	1	A	混沌學入門(科技)	Introduction to Chaos	This course is to provide students a first contact with the most impact of new concept initiated at the end of 20th century upon the science history. It is the knowledge to deal with the chaotic phenomena which are non-predictable but not random and full filled in the nature. After the introduction of the astonishing development and wide influence in the past three decades, some basic and easy mathematics to disclose the world of non-linear dynamics will be included.	使學生接觸「充滿自然界中不可預測但非隨機之混沌現象」，認識二十世紀末開啟的人類科學史上最具衝擊性的新觀念。在綜覽此一新興科學近三十年的驚人發展過程和廣大影響層面之後，進而學習以淺近的數學方法來剖析混沌現象的非線性動力內涵，並經由電腦推算及繪圖來觀察混沌現象背後過去不為人知的美妙碎形世界。	2	Elective Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	海洋資源的開發與保育(科技)	Exploitation and Conservation of Ocean Resources	This course focuses on the exploitation and conservation of the renewable and non-renewable resources from the ocean.	此課程聚焦在開發並保育來自海洋的可再生及不可再生的資源。	2	Elective Course	共同教育中心博雅教育組	SDG3、SDG6、SDG13、SDG14

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	海洋科技導覽解說與實習（I）(科技)	Guiding Technique of Marine Science and Technology（I）	National museum have the functions of exhibition, education, research and collection. Teaching Objective is summaries as follows: 1.Enable students to learn about the museum tour guiding and other related knowledge. 2.To enable students to understand and learn about the museum exhibition hall content, history of NMMST and other related knowledge. 3.To cultivate students to work in groups, carrying out reports and situational stimulation, so that students can understand the whole concept of guiding interpretation and reception servicing. 4.To study the design and evaluation of tour guiding activities. 5.To cultivate students to take part in the exhibition hall tour guide interpreter certified qualification.	國立博物館具有展示、教育、研究、典藏核心價值，亦屬國家科普教育機構一環。本課程之開設，期望達成以下教學目標： 1.學生學習海洋科技博物館歷史及展示內容。 2.學生學習由海洋專業知識轉變為科普知識之過程。 3.學生學習導覽解說的意義及實施方式。 4.培育學生取得海科館展示廳導覽員資格之能力。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG14
2021	Undergraduate	1	A	台灣政經發展與經驗（民主）	The Development of Politic and Economic Experience in Taiwan		配合時事，加強學生對台灣政治及經濟發展與經驗之瞭解與體認，並鼓勵青年學子發揮所長、回饋社會、奉獻國家。	2	Elective Course	共同教育中心博雅教育組	SDG3、SDG4、SDG8、SDG16、SDG17
2021	Undergraduate	1	A	三國志與三國演義(經典)	Orthodox History About The Three Kingdom Period & Romance of Three Kingdoms		一般人對三國歷史概念的建立大多依賴三國演義，三國演義的內容對中國人的生活、思維、人際關係、價值判斷多所影響，層面寬廣之外，猶穿越時空，現代流行的遊戲亦有以三國歷史為背景舞臺的。然演義是由民間形塑成的歷史，與正史由官方撰述成的歷史，多所差異。課堂上對差異形成的分析，將展現客觀歷史的抉擇與主觀願望的嚮往，大歷史的官方堅持與小歷史的民間力量等等，令學習者醒覺習焉不察的文化底蘊。 其次，以人物為經，以史事為緯，論述處亂世形形色色人物，在變化莫測世局的生命歷練，令學習者體悟生命的意義，返思人生的價值，進而學習觀察人性，以利立足社會。	2	Elective Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	基隆之美(人格)	The Beauty of Keelung City		透過對學校所在地基隆的自然、地理、人文、藝術等各方面的介紹，除認識當地的歷史文物之外，並引伸至環保、宗教、社會等議題，又著重採用美學觀念呈獻，是門結合鄉土、自然與美學的課程。藉著實地踏查體驗教學內涵，是門結合資料與實務的課	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	A	文化與社會(人格)	Culture And Society		文化是了解社會發展的一把鑰匙。有愈來愈多的學者認為，國與國間、不同民族間的發展差距主要源於他們不 同的文化價值觀，是這些價值觀左右了他們在政治及經濟上的發展。透過本課目的介紹，將可以幫助修課同學 培養多元、宏觀的視野，同時更進一步了解社會生活的意義。	2	Elective Course	共同教育中心博雅教育組	SDG1、SDG3、SDG8、SDG10、SDG16
2021	Undergraduate	1	A	廣告與台灣社會變遷(全球)	Advertising and Social Change in Taiwan		社會變遷是社會現象發生變化的動態過程及其結果，而廣告可以說是社會變遷的一面鏡子，提供給人們觀看整體社會變化的軌跡。本課程為有別於歷史編年式地介紹社會制度的變遷，爰以較為生動活潑的廣告發展，導入台灣社會自日治時代以來的整體變遷，希望能提高學生學習興趣。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG8、SDG12
2021	Undergraduate	1	A	智慧財產權法概論(民主)	Introduction to Intellectual Property Laws	Intellectual property laws mainly consists of Trademark rights, Copyrights and Patents Law. To help our students obtaining the relevant knowledge and cultivate the mind and the spirit of law-abiding, this class focuses on the scope, limits of Intellectual property rights and the reasonable access of its fair use.	立法院於民國九十六年一月九日三讀通過智慧財產案件審理法，同(九十六)年三月五日制定智慧財產法院組織法。智慧財產（Intellectual property）的法制化有助於社會經濟發展。然而，智慧財產在權利性質上也是一種對於智慧活動成果壟斷的特權；在專利法除罪化之後，刑罰的制裁仍存在於著作權法及商標法之中。值得反思的是，我國現行法律是否提供權利人過度的保護，造成人們在日常生活中動輒得咎，構成侵權。本課程除介紹現行法律對於著作權、商標權、專利權等相關規定，也嘗試從「合理使用」的角度檢視具體案例及爭議。期望藉由討論與對話，讓這門相當專業的法學課程，能應用及落實在日常生活中；也期使學生們在其各自的專業領域上，具備成為一個	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG10、SDG16
2021	Undergraduate	1	A	基本人權專題 (民主)	Seminar on Constitutional Rights	1. By means of human rights issues for discussion, we may learn the scope and the limit of particular identity-related Constitutional rights. 2. To see, in the Internet age, kinds of newly emerging human rights and its content. 3. To help our students obtaining the relevant knowledge and cultivating the mind and law-abiding spirit in this class.	1. 藉由人權專題認識我們日常生活中與自身息息相關的基本權利。 2. 瞭解網路時代，新興的基本權利及其規範內涵.。 3. 使同學們學到相關的知識和守法的精神。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG10、SDG16
2021	Undergraduate	1	A	里海與漁村:人與海的和諧共生(自然)	Satoumi and fishing village: harmony between humans and the sea	The main objectives of this course are to help students build basic knowledge for Satoumi concept and to realize the connection between humans and the sea. To achieve our main purpose of this course, case studies are conducted for helping students to understand the current status and issues of Satoumi in Taiwan. Moreover, students will gain capacities and skills of systematic thinking for planning fishing communities to achieve a harmonious situation between local people and the ocean.	本課程的目的是讓學生能夠理解里海的基本理念，重新建結人類與海洋的關係，從國內外的個案去理解里海的樣貌與脈絡。藉由本課程所讓學生近一步去獲取思考台灣的沿海漁村及依海而生的人們如何與海洋共存共榮。	2	Elective Course	共同教育中心博雅教育組	SDG11、SDG14、SDG17
2021	Undergraduate	1	A	現代藝術賞析(美學)	Appreciation of Modern Arts		1.提昇學生對藝術的藝術的興趣與涵養。 2.增進學生對現代藝術思潮的認識與批判的能力。 3.經由對現代藝術體驗與操作，可拓展其宏觀的心志。	2	Elective Course	共同教育中心博雅教育組	SDG2、SDG4、SDG5、SDG10、SDG13、SDG14、SDG15、SDG17
2021	Undergraduate	1	A	藝術欣賞與創作(美學)	Appreciation of Arts & Creation		1.認識藝術創作的多元與豐富。 2.實際體驗操作,培養表現能力。 3.透過對藝術認識與體驗學習對生命的關懷欣賞,與發揮創意。	2	Elective Course	共同教育中心博雅教育組	SDG4、SDG5、SDG10、SDG15、SDG17
2021	Undergraduate	1	A	書法藝術(美學)	Art of calligraphy		認識書法，如何看懂書法，如何欣賞書法。書法跟文學的互相結合、表達文字之美與文化之傳承。書法與文學的互相輝映，書法藝術的完美形式與內容，所產生的效果，才是書法的內涵。	2	Elective Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	海洋環境教育(自然)	Marine Environmental Education	The sea provides many opportunities for leisure, sightseeing, food and transportation. The " marine environment understanding " is the literacy that people should have.	讓學習者覺知當都市居民透過休閒、觀光、飲食與交通運輸消耗有限的海洋資源時，許多海洋子民，正在運用祖先的智慧為這片海洋而努力，因此透過課程瞭解海洋環境具備應有的海洋素養，是本課程的教學目標。	2	Elective Course	共同教育中心博雅教育組	SDG9、12、14、16
2021	Undergraduate	1	A	優質企業人系列講座(全球)	Quality Man of NTOU	In view of the lack of role models in the society that young students face, the fact that they may have been influenced by bad companies and bad entrepreneurs, and the fact that primary and secondary education and the social atmosphere are too localised and lack a global perspective, the CEOs of quality companies are invited to come and speak about their own requirements for quality, their interpretation of success and the core values that lead to success, sustainability, and the challenges they face in the global arena, so that students can prepare for their schooling.	有鑑於年輕學子所面對的社會缺乏典範，受劣質企業與劣質企業人耳濡目染，可能已以此為常態，加以中小學教育及社會氛圍過度本土化，缺乏全球視域，乃邀請優質企業CEO撙冗前來現身說法，闡述自身對品質的要求，對成功的詮釋及導致成功的核心價值、永續經營、以及全球佈局所面臨的挑戰，供學生為出校門預作準備。	2	Elective Course	共同教育中心博雅教育組	SDG4、9、12
2021	PH.D Program	1	A	海洋夜光蠢專題研究	Case Study in Marine Noctiluca scintillans	For understanding the formation and distribution of Noctiluca scintillans (blue tear) as well as its roles in the microbial food web, comprehensive concepts and knowledge of the ecology of N. scintillans are going to be provided in this course. Scientific articles are going to be read and discussed for the training of independent thinking and presentation.	本課程提供學生夜光蠢生態相關的基本觀念和知識，目標在讓學生了解藍眼淚的形成與分布的機制及其在食物鏈上的地位。同時結合國際期刊的閱讀和討論，訓練學生的思考和表達能力。	3	Elective Course	海洋資源與環境變遷博士學位學程	SDG4、SDG9、SDG11、SDG14
2021	PH.D Program	1	A	漁業生物專題討論	Special Topics on Fisheries Biology	Scope of fisheries biology is very wide, including fish life history, population structure, population biology, marine ecosystem and population dynamics etc. and their applications in sustainable fisheries and resources conservation. The tools used in the fisheries biology include basic statistics and the recently-developed techniques of otolith microstructure and microchemistry and microsatellite DNA.	漁業生物學的範疇相當廣，主要包括魚類生活史、族群結構、資源生物學、海洋生態學和資源動態學等領域，以及這些領域在永續漁業和資源保育的應用。研究的工具可從傳統的統計方法乃到近代開發的耳石微細構造和微化學以及DNA技術的應用。	2	Elective Course	環境生物與漁業科學學系博士班	SDG12、SDG14

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	PH.D Program	1	A	溼地生態復育學	Wetland Restoration	This course focuses on the functions and services of wetland ecosystems, addresses the principles of wetland restoration and demonstrates the practices of wetland restoration in Taiwan. Degraded wetlands may gradually recover through natural processes. These natural healing processes often work slowly and take long time. With the assistance of human wisdom and technology, severely threatened, damaged or even lost wetlands can be restored and biodiversity can be conserved. Restoration is a way to accelerate the recovery of ecosystem function, provide ecosystem services and sustain human well-beings. The main subjects included in wetland restoration are: driving forces, structure and function, anthropogenic impacts, services and human well-beings, restoration principles, and ecotechnology. The wetlands studied include inland, estuarine, and coastal wetlands.	探討溼地生態系統的功能及服務以及溼地復育之原理與實例成效評估。衰敗之生態系有可能回復，亦有可能轉向迥然不同的生態系發展，亦可能步向荒蕪。衰敗的生態系可讓自然力操作，經長時間而恢復；但當系統已趨瀕危，生物多樣性消失，亦應以人的智慧建構復育知識與技術，減緩劣化，進而促成生態功能之回復，以提供生態服務品質，維繫人類福祉。本課程研討內陸溪流、河口、海岸等溼地生態系統之自然營力、結構與功能、人類對溼地生態系統造成的衝擊、溼地之服務與人類福祉、生態復育之原理與方法。並以實際案例進行溼地復育規劃、設計、成效科學性評估之教學。	3	Elective Course	環境生物與漁業科學學系博士班	SDG14、SDG15
2021	PH.D Program	1	A	水產海洋學專論	Seminar in Fisheries Oceanography	This course is characterized by step-by-step and comprehensive explanations of marine biology and abiotic environmental factors, as well as practical exercises on marine structures and fishery production on board marine research vessels, enabling students to understand where fishing grounds are formed in the vast ocean and their environmental factors. Students will be trained to deepen their overall view and application of marine fishery science, and to instill in them the ability to read, manage, and predict the fishery and environment.	本課程之特徵在藉海洋生物及非生物環境因素之逐步及綜合解說，配合海洋研究船進行海洋構造及漁業生產實態之演練，使學生體認在浩瀚之海洋中形成漁場之所在及其環境要因，在上課中透過有關課題之設定、建立該課題之資料庫及相關論文之研讀，藉課題解決方法及其邏輯思考模式之訓練，加深學生對海洋漁場學之整體觀念及活用能力，並灌輸其維讀、管理、預測漁場及環境之能力。	3	Elective Course	環境生物與漁業科學學系博士班	SDG2、SDG9、SDG13、SDG14
2021	PH.D Program	1	A	海洋空間規劃專論	Seminar on Marine Spatial Planning	Marine spatial planning has become a globally recognized key step in promoting the implementation of ecosystem-based sea use management, and is also the foundation of integrated marine management.Therefore, it should also be a required knowledge for graduate students in this department, which can enhance students' macroscopic awareness and interest in the planning of various uses of the sea, as well as ecological conservation.	海洋空間規劃已經成為全球公認促進基於生態系的海域利用管理實現的關鍵步驟，亦是海洋綜合管理的基礎，故亦應是本系研究生必備的學識，可增進學生對於海域多種利用規劃，並兼顧生態保育的宏觀認知與興趣。	2	Elective Course	環境生物與漁業科學學系博士班	SDG14
2021	PH.D Program	1	A	生物資源專論	Seminar in Biological Resources	Most chondrichthyans are the top predators in the ocean and they play an important role in the marine ecosystem. These fishes are vulnerable and will extinct under heavy exploitation pressure if no management measure is taken. In total, 121 sharks, 69 skates and rays, and 5 chimeras have been found in Taiwan waters. Life history parameters including reproductive biology, age and growth for several species have been published but the life history analysis or risk assessment of extinction is still little known. This class is to teach students to conduct the ecological risk assessment based on life history parameters and fisheries data. In addition, examples on the stock assessment and management of major shark species in various regional fisheries management organizations will be introduced. This class is suitable for Ph D students or senior level of master students.	軟骨魚類是海洋中的頂端的掠食者，在海洋生態系中扮演重要的角色。由於其中大部分的物種具有成長慢、成熟晚、產仔(卵)數少且壽命長的特性，若過度利用而不加以管理則資源將有滅絕之虞。臺灣附近海域的有121種鯊魚、69種紅鰩及5種銀鮫。部分物種之生活史參數包括生殖生物學、年齡與成長等資訊雖已發表，但有關物種生活史分析及滅絕風險評估之研究仍然缺乏。本課程將教授如何以生活史參數和漁業資訊進行生態風險評估，同時也將介紹各區域性漁業組織進行鯊魚資源評估和管理的實例。	3	Elective Course	環境生物與漁業科學學系博士班	SDG14
2021	PH.D Program	1	A	沿岸帶綜合管理特論	Integrated Coastal Zone Management	Understand the current status and trends of coastal zone utilization and acquire knowledge about sustainable development and integrated management of coastal zones.	瞭解沿岸帶利用之現況與趨勢，掌握沿岸帶永續發展與綜合管理之相關知識。	3	Elective Course	環境生物與漁業科學學系博士班	SDG12
2021	PH.D Program	1	A	沿岸帶綜合管理特論	Integrated Coastal Zone Management	Understand the current status and trends of coastal zone utilization and acquire knowledge about sustainable development and integrated management of coastal zones.	瞭解沿岸帶利用之現況與趨勢，掌握沿岸帶永續發展與綜合管理之相關知識。	3	Elective Course	環境生物與漁業科學學系博士班	SDG12
2021	PH.D Program	1	A	海洋生物之多樣性	Marine Biological Diversity	Biodiversity is an emerging life science that encompasses the genetics, species, ecosystems, and morphological functions of various biological variables. It explores the emergence, variation, and coexistence of a wide variety of biological species on Earth; analyzes the complexity of biological phases and the relationship between habitats and geographic regions; studies the effects of diversity on organisms and humans. Environmental changes or disruptions can cause the original biodiversity to lose its balance. We will review several major examples of major changes in biodiversity from the history of biology and the main causes of these changes. Changes in human society and habits often disrupt the balance of the original biodiversity. The result is not only the destruction of the original ecosystem, but also the reduction of our living environment. Translated with www.DeepL.com/Translator (free version)	生物多樣性 (BIODIVERSITY) 生物多樣性是一門新興的生命科學，其中包含了生物的遺傳、種類、生態系統和形態功能等各種生物的變異現像。它探討地球上變化萬千的生物種類的產生、變化和共存；分析生物相的複雜程度和棲息環境及地理區域的關係；以及研究多樣性對生物和人類的影響。 環境的變化或破壞會使原來的生物多樣性失去了平衡。我們要從生物史上檢討幾個生物多樣性大變動的主要例子，以及造成這些變化的主要原因。 人類社會和生活習性的改變往往破壞了原來生物多樣性的平衡。結果不但破壞了原來的生態系統，也降低了我們生活的	2	Elective Course	環境生物與漁業科學學系博士班	SDG14、SDG15
2021	PH.D Program	1	A	浮游生物學專論	Seminar in Planktonology	The main objective of this course is to provide some basic knowledge to help students understand the structure and function of the marine ecosystem. Students are expected to understand the characteristics of marine micro-ecology and the role of bacteria, viruses and protozoa in the marine ecosystem.	本課程主要目的是提供一些基本知識,去幫助學生了解海洋生態系的 構造與功能。希望同學瞭解海洋微生態的特色，詳細介紹細菌、病毒及原生動物在海洋生態系扮演的角色。	3	Elective Course	環境生物與漁業科學學系博士班	SDG14
2021	PH.D Program	1	A	衛星漁業資訊處理及應用	Processing and Fisheries Application of Satellite	To learn the advanced techniques for remote sensingand its application on commercial fishery and oceanography.	衛星數位影像資料分析技巧,及其在海洋與漁業上之實例應用	3	Elective Course	環境生物與漁業科學學系博士班	SDG4、SDG13、SDG14、SDG17
2021	PH.D Program	1	A	衛星漁業資訊處理及應用	Processing and Fisheries Application of Satellite	To learn the advanced techniques for remote sensingand its application on commercial fishery and oceanography.	衛星數位影像資料分析技巧,及其在海洋與漁業上之實例應用	3	Elective Course	環境生物與漁業科學學系博士班	SDG4、SDG13、SDG14、SDG17
2021	PH.D Program	2	A	專題討論	Seminar	To enhance skills of presentation, principles and methodology etc. in the field of fishery science and environmental biology	習得漁業科學及環境生物相關領域之發表技巧、基本原理及分析分法等	1	Required Course	環境生物與漁業科學學系博士班	SDG14
2021	PH.D Program	2	A	專題討論	Seminar	Learn the skills of presentation, basic principles, and comparative analysis in the fields of fisheries, environmental ecology, and conservation.	習得漁業,環境生態與保育等相關領域之發表技巧,及其基本原理,分析分法等之探討與比較	1	Required Course	環境生物與漁業科學學系博士班	SDG14
2021	PH.D Program	1	A	科學新知導論	Introduction on Scientific New Knowledge	The course enhances students' overall knowledge of life sciences, and also includes courses on new knowledge in life sciences and research methods in molecular biology to provide students with a deeper understanding of the nature of science, scientific spirit and research attitudes, and provides opportunities for graduate students to participate in interactive discussions on different life science research topics.	加強學生對生命科學的整體性知識，同時也加入生命科學新知及分子生物學研究方法的課程，讓學生對科學本質、科學精神及研究態度有更深的認識，並提供研究生參與不同生命科學研究主題討論互動的機會。	3	Elective Course	食品科學系博士班	SDG4
2021	PH.D Program	1	A	營養系統生物學	Nutritional System Biology	Convey the concept of omics-related research, and educate students on the current state of systems biology. In addition, students will be updated on recent findings within the fields of Food Science and Nutrition Science. Specifically, students will be able to utility of omics-related approach in terms of hypothesis generation and experimental design.	傳達組學相關研究的概念，並讓學生了解系統生物學的現狀。此外，學生將了解食品科學和營養科學領域的最新發現。具體來說，學生將能夠在假設和實驗設計方面利用與全量元素相關的方法。	3	Elective Course	食品科學系博士班	SDG2
2021	PH.D Program	1	A	組織工程學	Tissue Engineering	Tissue Engineering	組織工程學	3	Elective Course	食品科學系博士班	SDG4
2021	PH.D Program	1	A	分子免疫學	Molecular Immunology	This course was designed through seminar presentation, that will extend the basic knowledge of immunology. The lectures will focus on intensively active areas of cellolar immunology research. Basic principles will be reinforced by considering disease states in which basic cell biological processes as well as immune response are defective.	本課程提供碩博士班學生細胞分子免疫方面的基礎理論知識及應用發展思想空間，期助於食品科學研究領域中，有較深廣的視野包括特重在疾病醫學相關議題上。授課由基礎觀念導至研究和應用，因此也適合無基本免疫學背景者，非常歡迎各實驗室研究生想藉由討論方式學習的同學選修。	3	Elective Course	食品科學系博士班	SDG3、SDG9
2021	PH.D Program	1	A	中藥學	Introduction to the Chinese Medicines	This course will introduce students to the basic concepts of Traditional Chinese Medicine (TCM) and inspired the students employing the modern research methodology to study the effect of TCM.	增加學生對於對中醫藥有基本概念認識 啟發學生以現代科學方法研究中藥	3	Elective Course	食品科學系博士班	SDG1、SDG3、SDG4、SDG12

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	PH.D Program	1	A	智能化食品安全解決方案研究	Smart Total Solution Investigation of Food Safety	Students will learn the principles and methods of experimentation related to food science research.	使修課同學學習食品科學研究相關實驗之原理與操作方法。	3	Elective Course	食品科學系博士班	SDG4
2021	PH.D Program	1	A	健康食品特論	Advanced Health Food	This course was designed through seminar presentation, that will extend the basic knowledge of Health Food. The lectures will focus on intensively active areas of cellolar immunology research. Basic principles will be reinforced by considering disease states in which basic cell biological processes as well as immune response are defective.	為因應我國衛生署訂定健康食品規範、國際間消費者健康訴求議題及提升食品附加價值研發工作，特以此課培育養成相關專業人才	3	Elective Course	食品科學系博士班	SDG3、SDG9、SDG17
2021	PH.D Program	2	B	專題討論	Seminar	Students are trained to collect, organize, and present literature on a variety of research topics. It also provides opportunities for students to participate in interactive discussions on various research topics.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系博士班	SDG1、SDG3、SDG4、SDG6、SDG9
2021	PH.D Program	3	B	專題討論	Seminar	Students are trained to collect, organize, and present literature on a variety of research topics. It also provides opportunities for students to participate in interactive discussions on various research topics.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系博士班	SDG1、SDG3、SDG4、SDG6、SDG9、SDG12
2021	PH.D Program	2	A	專題討論	Seminar	Students are trained to collect, organize, and present literature on a variety of research topics. It also provides opportunities for students to participate in interactive discussions on various research topics.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系博士班	SDG4
2021	PH.D Program	2	B	專題討論	Seminar	Students are trained to collect, organize, and present literature on a variety of research topics. It also provides opportunities for students to participate in interactive discussions on various research topics.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系博士班	SDG4
2021	PH.D Program	3	B	專題討論	Seminar	Students are trained to collect, organize, and present literature on a variety of research topics. It also provides opportunities for students to participate in interactive discussions on various research topics.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系博士班	SDG4
2021	PH.D Program	3	A	專題討論	Seminar	Students are trained to collect, organize, and present literature on a variety of research topics. It also provides opportunities for students to participate in interactive discussions on various research topics.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系博士班	SDG4
2021	PH.D Program	3	A	畢業論文	Thesis	The students will learn how to write essays.	使同學習得論文的寫法.	6	Required Course	食品科學系博士班	SDG4
2021	PH.D Program	1	A	內分泌與生殖生理	Reproduction and Endocrinology	This course provides graduate students with a comprehensive understanding of the endocrine concept, including the interactions between the glands, target organs, messengers, physiological effects, and endocrine systems, as well as an analysis of various endocrine mechanisms of action at the molecular level.	本課程期使研究生瞭解內分泌全盤概念，包括由腺體、目標器官、信訊傳遞、生理作用、各內分泌系統之相互作用，並藉由分子層次解析各種內分泌之作用機制，本課程並加強介紹魚類內分泌系統之特殊性。	3	Elective Course	水產養殖學系博士班	SDG12、SDG14
2021	PH.D Program	1	B	營養基因體學	Nutritional Genomics	The growth of vertebrates is controlled by many factors, one of which is the nutritional composition. Nutritional genomics focuses on the science of nutrient metabolism from genetic, biochemical, and nutritional perspectives. This course integrates the perspectives of genomics, gene regulation, and metabolism, and is expected to provide students with a better understanding of the relationship between animal growth processes and nutrition through the introduction and study of this subject.	脊椎動物的生長受到許多因素控制，其中之一便是營養成份。營養基因體學主要從遺傳、生化及營養觀點來探討跟營養代謝有關的科學。本學課綜和了基因體學（Genomics）、基因調控〔gene regulation〕及代謝（Metabolism）的觀點，期盼經由本學科的介紹及學習以便使同學們能夠進一步了解動物生長過程跟營養的關係。	3	Elective Course	水產養殖學系博士班	SDG2
2021	PH.D Program	1	A	海洋浮游動物行為、生態及養殖專題討論(二)	Special Topics on Marine Zooplankton Behavior, Ecology and Aquaculture(Ⅱ)	Zooplankton not only play a very important role in the entire marine ecosystem, but also play a pivotal role in the study of marine ecology. Radiopods are not only diverse and abundant, but also have a very wide distribution area, and can be found wherever there is water. Radiopods are usually the most dominant species among marine zooplankton, generally accounting for about 70% of the zooplankton biomass, therefore, countries around the world have spared no effort in the research of radiopods in marine ecology. The ocean is a common resource for human beings all over the world, from fisheries, tourism, aquaculture, food industry and even processing industry, all are important resources brought to human beings by the ocean, but in recent years, serious human damage, environmental pollution and abusive fishing and other abnormal operations, marine resources have been gradually depleted. Taiwan is a country surrounded by the sea and aims to be a maritime nation. It is the unanimous concern of all people to ensure Taiwan's dominance and sustainable management of its surrounding waters. Through this course, students will learn about the importance of marine zooplankton behavior, ecology, and aquaculture to the sustainable use of marine resources.	浮游動物不僅在整個海洋生態系中佔有非常重要的地位，且在海洋生態的研究上居於樞紐。浮游動物中之桡足類不但種類多、數量大，且分布的區域非常廣，只要有水的地方，就可發現它的蹤跡，因此常常被比喻成海上的昆蟲。桡足類在海洋浮游動物中通常是最優勢之大類，一般佔浮游動物生物量之70％ 左右，因此，世界各國在海洋生態調查研究上，對桡足類之研究都不遺餘力的進行。海洋是全世界人類共同擁有的資源，從漁業、觀光、養殖、食品業甚至加工業，都是海洋所帶給人類的重要資源，但近年來嚴重的人為破壞，環境污染及濫捕等不正常運作，海洋資源已逐漸在枯竭中。台灣是個四面環海的國家且以海洋立國為目標，如何確保台灣對週邊海域的主導權以及永續經營，為全民所一致關切。期望藉由本課程讓學生瞭解到海洋浮游動物行為、生態及養殖對海洋資源永續利用的重要性。	3	Elective Course	海洋生物研究所博士班	SDG8、SDG12、SDG14
2021	PH.D Program	1	A	無脊椎動物免疫學專題討論	Seminar on Invertebrate Immunology	Our current knowledge about immunology mainly comes from the study in vertebrates, however, since the invertebrates are the most abundant, diverse, and successful animals on earth, we should also learn the immunity in invertebrates. The purpose of this course is to acquaint the students with latest knowledge and development of invertebrate immunology, so that the students will have better understanding toward this novel and increasingly important study field.	相較於脊椎動物，無脊椎動物的相關研究較少，但無脊椎動物的多樣性和豐富性,證明它們是地球上生存相當成功的物種，因此應該對它們有更深入的了解才是，因此本課程的目的在於將現今無脊椎動物免疫學的最新發展趨勢介紹給學生，進一步擴展學生對無脊椎動物的了解。	2	Elective Course	海洋生物研究所博士班	SDG14
2021	PH.D Program	1	A	發育生物學	Developmental Biology	To let students learn the early development to the stages of general body plan, and organ development of different invertebrate and vertebrate animal models after understanding of basic concept and techniques.	藉由介紹發育生物學的基本觀念及實驗技術，讓學生學習各種無脊椎及脊椎模式動物的早期發育、體型建立及器官發育的機制	3	Elective Course	生命科學暨生物科技學系博士班	SDG4
2021	PH.D Program	1	A	分子生物學	Molecular Biology	Students possess molecular biology-related knowledge	學生具備分子生物學相關知識	3	Required Course	生命科學暨生物科技學系博士班	SDG3、SDG9
2021	PH.D Program	2	A	專題討論	Seminar	Training of doctoral students in biology with international thesis reading skills	訓練生科博士生具國際論文閱讀能力	1	Required Course	生命科學暨生物科技學系博士班	SDG4
2021	PH.D Program	1	A	供水可靠度分析	Water-Supply Reliability Analysis	1.Current Status and Problems of Water Resources in Taiwan 2.Diversified Water Technologies Seawater desalination technology, sewage recycling, rainwater storage and utilization technology, vadose water utilization, others 3.Economic and Financial Planning for Diversified Water Resources Use 4.Analysis of risk management techniques for diversified water resources 5.Reliability analysis model 6.Application of System Dynamics Model in Water Supply Reliability	一、台灣水資源現況與面臨問題 二、多元水資源技術 ・海水淡化科技 ・污水回收再利用 ・雨水貯集利用技術 ・伏流水利用 ・其他 三、多元水資源利用經濟與財務計劃 四、多元水資源的風險管理技術分析 五、可靠度分析模式 六、系統動力模式在供水可靠度的應用	2	Elective Course	河海工程學系博士班	SDG6、SDG12
2021	PH.D Program	1	A	混凝土破壞力學	Fracture Mechanics of Concrete	The seminar will provide students with an understanding of the theory of damage mechanics, the damage characteristics of concrete, and the future trend of new concrete development.	以專題研討之方式,使同學瞭解破壞力學理論與混凝土破壞特性及未來新型混凝土研發之趨勢。	3	Elective Course	河海工程學系博士班	SDG17
2021	PH.D Program	1	A	預測理論	Theory of Predication	This course focuses on water resource forecasting methods for water supply and water demand, which will be used as a tool for practical application in the future.	本課程主要針對水資源有關供水與需水量的預測方法進行講授，使同學未來可作為實務應用上的評析工具。	3	Elective Course	河海工程學系博士班	SDG6
2021	PH.D Program	1	A	學術研究倫理	Academic Research Ethics	The course is an online course. Teachers and students are encouraged to take the course at the website of the Taiwan Academic Ethics Education Resource Center (https://ethics.nctu.edu.tw/).	該課程為線上修習課程，請各教師及學生自行至臺灣學術倫理教育資源中心(https://ethics.nctu.edu.tw/)網站選讀。	0	Required Course	河海工程學系博士班	SDG4
2021	PH.D Program	1	A	太陽能光伏電子應用專題	Special Topics on the Photovoltaics Electronics Applications	This course is a series of courses on the application of green electronics in the "Smart Electronics Interdisciplinary" program of the Ministry of Education. It aims to provide all students with a deep understanding of the evolution of photovoltaic processes and green energy, important theories and concepts, and applications in other related fields. The course also provides students with a practical environment for circuit fabrication and characterization, and establishes a solid foundation for integrating cross-disciplinary fundamental theories and applied technologies.	本課程為教育部"智慧電子跨領域"培育計畫-綠色電子之應用專題系列課程，旨在使本校所有年級學生，對於太陽光伏電子製程與綠色能源之演進，重要理論與觀念，及在其他相關領域之應用，有深刻認識瞭解。並提供實際電路製作、與特性量測環境，奠定學生整合跨領域基礎理論與應用技術之實基。	3	Elective Course	電機工程學系博士班	SDG4、SDG7、SDG9
2021	PH.D Program	1	A	電腦視覺與影像分析演算法	Computer vision and image analysis algorithms	•Explore, manipulate, and analyze images using Python packages for computer vision. •Implement image classification using classical machine learning and deep learning techniques.	電腦視覺是一門研究如何使機器「看」的科學，是指用攝影機和電腦代替人眼對目標進行辨識、跟踪和測量等機器視覺，並進一步做圖像處理，用電腦處理成為更適合人眼觀察或傳送給儀器檢測的圖像。影像處理是訊號處理的子類，是指對圖像進行分析、加工、和處理，使其滿足視覺、心理或其他要求的技術。影像處理是訊號處理在圖像領域上的一個應用。目前大多數的圖像均是以數位形式儲存，因而影像處理很多情況下指數位影像處理。	3	Elective Course	電機工程學系博士班	SDG3

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	PH.D Program	1	A	電腦視覺與影像分析演算法	Computer vision and image analysis algorithms	•Explore, manipulate, and analyze images using Python packages for computer vision. •Implement image classification using classical machine learning and deep learning techniques.	電腦視覺是一門研究如何使機器「看」的科學，是指用攝影機和電腦代替人眼對目標進行辨識、跟蹤和測量等機器視覺，並進一步做圖像處理，用電腦處理成為更適合人眼觀察或傳送給儀器檢測的圖像。影像處理是訊號處理的子類，是指對圖像進行分析、加工、和處理，使其滿足視覺、心理或其他要求的技術。影像處理是訊號處理在圖像領域上的一個應用。目前大多數的圖像均是以數位形式儲存，因而影像處理很多情況下指數位影像處理。	3	Elective Course	電機工程學系博士班	SDG3
2021	PH.D Program	1	A	物聯網	The Internet of Things	Teaching how the Internet of Things works and practical applications	教授物聯網的運作方式與實務應用	3	Elective Course	電機工程學系博士班	SDG9
2021	PH.D Program	1	A	感測元件物聯網工程	IoT Engineering & Sensors	This course aims to familiarize students with the principles of sensor components and their applications in the Internet of Things, and to understand the relationship between these technologies and their development trends.	感測元件物聯網工程卻是現在熱門的科技，其發展具有實質和前瞻性，因此本課程之目的再讓學生熟悉感測元件之原理及在物聯網之應用同時了解這些技術的關係及發展趨勢	3	Elective Course	電機工程學系博士班	SDG9
2021	PH.D Program	1	A	微波/毫米波被動元件設計	Microwave/mm-wave Passive Component Design	Based on the Instructor’s extensive experience in microwave industry, this course will be mainly focused on practical design methodology of microwave/mm-wave passive components used in modern communication systems. Students will gain full knowledge on component design and manufacturing know-how, reading technical articles will be a must in this course to enhance design capability.	本課程以實用教學為主，任課老師有20年以上業界的微波/毫米波元件設計經驗，透過實際的設計案例說明，讓學生對微波產品從設計理論到製作有完整的了解。 未來在研發工作上可以立即上手，減少摸索期。同時，本課程也重視論文與期刊的研讀以增加在設計上對理論的了解。	3	Elective Course	電機工程學系博士班	SDG17
2021	PH.D Program	1	A	電氣產品研發實務	Practice on Electric Product Research	The objective is to teach students to understand the electric industries in Taiwan, to have ability of problem analysis and resolution and to develop individual career during their life. After the training of design process, system integration, project management and quality control on electric product, they can apply and implement their knowledge and skills of electrical engineering disciplines to the industries field smoothly, as well can demonstrate their performances. Therefore, those products possess commercial value and their career will be enlarged step by step.	本課程適用於碩士班,博士班與大學部即將畢業之同學,以電器產品研發之實務工作為基礎. 上課同學可建立未來職場有關電氣產品研發實務的觀念，經由知識傳授、案例討論/問題解析(著重於問答+思考方式)，培養同學的思考能力、資料收集與分析能力、問題解決能力、決策能力及克服困難的意志力，團隊合作議題加亦加以著墨。極具實用性. 授課老師以自身在研究機構20年的高科技電機/電子實際研發經驗與日常接觸電機產業之心得，傳授給學生，使學生在學習之後，對於未來的電氣產品研發實務與個人職場經營有所掌握，可贏在起跑點。可幫助同學減少摸索期程與創業失敗的機會。學生自	3	Elective Course	電機工程學系博士班	SDG1、SDG4、SDG8、SDG9、SDG12
2021	PH.D Program	1	A	隨機程序與應用	Stochastic Processes and Applications	This course is an extension of the Probability course and will introduce the basic knowledge of stochastic programs, including several types of stochastic program models commonly used in signal processing, communication systems, and network systems, such as Gaussian programs, Markov programs, and Poisson programs, to provide students with a foundation to understand the design principles and performance analysis of related systems.	本課程作為機率課程之延伸，將介紹隨機程序基本知識，包含幾類經常用於訊號處理、通訊系統、網路系統之隨機程序模型，如高斯程序、馬可夫程序、波松程序等，為學生奠定基礎以了解相關系統的設計原理與效能分析。	3	Elective Course	電機工程學系博士班	SDG9
2021	PH.D Program	1	A	光電元件	Optoelectronics Devices	In recent years, due to the impact of the energy crisis, optical components have been developing rapidly, so it is important to understand the basic characteristics of semiconductor physics and to learn the advanced optical The students will be able to understand the basic characteristics of semiconductor physics	近幾年因能源危機的影響，然而光電元件因此發展快速，固了解半導體物理之基本特性，進階學習光電原理與設計。	3	Elective Course	電機工程學系博士班	SDG7、SDG9
2021	PH.D Program	1	A	行動通訊系統	Mobile Communication Systems	The objects of this course is to introduce technical concepts of mobile cellular and wireless personal communications.	手機已是現代生活日益重要的個人通訊設備，本課程介紹個人與行動通訊系統之原理、技術與應用，培養無線通訊科技研發知識。	3	Elective Course	電機工程學系博士班	SDG9、SDG17
2021	PH.D Program	1	A	無線通訊	Wireless Communications	1.Understand the channel properties and the deploying methods of wireless systems 2.Be familiar with the technologies of wireless systems, including symbol modulation, detection, and coding. 3.Know the specifications of some wireless communications.	1.了解無線通訊系統之通道特性與系統基本佈建方法。 2.熟悉無線通訊系統之調變、偵測、與編碼技術。 3.認識無線通訊系統規範。	3	Elective Course	電機工程學系博士班	SDG9
2021	PH.D Program	1	A	微波工程	Microwave Engineering	Modern applications of Microwave Engineering cover territory microwave communication, satellite communication or even high-speed data transmission. This course applies basic EM theory and microwave network theory to emphasize the characteristics and applications of microwave components so that students can see and understand how to apply the theory to the useful engineering design process.	微波工程技術涉略甚廣，應用層面從通訊領域到高速資料傳輸都可涵蓋。本課程以電磁波理論當基礎，從微波電路角度來分析微波元件特性並說明在電路與工程上的應用。	3	Elective Course	電機工程學系博士班	SDG9
2021	PH.D Program	1	A	數位訊號處理	Digital Signal Processing	This course provides fundamental mathematical theory and methods for professional applications in the fields of communication, navigation, control, and signal/image processing. This course provides students with a fundamental understanding of the theory and practice of digital signal processing through lecture and project work.	數位訊號處理是通訊、導航、控制與信號/影像處理相關領域的核心課程，本課程對於上述相關領域的專業應用，提供基礎的數學理論和方法。藉由上課內容之講解與project之實作，使學生瞭解數位信號處理的理論與實務。	3	Elective Course	電機工程學系博士班	SDG9
2021	PH.D Program	1	A	數位訊號處理	Digital Signal Processing	To provide students with an understanding of the theory and practice of digital signal processing	使學生瞭解數位信號處理的理論與實務	3	Elective Course	電機工程學系博士班	SDG9
2021	PH.D Program	1	A	數位通訊系統	Digital Communication Systems	1.Understand the characterization and the representation of the signal in digital communication systems 2.Be familiar with the technologies of digital communications, wireless systems, including modulation, demodulation, and coding. 3.Channel coding	1.了解數位通訊系統之訊號特性與表示方法。 2.熟悉數位通訊系統之調變、解調、編碼技術。 3.通道編碼。	3	Elective Course	電機工程學系博士班	SDG9
2021	PH.D Program	1	A	類神經網路	Neural Networks	To gain comprehensive knowledge of neural network model, both in theory and applications.	學習應用人工智慧領域中最成熟之技術:"類神經網路"於解決諸多工程問題: 如:分類、分群、最佳化等問題	3	Elective Course	電機工程學系博士班	SDG9
2021	PH.D Program	1	A	專題討論	Seminar	To prepare students with knowledges of how to write academic papers. To train students with skills of presenting papers in a conference.	讓學生了解如何寫學術論文. 訓練學生準備研討會論文的技巧.	1	Required Course	電機工程學系博士班	SDG4、SDG9
2021	PH.D Program	1	A	學術研究倫理	Academic Research Ethics	This course is an online course, please visit the website of Taiwan Academic Ethics Education Resource Center (https://ethics.nctu.edu.tw/) for teachers and students to take the course.	該課程為線上修習課程，請各教師及學生自行至臺灣學術倫理教育資源中心(https://ethics.nctu.edu.tw/)網站選讀	0	Required Course	海洋工程科技博士學位學程	SDG4
2021	PH.D Program	1	A	學術研究倫理	Academic Research Ethics	This course is an online course, please visit the website of Taiwan Academic Ethics Education Resource Center (https://ethics.nctu.edu.tw/) for teachers and students to take the course.	該課程為線上修習課程，請各教師及學生自行至臺灣學術倫理教育資源中心(https://ethics.nctu.edu.tw/)網站選讀	0	Required Course	海洋工程科技博士學位學程	SDG4
2021	PH.D Program	1	A	學術研究倫理	Academic Research Ethics	The goal of the present curriculum is to instill the importance of academic integrity to students in higher education, who have just entered the field of research. Through these lessons, we hope to enhance ethical capabilities of students such as academic integrity reasoning, universal values, and laws and regulations. Additionally, we wish to strengthen the understanding of academic integrity, research ethics, and aspects in practice, as well as implementing honest and responsible research conducts.	本課程旨在培養初踏入研究領域之高等教育學生了解學術倫理重要性，希冀透過課程提升學生之學術倫理思維、普世價值、法律規範等倫理知能，增進對於學術倫理與研究倫理意涵與實務面之理解，並落實誠信且負責任的研究行為。	0	Required Course	資訊工程學系博士班	SDG4
2021	PH.D Program	1	A	學術研究倫理	Academic Research Ethics	The goal of the present curriculum is to instill the importance of academic integrity to students in higher education, who have just entered the field of research. Through these lessons, we hope to enhance ethical capabilities of students such as academic integrity reasoning, universal values, and laws and regulations. Additionally, we wish to strengthen the understanding of academic integrity, research ethics, and aspects in practice, as well as implementing honest and responsible research conducts.	本課程旨在培養初踏入研究領域之高等教育學生了解學術倫理重要性，希冀透過課程提升學生之學術倫理思維、普世價值、法律規範等倫理知能，增進對於學術倫理與研究倫理意涵與實務面之理解，並落實誠信且負責任的研究行為。	0	Required Course	資訊工程學系博士班	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	PH.D Program	1	A	節能LED照明	Saving-Energy LED Lighting	The Light Emitting Diode (LED) will be the main lighting type in the future about 2020. They have many advances including low power consumption、high efficiency、DC driving and no pollution. Electronics、optical、 thermal are the base course for LED lighting application. This course objective is these three parts to teach student key design of LED lighting.	許多國、內外研究單位皆指出，約再過十餘年（西元2020），全世界的照明將有一半以上會被固態發光元件的照明方式所取代，其中LED（Light Emitting Diode）為其代表性元件。LED具有低功耗、高效率、直流電驅動、無污染等優點，因此在最近幾年，嚴然成為光電產業的當紅產品。電控、光學、散熱為進入高功率LED照明應用的三大基礎課程，本課程將以此三個領域為基礎，教導學生掌握高功率LED照明設計的要點，從而設計實際的照明器具，並參觀高功率LED照明燈具製造商。	3	Elective Course	輪機工程學系博士班	SDG4、SDG7、SDG9、SDG12、SDG13、SDG14
2021	PH.D Program	1	A	再生能源發電系統	Power System of the Renewable Energy	Understanding the current developed and application trends in solar energy, and being familiar with the devices, technologies, and operating principles required to form photovoltaic (PV) generation systems.	瞭解太陽光發電目前發展與應用趨勢，並熟悉太陽能發電系統內所使用的設備、電能轉換的技術與運作原理。	3	Elective Course	輪機工程學系博士班	SDG7
2021	PH.D Program	1	A	能源工程實驗方法與應用	Experimental Methods and Applications for Energy Engineering	Practical engineering testing or experimental methods and technologies which are applied in field of energy engineering particularly for marine power plants will be instructed and discussed in this course. The students will learn and acquaint those experimental methods to have adequate capability in their future professional facilities or experimental laboratories. The skills of analyzing and judging the engineering meanings of acquired experimental data will be discussed as well. Frequently used statistical techniques for investigating the significance of the experimental data will be introduced. The experimental results will match with corresponding fundamental theories	讓修課的研究生能夠熟習能源工程領域，尤其是船舶動力廠的實務的工程測試與實驗方法及技術，並具備應用這些方法或技術於實務的工作場所或專業的檢驗實驗室的能力。本課程學生亦將學習如何分析所測得的實驗數據，並判讀這些數據所代表的工程意義，另外利用統計分析技術探討數據的有效性，配合基礎理論推導實用的經驗公式或定理。	3	Elective Course	輪機工程學系博士班	SDG7、SDG9
2021	PH.D Program	1	A	最佳化運輸管理	Optimal transport management	When the transportation facility is in a bottleneck, how to import the queuing pricing to make the use of transportation facility efficiently and optimally.	當交通運輸設施處於瓶頸擁擠狀態時，如何導入等候定價使該交通運輸設施達到效率使用以及最佳化的目標	3	Elective Course	輪機工程學系博士班	SDG9、SDG11
2021	PH.D Program	1	A	專題討論	Special Topics	To culture the students with advanced knowledge and research ability in the field of marine engineering. This course will emphasize the definition of research areas, collecting research materal, training of research methods, analyzing and solving engineering problems，writing research reports, presenting skills in written and oral forms.	培養學生對於輪機工程的深入認知與研究能力，尤其強調研究範疇的界定、研究資料蒐集與整理、研究方法的訓練、問題的分析與解決、研究報告撰寫、研究結果的表達、口語報告的表達技巧等。	1	Required Course	輪機工程學系博士班	SDG7、SDG9
2021	PH.D Program	2	A	專題討論	Special Topics	To culture the students with advanced knowledge and research ability in the field of marine engineering. This course will emphasize the definition of research areas, collecting research materal, training of research methods, analyzing and solving engineering problems，writing research reports, presenting skills in written and oral forms.	培養學生對於輪機工程的深入認知與研究能力，尤其強調研究範疇的界定、研究資料蒐集與整理、研究方法的訓練、問題的分析與解決、研究報告撰寫、研究結果的表達、口語報告的表達技巧等。	1	Required Course	輪機工程學系博士班	SDG7、SDG9
2021	PH.D Program	1	A	綠色航運與物流專題研討	Seminars on Green Shipping ang Logistics	The aim of the course is to provide students with an advanced understanding and investigating the important issues on green shipping and logistics, the current green shipping and logistics practices, and the academic research themes and future study directions.	本課程主要目的是讓學生深入瞭解及探討綠色航運與物流的重要議題內容、經營業者實務採用之措施、以及探討該領域學術研究主題及未來研究之方向。	3	Elective Course	航運管理學系博士班	SDG14
2021	PH.D Program	1	A	公司理財專題	Special Topics in Corporate Finance	1. A brief review of the core perspectives of finance, including the relationship between risk and reward, the time value of money, market efficiency, hedging arbitrage, financial risk management, agency problems, and behavioral finance. 2. Review the theory and practice of corporate finance, including capital budgeting, capital structure, cost of capital, working capital management, and dividend policy. 3. In-depth study of important corporate finance issues, including risk management, corporate governance, behavioral finance, mergers and acquisitions, international financial management, and financial crisis management.	1.簡要回顧財務金融的核心觀點，包括風險與報酬之關係，貨幣的時間價值，市場效率，對沖套利，財務風險管理，代理問題，行為財務學等。 2.複習公司理財的理論與實務，包括資本預算、資本結構、資金成本、營運資金管理、股利政策。 3.深入探討公司理財重要議題：包括風險管理、公司治理、行為財務學、合併購併、國際財管、財務危機管理等。	3	Elective Course	航運管理學系博士班	SDG1、SDG2、SDG3、SDG4、SDG5、SDG8、SDG9、SDG10、SDG11、SDG12、SDG16、SDG17
2021	PH.D Program	1	A	法學方法論專題研究	A Study on the Methodology of Law	This course is designed to provide a deeper understanding of the basic principles of jurisprudence and to refine the ability to study jurisprudence by reading the assigned textbooks.	藉由閱讀指定教材以更深入理解法學之基本原理，精進研究法學之能力。	2	Elective Course	海洋法律研究所博士班	SDG1、SDG3、SDG4、SDG5、SDG8、SDG9、SDG10、SDG11、SDG12、SDG16
2021	PH.D Program	2	A	憲法專題研究(二)國家組織	Seminar on Constitutional Law II - State Organization	The main constitutional norms are the fundamental rights and the organization of the state. This course focuses on the organization of the state. The objectives of this course are not only to inspire students to understand the organization of the state, but also to clarify the boundaries of the separation of powers, the relationship between state agencies, and democratic legitimacy.	憲法之主要規範內容為基本權與國家組織。本課程主要以國家組織為重心。 教學目標除了啟發學生對於國家組織的認識，闡明權力分立之界限、國家機關間之關係、以及民主正當性等。	2	Elective Course	海洋法律研究所博士班	SDG16
2021	PH.D Program	2	A	國家賠償法專題研究	Seminar on the Law of State Responsibility and	Understanding State Liability. State responsibility includes not only the responsibility of compensation, but also the responsibility of compensation and social responsibility of the state.	認識國家責任。國家責任除國家賠償責任外，更包括國家損失補償責任以及國家之社會責任。	2	Elective Course	海洋法律研究所博士班	SDG12
2021	PH.D Program	1	A	大氣遙測	Atmospheric Remote Sensing	Understanding the principle of atmospheric remote sensing	瞭解大氣參數的遙測原理	3	Elective Course	海洋環境資訊系博士班	SDG9、SDG13、SDG17
2021	PH.D Program	1	A	海洋資料處理	Processing and Presentation of Oceanic Data	In this course, students will be able to use the Python language to process relevant atmospheric and ocean-related data for storage, manipulation, and pre-processing for further application in artificial intelligence modeling. Individual discussions and journal readings will be conducted to understand the data processing methods.	本課程期能運用Python語言處理相關大氣和海洋相關資料，以便進行資料儲存、操作以及預處理後可進一步運用於人工智慧模型建模上。課堂上將個別討論並研讀期刊以瞭解資料處理方法。	3	Elective Course	海洋環境資訊系博士班	SDG9
2021	PH.D Program	1	A	洋流專論	Special Topics in Ocean Currents	The issue of global warming is becoming more and more common, but according to NOAA, only 5% of the oceans have been explored and our understanding of ocean currents is even more limited, especially the "thermohaline circulation", which is hidden deep in the ocean and dominates long-term climate change on Earth. Therefore, the goal of the course is not only to make students understand the dynamics of ocean currents, the types of currents, and the interaction between ocean currents and the environment, but also to let students experience the current problems of ocean currents through a visual approach, and to enhance their interest and curiosity in ocean currents through a problem-oriented approach.	全球暖化的氣候議題越來越普遍，但是，根據NOAA的說法，我們人類目前對海洋的探索僅有5%，對洋流的了解更是有限，尤其是藏在海洋深處且主宰地球長期氣候變化的“溫鹽環流”。因此課程的教學目標，除了使學生瞭解洋流的動力機制、型態種類及洋流與環境的交互影響外，希望能透過視覺化的方法，讓學生親自去感受洋流目前的問題，並以問題導向的方式，提升學生對洋流議題的興趣和好奇。	3	Elective Course	海洋環境資訊系博士班	SDG13
2021	PH.D Program	1	A	氣候與海洋變動	Climate and Ocean Variability	To understand the role of climate and ocean in global change issue	瞭解氣候與海洋變動在全球環境變遷中所扮演的角色	3	Elective Course	海洋環境資訊系博士班	SDG13、SDG14
2021	PH.D Program	1	A	熱帶西太平洋古氣候特論	Special Topics on Western Tropical Pacific Paleoclimatology	This course is for master's degree students and five-year students to study the Earth's environment, paleo-oceanic and paleoclimatic, and global climate change, and for sophomore to senior students to take this course to participate in experimental practice and work study (NT4000.-/month).If there are foreign students taking the course, the entire course will be taught in English.	本課程為提供碩博研究生與五年一貫生研習地球環境、古海洋與古氣候，全球氣候變遷之書報討論與口頭報告課程，亦歡迎本校大二至大四學生選修本課程參於實驗實習與工讀 (NT4000.-/月)；若有外籍生選修則使用全程英語教學。	3	Elective Course	地球科學研究所博士班	SDG7、SDG11、SDG13、SDG14
2021	PH.D Program	1	A	古海洋代用指標特論	Special Topics on Multiple Paleoceanographic Proxies	This course is for master's degree students and five-year students to study the Earth's environment, paleo-oceanic and paleoclimatic, and global climate change, and for sophomore to senior students to take this course to participate in experimental practice and work study (NT4001.-/month).If there are foreign students taking the course, the entire course will be taught in English.	本課程為提供碩博研究生與五年一貫生研習地球環境、古海洋與古氣候，全球氣候變遷之書報討論與口頭報告課程，亦歡迎本校大二至大四學生選修本課程參於實驗實習與工讀 (NT4000.-/月)；若有外籍生選修則使用全程英語教學。	3	Elective Course	地球科學研究所博士班	SDG7、SDG11、SDG13、SDG14

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	PH.D Program	1	A	亞洲季風古氣候特論	Special Topics on Asian Monsoon Paleoclimatology	Reading and discussion on original paleoceanographic and paleoclimatological MS or Ph.D. level research articles with an emphasis on Asian monsoon variability and evolution since the late Neogene at tectonic, orbital, and millennial to centennial time scales.	本課程為提供碩博研究生與五年一貫生研習地球環境、古海洋與古氣候，全球氣候變遷課程，歡迎本校大二至大四學生選修本課程參與實驗實習與工讀 (NTD4000.-/月)。	3	Elective Course	地球科學研究所博士班	SDG13
2021	PH.D Program	1	A	計量古氣候方法特論	Special Topics on Quantitative Methods in Paleoclimatology	Reading and discussion on original paleoceanographic and paleoclimatological MS or Ph.D. level research articles with an emphasis on quantitative methods of paleoecological transfer functions, paleoclimatic time series analysis, and multivariate statistical analysis and application.	本課程為提供碩博研究生與五年一貫生研習地球環境、古海洋與古氣候，全球氣候變遷課程，歡迎本校大二至大四學生選修本課程參與實驗實習與工讀 (NTD4000.-/月)。	3	Elective Course	地球科學研究所博士班	SDG13
2021	PH.D Program	1	A	漫反射光譜分析與統計應用	Diffuse reflectance spectroscopy and statistical analysis	This course focuses on the application of reflectance spectroscopy on paleoceanography, paleoclimatology, and potential water pollution researches. Students who participate in this class will not only learn the principles, method and applications of reflectance spectroscopy, but also be familiar with the spectrum data analysis process and spectrometer measuring implementation via a variety of self-made standard samples.	本課程旨在介紹反射光譜原理、特性與分析技術，並應用於河口、海洋沉積物與水樣之定性與定量分析，包括黏土礦物、有機碳等生物源指標與各式新興污染物之研究調查。課堂中學生需配置不同比例之標準樣本並進行實作練習與資料統計處理與呈現，學習基本光譜特徵辨識技術。期許引導修習此門課程之學生，將所學應用於古氣候、古海洋及水環境汙染研究中。	3	Elective Course	地球科學研究所博士班	SDG13
2021	PH.D Program	1	A	高等岩石學	Advanced Petrology	The subjects focus on advanced theoretical teaching, paper reviews and discussions. The issues include the geochemical features of igneous, metamorphic and sedimentary rocks, and we will emphasize in the important topics. We will teach the typical knowledge of theoretical rocks and enhance the microscope observation and geochemical characters of rocks.	針對岩石學進階理論進行教學與論文閱讀的討論，涵蓋火成岩、變質岩、沉積岩的地球化學特性，與目前重要研究課題的討論。不僅侷限學課本知識的理論岩石學基礎，加強建構岩石研究的顯微觀察與地球化學問題的探討。	3	Elective Course	地球科學研究所博士班	SDG1、SDG4、SDG11
2021	PH.D Program	1	A	低維奈米材料	Low-dimensional Nanomaterials	Students will be introduced to the latest international developments in low-dimensional nanomaterials, and will learn about the synthesis of various low-dimensional nanomaterials, techniques for structural analysis, and the principles of optical, electrical, and magnetic physical properties of materials.	講授最新國際低維奈米材料發展現況，讓修課學生瞭解各種低維奈米材料合成方式、結構分析之技術以及材料之光、電、磁物理特性之原理，並以實際之例子搭配幾次實作參予活動讓學生見習低維材料之合成與分析之技術應用。	3	Elective Course	光電與材料科技學系博士班	SDG3、SDG4、SDG6、SDG7
2021	PH.D Program	1	A	腐蝕專論	Corrosion and High-Temperature Oxidation	The objective of this course is to enable students to learn about corrosion prevention and control by focusing on the following key points. 1. Understanding the basic principles and classification of corrosion occurrence 2. Corrosion of aqueous solutions and its prevention and control principles 3. The choice of corrosion inhibitors 4. metal and atmosphere reaction of high-temperature corrosion principle 5. Metal oxidation at high temperature and its reaction mechanism 6. Alloy high temperature oxidation and its reaction mechanism 7. Alloy high-temperature hot corrosion and its reaction mechanism 8. Alloy high-temperature mixed gas corrosion and its reaction mechanism	本課程之目標在使學生由課程中學習腐蝕與防治相關之知識，主要包括下列重點： 1.瞭解腐蝕發生之基本原理及分類 2.水溶液腐蝕及其防治原理 3.腐蝕抑制劑之選用方式 4.金屬與氣氛反應之高溫腐蝕原理 5.金屬高溫氧化與其反應機構 6.合金高溫氧化與其反應機構 7.合金高溫熱腐蝕與其反應機構 8.合金高溫混合氣腐蝕與其反應機構	3	Elective Course	光電與材料科技學系博士班	SDG4
2021	PH.D Program	1	A	擴散學	Diffusion and Diffusion Reaction	1.To learn the basic principles and applications of diffusion in materials (including metals, alloys, and non-metals) 2.To explore the differences of different diffusion factors in materials 3.The nucleation, growth and giant condensation processes of diffusion control 4. Application of diffusion to material processes a. Phase change of steel and iron b. Application to thin film fabrication c. Surface thick film and coating applications	1.學習擴散在材料(含金屬、合金、及非金屬)之基本原理與應用 2.探討不同擴散因子在材料上的差異性 3.擴散控制之成核、成長及巨凝過程 4.擴散在材料製程上的應用 a.鋼鐵相變化 b.薄膜製造之應用 c.表面厚膜與塗層應用	3	Elective Course	光電與材料科技學系博士班	SDG4
2021	PH.D Program	1	A	永續發展EMI - 海洋資源的開發與保育(科技)	Sustainable Development EMI - Exploitation and Conservation of Ocean Resources	This course is not Oceanography which mainly looks at the physical, chemical, geological and biological aspects of the ocean. However it focuses on the exploitation and conservation of the renewable and non-renewable resources from the ocean. Since a brief introduction to Oceanography will be covered at the beginning so that no prerequisite course on ocean is required. Students will then learn about the interactions between ocean dynamics, such as hydrological and climatic change and human activities, such as fishing, navigation and mining, etc.	此課程並非學習物理、化學、地質、生物海洋方面的海洋學，然而它聚焦在開發並保育來自海洋的可再生及不可再生的資源。由於課程開始會簡介海洋學，因此不須要先修過海洋方面的課程即可來修習本課程。接着學生會學習到海洋動態，如水文與氣象的變化等和人為活動，如捕魚、航海、採礦等之間的相互作用。人為活動對海洋環境及資源的影響會被揭示，而且據此提出適當的政策及管理經營策畫，是以將負面衝擊極小化來達到資源的永續利用以及人與海洋之間的和諧。	2	General Course	共同教育中心(博)	SDG6、SDG7、SDG8、SDG13、SDG14、SDG17
2021	PH.D Program	1	A	永續發展EMI - 海洋資源的開發與保育(科技)	Sustainable Development EMI - Exploitation and Conservation of Ocean Resources	This course is not Oceanography which mainly looks at the physical, chemical, geological and biological aspects of the ocean. However it focuses on the exploitation and conservation of the renewable and non-renewable resources from the ocean. Since a brief introduction to Oceanography will be covered at the beginning so that no prerequisite course on ocean is required. Students will then learn about the interactions between ocean dynamics, such as hydrological and climatic change and human activities, such as fishing, navigation and mining, etc. Influence of human activities on ocean’s environment and resources will be revealed and accordingly, proper policy and management scheme will be proposed to minimize the adverse impact so that sustainable use of the resources and harmony between human and ocean will be achieved. After 8 week’s lecture, students will be divided into 16 groups to prepare for their seminar presentations on various topics of ocean resource management during the res	此課程並非學習物理、化學、地質、生物海洋方面的海洋學，然而它聚焦在開發並保育來自海洋的可再生及不可再生的資源。由於課程開始會簡介海洋學，因此不須要先修過海洋方面的課程即可來修習本課程。接着學生會學習到海洋動態，如水文與氣象的變化等和人為活動，如捕魚、航海、採礦等之間的相互作用。人為活動對海洋環境及資源的影響會被揭示，而且據此提出適當的政策及管理經營策畫，是以將負面衝擊極小化來達到資源的永續利用以及人與海洋之間的和諧。	2	General Course	共同教育中心(博)	SDG6、SDG7、SDG8、SDG13、SDG14、SDG17
2021	PH.D Program	1	A	永續發展EMI - 微生物與疾病(科技)	Sustainable Development EMI - Microbes and diseases	This course aims to give a general understanding of microbial pathogens of human,infectious diseases, and disease transmission in a perspective of public science, which could help to enhance the awareness of public health.	使學生對造成人類疾病之微生物有更多認識，了解疾病的發生與傳播，提升健康維護與公共衛生意識。	2	General Course	共同教育中心(博)	SDG3、SDG11
2021	PH.D Program	1	A	永續發展EMI - 微生物與疾病(科技)	Sustainable Development EMI - Microbes and diseases	This course aims to give a general understanding of microbial pathogens of human,infectious diseases, and disease transmission in a perspective of public science, which could help to enhance the awareness of public health.	使學生對造成人類疾病之微生物有更多認識，了解疾病的發生與傳播，提升健康維護與公共衛生意識。	2	General Course	共同教育中心(博)	SDG3、SDG11

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	PH.D Program	1	A	與臺灣相遇：一場文化與人文的體驗行銷(人格)	Encounter with Taiwan: an experiential marketing of culture and humanities	"Encounter with Taiwan" is a course for foreign students. Students can actually experience Taiwan's humanities, history, and natural customs through lectures, practical visits, and through the five senses to learn about Taiwan's past, history, the people and affairs of Taiwan now, and the growth momentum of Taiwan in the future. The course is cross-disciplinary subjects that emphasize both theory and practice. 1.Understand Taiwan's humanities and customs, society and history, natural landscape, and commercial activities, etc. 2.Through keynote speeches and visits, students can get to know Taiwan through five senses 3.Through group discussion and final report, assist students in conceiving how to give back to their country by studying in Taiwan	「與臺灣相遇」是針對外籍生所開設的課程，其特色是讓學生可以經由專題演講、實務參訪以及經由五感來來實際體驗臺灣的人文、歷史與自然風情，讓學生能夠知道臺灣的過去的歷史、臺灣現在的人事物，以及未來臺灣的成長動力，是一門理論與實務並重的跨領域科目。 教學目標 1.瞭解臺灣的人文與風俗、社會與歷史、自然景觀，以及商業活動等 2.藉由主題演講與參訪實做讓學生可以經由五感來認識臺灣 3.經由分組討論與期末報告協助學生構思如何在臺所學回饋自己的國家	2	General Course	共同教育中心(博)	SDG4、SDG9、SDG11、SDG12
2021	PH.D Program	1	A	離岸風電之規劃、設計、管理與實務(科技)	Planning, Design, Management & Practices of Offshore Wind Power	Course overview: through the general study of offshore wind power, cultivate all kinds of talents in a hierarchical manner. Course features: be able to use the relevant knowledge learned in the school curriculum to implement the main objectives of behavior in practice. Students can ask questions at any time to promote interaction between teachers and students and encourage exchanges among students. The relevance of the selected liberal arts fields: coexistence, sharing, common benefit and common prosperity.	課程概述：藉離岸風電之通識學習，有層次地培育所需之各式人才。 課程特色：會運用學校課程所學習到的相關知識，以能實務執行為主要目標。學生可隨時發問，促進師生間互動，也鼓勵同學間交流。 所選博雅領域之相關性：共存、共用、共利、共榮。 呼應政府發展離岸風電政策，讓有志於投入綠色能源的同學學習到離岸風電實務，使之具備基本知識與技術，作為未來就業的另一份選擇。	2	General Course	共同教育中心(博)	SDG7、SDG9
2021	PH.D Program	1	A	台灣之美(人格)	The Beauty of Formosa	This course is designed as the introduction to the multifaceted beauty of Taiwan. This course will enable students to appreciate the various aspects of Taiwan's culture and famous tourist attractions. Upon the completion of this course, students can acquire general knowledge about Taiwan which meet the objective of liberal arts education. By the completion of this course, the student should be able to: -Understand the historical development and geographical location of Taiwan; -Appreciate the distinctive nature of Taiwan's food culture; -Discover the famous tourist attractions in Taiwan.	本課程旨在介紹台灣多元的美好事物，本課程將使學生了解各個面向的台灣文化和著名旅遊景點。完成本課程後，學生將擁有台灣的相關知識，進而達到通識教育的目標。 當完成本課程，學生應該能夠： -了解台灣的歷史發展和地理位置； -欣賞台灣飲食文化的獨特性； -探索台灣著名的旅遊景點。	2	General Course	共同教育中心(博)	SDG4、SDG11
2021	Undergraduate	1	A	政治學	Political Science	This undergraduate level course introduces the basic concept of political science. This course also selects the case and phenomenon of real politics for helping students to achieve a broad understanding of political science. The aim of the course is to make students to observe and to assess political issues with independent thinking.	本課程為大學部基礎課程，首要目的在於介紹政治學之基本概念，但是並不以此為限。除了抽象概念外，選取現實政治之事件及現象為例，幫助學習者深入認識政治學，並期待學習者能嘗試運用獨立思維觀察並評價政治相關議題。	2	Required Course	海洋法政學士學位學程	SDG1、SDG2、SDG3、SDG4、SDG5、SDG6、SDG7、SDG8、SDG10、SDG11、SDG13、SDG16、SDG17
2021	Undergraduate	1	A	海洋法政產學巡禮	The Introduction to Ocean Law and Policy	This course is intended to be an introduction to the public sector and industries involved in ocean policy. In addition, it is intended to introduce the authorities and subordinate agencies in charge of ocean affairs in China, their functions, and the orientation and objectives of ocean policy, so as to lay a solid foundation for their subsequent career choices.	本課程定位為導論，希望能為學習者，盡可能地簡介海洋政策所涉及的公部門及產業。除此之外，擬亦介紹我國海洋事務主管暨附屬機關、職掌，以及海洋政策面向暨其目標，俾為彼等後續就業選擇，奠定穩固的基礎。	2	Elective Course	海洋法政學士學位學程	SDG10、SDG16
2021	Undergraduate	1	A	法學緒論	Introduction to Jurisprudence	This course aims to introduce students to the basic concepts of law through lectures, presentations and discussions, and to prepare them for further study in various areas of law. In addition to general topics such as the meaning, interpretation, and application of law, the course will also explore the study of law, our legal system, and the relevance of law to social life. In addition to lectures and classroom discussions, students will also be able to apply their knowledge through presentations and training in data collection and information dissemination skills.	本課程希望透過教師授課、報告及討論的方式，引導學生接觸法律基本概念並進而作好未來進一步學習各法領域知識之準備。課程中除就法律之意義、解釋及適用等一般性議題作介紹外，也將探討法律之學習、我國法律制度及法律與社會生活相關之面向。除講授和課堂討論外，也將透過報告的方式，讓修課學生能活用所學並訓練蒐整資料及傳達資訊之技巧。	2	Required Course	海洋法政學士學位學程	SDG7、SDG10、SDG16
2021	Undergraduate	1	A	海洋事務概論	Introduction to Marine Affairs	The goal of this course is to provide students with a holistic concept of marine affairs, including international marine management laws and regulations, organization and operation, as well as domestic marine patrol policies, marine conservation, and industry management, with an emphasis on the integration of theory and practice, and to stimulate students' ability to think, analyze, and discuss.	台灣四面環海，國家安全、經濟發展與民眾福祉都與海洋息息相關，近年來海洋的永續管理逐漸受到重視，本課程的目標，旨在呼應國內外情勢，提供學生對於海洋事務全盤的概念，包括國際間相關海洋管理法規、組織運作，以及國內的海巡政策、海洋保育、產業經營，著重理論與實務的結合，並激發學生思考、分析、討論的能力。	2	Required Course	海洋法政學士學位學程	SDG1、SDG2、SDG3、SDG4、SDG5、SDG6、SDG7、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG14、SDG16、SDG17
2021	Undergraduate	2	A	法學英文(一)	Legal English (I)	This course aims to provide an overview of the principles, techniques, and skills concerning the use of the English language in a legal context and build the foundation for advanced legal learning in English. Students will be provided with the opportunities to approach the various aspects of the essential skills, reading, writing, listening and speaking, through lectures, exercises, and individual feedback.	本課程將介紹在法律領域使用英文之相關原則和技巧，也希望奠定未來進一步以英文學習法律之基礎，課程中將透過教師講授、實作及意見回饋等方式，讓學生有機會接觸聽說讀寫各面向之學習。	2	Elective Course	海洋法政學士學位學程	SDG16
2021	Undergraduate	2	A	海洋政策	Ocean Policy	To understand the marine elements in national development, to establish a view of the ocean in line with national rights and interests, and to cultivate talents for future national ocean policy planning.	認識國家發展中的海洋元素，建立符合國家權益的海洋觀，培養未來國家海洋政策規劃之人才。	2	Required Course	海洋法政學士學位學程	SDG14
2021	Undergraduate	2	A	海域執法	Law Enforcement on the Sea	Teaching Students to Understand the Basic Knowledge of Maritime Law Enforcement	本課程旨在指導同學明白海域執法的基礎知識	2	Elective Course	海洋法政學士學位學程	SDG8、SDG11、SDG13、SDG14、SDG16、SDG17
2021	Undergraduate	2	A	海域執法	Law Enforcement on the Sea	This course introduces the theories of law enforcement at sea and the relevant practices, including domestic and international aspects. In addition to guiding the international regulatory framework and the background, the course will guide students to understand Taiwan"s laws and regulations, policy response, and relevant disputes. Students will also develop analytical and practical skills for drafting the legislative plan.	本課程教授海域執法相關理論與國內外具體實踐。課程中除介紹海域執法的國際規範框架及背景外，將引導修習者理解我國之法規、因應措施及相關爭議問題等。此外，本課程將從實務觀點出發，協助學生發展政策法制化的實務技能。	2	Elective Course	海洋法政學士學位學程	SDG8、SDG11、SDG13、SDG14、SDG16、SDG17
2021	Undergraduate	2	A	公共政策	Public Policy	Public policy is one of the main instruments of governmental power. Public policy can also be described as the government's chosen action agenda, the plans and programs formed to address specific public issues, such as environmental policy, education policy, and public health policy. This course covers the meaning of public policy, its formation, formulation, and evaluation. Students will learn how public issues are defined, how public policy is constructed and planned, and how to develop independent thinking and critical skills to gain insight	公共政策是政府行使權力的主要手段之一，公共政策也可說是政府所選擇的行動綱領，為了解決特定公共問題而形成的規劃與方案，譬如環境政策、教育政策、公共衛生政策等。本課程包含公共政策的內涵、公共政策的形成、制定與評估，學生將得以了解公共議題之界定、公共政策如何被建構與規劃、也可建立洞察國家政策的獨立思考與批判能力。	2	Elective Course	海洋法政學士學位學程	SDG4
2021	Undergraduate	3	A	法學英文(三)	Legal English(III)	Building on Legal English I and II, this course aims to provide an opportunity to put in practice various techniques and skills concerning the use of the English language in a legal context. The course focuses on detailed understanding of selected cases and practical writing skills for resumes, contracts and case comments.	在法律英語I和II的基礎上，本課程旨在提供一個機會，以實踐有關在法律背景下使用英語的各種技巧和技能。課程的重點是詳細了解選定的案例以及簡歷、合同和案例評論的實際寫作技巧。	2	Elective Course	海洋法政學士學位學程	SDG5、SDG10、SDG16
2021	Undergraduate	3	A	海上保險法	Marine Insurance Law	"This course is designed to provide students with an understanding of the relationship between English law, case law, and the role of the practical formulary: 1. To enable students to understand the relationship and role of English statutory law, case law, and practical definitive contracts. 2. Students should be able to distinguish clearly the differences and similarities between English law, our law, and practical clauses. 3. Students should be able to conduct independent research and propose solutions when encountering relevant issues.	我國海險市場居於國際商業習慣，慣用由英國保險商業團體擬製，以英格蘭法為準據法的定型化契約條款，因此，本課程目標: 一、讓學生明瞭英國制定法、判例法以及實務定型化約款三者間之關聯及作用。 二、學生應能明確區分英國法、我國法與實務條款之異同。 三、當遭遇相關議題，學生應能有獨立研究之能力，進而提出解決方案。	2	Required Course	海洋法政學士學位學程	SDG4、SDG8、SDG9、SDG11、SDG17
2021	Undergraduate	3	A	海洋產業實習	Practice in Marine Industry	1. To enable students to understand the practical operation of the marine industry and to integrate theory and practice. 2. Internship unit: Bureau of Shipping and Harbor, Ministry of Transportation and Communications.	1. 為使學生認識海洋產業實務運作，將理論與實作結合。 2. 實習單位: 交通部航港局。	2	Elective Course	海洋法政學士學位學程	SDG11
2021	Undergraduate	3	A	海事行政法	Maritime Administration Law	The main purpose of this course is to lead students to learn the basic jurisprudence of maritime administrative law, and to familiarize them with the relevant international norms and current regulations of maritime administration in Taiwan, so that students who are interested in maritime affairs can grasp the relevant concepts, principles and sources of law in a more concrete manner.	本課程的主要目的是帶領學生系統地學習海事行政法的基礎，同時熟悉相關國際規範及我國海事行政現行法規，讓有志於海洋事務的學生能更為具體地掌握相關概念、原則及法源依據。	2	Required Course	海洋法政學士學位學程	SDG7、SDG8、SDG9、SDG12、SDG13、SDG14、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	A	海商法	Maritime Law	1.Students should be able to understand and recognize the relationship between our maritime law and relevant international conventions, practices or foreign laws, as well as the trends in the development of international maritime law. 2.Students should be able to correctly present the relevant regulations, basic theories and practices, or doctrinal controversies of the existing maritime law. 3.When a student encounters a relevant statement of fact, he or she should be able to identify the legal controversy arising from that fact, state the relevant statutes and principles, and explain how the statutes and principles can apply to that fact to resolve the legal controversy.	一、學生應能明瞭並認知我國海商法與相關國際公約、慣例或外國法例之關係，以及國際海商法發展趨勢。 二、學生應能正確陳述我國現行海商法之相關規定、基礎理論與實務或學說爭議。 三、當學生遭遇相關之事實陳述，應有能力確認該事實所引起之法律爭議，陳述相關法規與原則，並解 釋該法規與原則何以能適用於該事實，進而解決該法律爭議。	2	Required Course	海洋法政學士學位學程	SDG3、SDG4、SDG8、SDG9、SDG11、SDG16
2021	Undergraduate	3	A	國際海洋法	International Law of the Sea	The main goal of this course is to assist students in understanding the law of the sea systematically. The content will focus on the relationship between the state as the law enforcement body of the law of the sea and global governance. This course is supplemented by relevant judicial precedents to help students understand the core concepts and the current development of the law of the sea.	本課程之主要目標在於協助修習者體系地理解國際海洋法，內容將側重國家作為海洋法之執行機關與全球治理之關係。分就「海洋空間的法秩序」及「國際共通利益之實現」兩大部分作介紹，其中輔以具體判例，幫助修習者理解海洋法之核心概念與新近發展。	2	Required Course	海洋法政學士學位學程	SDG13、SDG14、SDG16、SDG17
2021	Undergraduate	3	A	漁業法規	Fisheries Law	1.To integrate the knowledge of maritime administrative law and international fisheries management courses, and to understand the current status and issues of fisheries regulations. 2.To familiarize those who are interested in fisheries administration, marine environmental protection, fisheries production and marketing, and further research with professional terminology and concepts, and to understand the background and progress of the development of the domestic legal system, in preparation for future employment or further study.	（1）統整海事行政法、國際漁業管理等課程知識，理解漁業法規之現況與課題。 （2）讓有志漁業行政、海洋環保、漁業產銷工作，以及進一步從事研究工作者熟稔專業詞彙與概念，並理解國內相關法制的發展背景與進程，為將來就業或升學做準備。	2	Elective Course	海洋法政學士學位學程	SDG1、SDG2、SDG3、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG14、SDG16、SDG17
2021	Undergraduate	3	A	海洋資源概論	General Topics on Marine Resources	The ocean is one of Earth""s most valuable natural resources. It not only adjusts the global weather but also provides food in the form of fish and shellfish to people. It""s used for transportation for travel and shipping. For the human-centered perspective, ocean supports the development of civil society. Students are expected to learn ocean resources, the interaction of human uses and ocean resources, and the connection of ocean and society.	海洋被視為擁有豐富的資源庫，海洋除了提供天氣調節、也提供人們基本所需的糧食來源、以及交通航道。站在人類中心的觀點來看，海洋支持著人類社會。學生將認識海洋資源為何、海洋資源與人類的關係、海洋與社會的連結。	2	Elective Course	海洋法政學士學位學程	SDG2、SDG11
2021	Undergraduate	4	A	航運產業實習	Shipping Business Practice	1. To enable students to understand the practical operation of the shipping industry and to integrate theory with practice. 2. Internship units: Evergreen Marine Transport Co. and member companies of the Taipei Marine Contractors Association	1. 為使學生認識航運產業實務運作，將理論與實作結合。 2. 實習單位: 長榮海運股份有限公司和台北市海運承攬商業同業公會所屬會員公司	2	Elective Course	海洋法政學士學位學程	SDG3、SDG4、SDG8、SDG9、SDG10、SDG11、SDG14、SDG16
2021	Undergraduate	4	A	憲法行政法實例研習（一）	Case Studies in Constitutional Law and Administrative Law (1)	This course will focus on important constitutional issues that have occurred in recent years in Taiwan. Topics to be discussed in this course include: changes in the constitutional litigation law and constitutional interpretation system, control of disinformation and freedom of speech, whether civil compulsory apology is unconstitutional, defensive democracy, the NTU presidential election, civil disobedience, the relationship between church and state and religious legislation in Taiwan, conflicts and resolution of religious freedom and other fundamental rights, and the interpretation of Justice No. 793 (Party Property Ordinance) and No. 791 (Adultery). This course will introduce the constitutional law of the Republic of China. This course will introduce the different perspectives of scholars on specific constitutional issues, and will encourage students to provide their personal opinions and ideas on established doctrines and interpretations from a critical perspective. The instructor also expects that the final report will develop the students' ability to develop research projects on specific constitutional law issues.	本課程將以我國近年來所發生之重要憲法議題為討論內容。本課程擬討論的議題包括：憲法訴訟法與釋憲制度之變革、假消息之管制與言論自由、民事強制道歉是否違憲、防衛性民主、台大校長遴選事件、公民不服從、台灣政教關係與宗教立法、宗教自由與其他基本權之衝突與解決、大法官釋字第793號解釋(黨產條例)、釋字第791號解釋(通姦除罪化)等。 本課程將介紹在特定憲法議題上學者們所主張的不同觀點，並且也將鼓勵修課同學們從批判性的角度，對於既有的學說或大法官解釋提出個人的意見與想法。授課教師並期盼透過期末報告的撰寫，能培養同學們就憲法學上之特定議題提出研究計畫之能力。	2	Elective Course	海洋法政學士學位學程	SDG16
2021	Undergraduate	4	A	國土安全與國境執法	Homeland Security and Law Enforcement at Border	This course is designed to provide students with an understanding of the basics of homeland security and border enforcement. The prevention of terrorist attacks, attacks on infrastructure such us power generation (including offshore wind power generation) facilities, and the dissemination of fake news on the Internet are all issues of concern to "homeland security". In order to keep people, things, and objects that endanger "homeland security" out of the country, it is necessary to have knowledge of "homeland law enforcement" such as homeland security inspection, homeland crime detection, and international mutual legal assistance. In order to provide students with a deeper understanding of the practical application of "homeland security" and "border enforcement", the class will discuss how to conduct actual security checks and investigations, such as terrorist attacks, attacks on infrastructure such as power generation (including off-shore wind power generation) facilities, and fake news spread on the Internet, with examples or hypothetical cases.	本課程旨在指導同學明白國土安全與國境執法的基礎知識。舉凡防制恐怖攻擊、對於發電（含離岸風力發電）設施等基礎設施之攻擊、網路上假新聞之散佈等，均為「國土安全」所關心之議題。又為能將危害「國土安全」之人、事、物等因素拒於國外，則需要對於國境安全檢查、國境犯罪偵查以及國際司法互助等「國境執法」知識有所瞭解。為能夠讓同學對於「國土安全」與「國境執法」之實際運用能有更深一層之瞭解，課堂中並將舉實例或假想案例討論諸如恐怖攻擊、對於發電（含離岸風力發電）設施等基礎設施之攻擊、網路上散佈之假新聞等應如何進行實際之安檢、偵查作為。	2	Elective Course	海洋法政學士學位學程	SDG7、SDG9
2021	Undergraduate	4	A	國土安全與國境執法	Homeland Security and Law Enforcement at Border	Teaching Students to Understand the Basic Knowledge of Homeland Security and Boundary Law Enforcement	本課程旨在指導同學明白國土安全與國境執法的基礎知識	2	Elective Course	海洋法政學士學位學程	SDG7、SDG9
2021	Undergraduate	4	A	海洋產業實習	Practice in Marine Industry	1. To enable students to understand the practical operation of the marine industry and to integrate theory and practice. 2. Internship units: Bureau of Shipping and Harbor, Ministry of Transportation and Communications	1. 為使學生認識海洋產業實務運作，將理論與實作結合。 2. 實習單位: 交通部航港局。	2	Elective Course	海洋法政學士學位學程	SDG3、SDG4、SDG8、SDG9、SDG10、SDG11、SDG14、SDG16
2021	Undergraduate	4	A	海洋環境保護法	Law of Marine Environment Protection	This course will focus on the marine environment, international marine environmental protection law, and extend to regional and national marine environmental conservation practices. The course will focus on the trade-offs and applications of existing legal regulations and Taiwan's maritime projects such as offshore wind power development.	本課程以海洋環境為主要標的，以國際海洋環境保護法為主要內容，延伸至區域與國家的海洋環境保育實踐，新增臺灣海洋環境法相關規範，將聚焦在現有法律規範與台灣海事工程如離岸風力發電發展之法益權衡與應用。	2	Elective Course	海洋法政學士學位學程	SDG7、SDG14
2021	Undergraduate	4	A	國際漁業管理	International Fishery Management	1.To integrate the knowledge of the law of the sea, fisheries regulations and other courses, and to understand the development of international fisheries management. 2.To familiarize those who are interested in fisheries administration, marine environmental protection, fisheries production and marketing, and further research with professional vocabulary and concepts, and to understand the process of promoting domestic policies under the trend of international fisheries management, in preparation for future employment or further study.	（1）統整海洋法、漁業法規等課程知識，理解國際漁業管理之發展脈動。 （2）讓有志漁業行政、海洋環保、漁業產銷工作，以及進一步從事研究工作者熟稔專業詞彙與概念，並理解在國際漁業管理潮流下國內政策的推動過程，為將來就業或升學做準備。 （3）本課程將藉由短講、簡報培力強化敘事技巧，深入議題分析能力。	2	Elective Course	海洋法政學士學位學程	SDG1、SDG2、SDG3、SDG5、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG14、SDG16、SDG17
2021	Undergraduate	1	A	憲法	Constitutional Law	The course is divided into two main parts: the fundamental rights and the organization of the state, which are taught in the first and second semesters.	了解憲法的原理原則以及憲法各個構成部分的內容,違憲審查的操作透過大法官解釋以及各項學說的解說,了解憲法的原理原則以及憲法各個構成部分的內容,違憲審查的操作,按此,將課程分為二大部分:基本權利以及國家組織,分別於上下學期講授。	2	Required Course	海洋法政學士學位學程	SDG1、SDG2、SDG3、SDG4、SDG5、SDG6、SDG7、SDG8、SDG10、SDG11
2021	Undergraduate	2	A	民法物權	Civil Law: Property	The objective of this course is to help students grasp solid concept of the rights in rem of civil code regulations. This class will also focus on various civil code case studies as well as intra-class discussions on related hypo exercise.	旨在讓學生理解民法物權編(民法第757條至第966條)規定之內容及規範目的，並建立民法物權編之體系架構。除講述基本理論外，透過例題演練以瞭解物權編與民法其他編的關係，並加深民法案例之實際運用，進而提升獨立思考及解決問題之能力。	2	Required Course	海洋法政學士學位學程	SDG4、SDG10、SDG16
2021	Undergraduate	2	A	行政法總論	Administrative Law: General Part	The course is designed to explain the basic concepts, principles, and structure of administrative law, and to introduce students to the various forms of administrative activities and their various types of situations, as well as to review important cases and controversies in judicial practice.	以講授方式說明行政法之基礎概念、基本原理及體系構造，在掌握現代行政活動之多樣面貌下，引導同學認識行政活動之諸行為形式及其類型化現況，輔以司法實務重要案例及其爭點檢討。	3	Required Course	海洋法政學士學位學程	SDG3、SDG4、SDG5、SDG6、SDG10
2021	Undergraduate	2	A	民法債編總論	Civil Law: General Part of Obligations	The objective of this course is to help students grasp solid concept of the general principles of Civil Code: Obligations regulations. This class will also focus on various Civil Code: Obligations case studies as well as intra-class discussions on related hypo exercise.	旨在讓學生理解債法總論(民法第153條至第344條)規定之內容及其規範目的，並建立債法總論之體系架構。除講述基本理論外，透過例題演練以瞭解債法總論與民法其他編的關係，並加深民法案例之實際運用，進而提升獨立思考及解決問題之能力。	2	Required Course	海洋法政學士學位學程	SDG4、SDG10、SDG16
2021	Undergraduate	2	A	行政法總論	Administrative Law: General Part	The course is designed to explain the basic concepts, principles, and structure of administrative law, and to introduce students to the various forms of administrative activities and their various types of situations, as well as to review important cases and controversies in judicial practice.	以講授方式說明行政法之基礎概念、基本原理及體系構造，在掌握現代行政活動之多樣面貌下，引導同學認識行政活動之諸行為形式及其類型化現況，輔以司法實務重要案例及其爭點檢討。	2	Required Course	海洋法政學士學位學程	SDG3、SDG4、SDG5、SDG6、SDG10
2021	Undergraduate	1	A	憲法	Constitutional Law	This course aims to investigate the constitutional function of protecting individual""""s human rights and its role in a democratic political system from the perspectives of political philosophy and constitutionalism. The course will discuss values, theories and institutions of constitution law. Finally it will also research on correlation between constitutional institutions and protection of human rights.	本課程將從憲政理論的角度，探討憲法在保障個人基本權利上所能發揮的功能及在民主制度中所能扮演的角色。本課程將引導學生自政治哲學與憲法學切入，探尋出近代民主政治所追求的價值，以作為憲法體制的引導；在掌握憲法基本架構下，檢視我國憲政運作現況，以認識憲法制度與人權保障的關係。	2	Required Course	海洋法政學士學位學程	SDG1、SDG3、SDG4、SDG5、SDG8、SDG10、SDG16
2021	Undergraduate	2	A	行政法總論	Administrative Law: General Part	The lecture will explain the basic concepts, basic principles and system structure of administrative law, and guide students to understand the behavioral forms and types of administrative activities. Also, supplemented by important cases of judicial practice and explain the legal issues involved in the case.	以講授方式說明行政法之基礎概念、基本原理及體系構造，在掌握現代行政活動之多樣面貌下，引導同學認識行政活動之諸行為形式及其類型化現況，輔以司法實務重要案例及其爭點檢討。	3	Required Course	海洋法政學士學位學程	SDG14
2021	Undergraduate	1	A	物理學	General Physics	In addition to establishing the basic concepts of physics and understanding its development, students will be able to further apply the related knowledge flexibly.	除使學生建立物理的基本觀念，並了解其發展外，更能進一步對於相關的知識能靈活運用。	3	Required Course	環境生物與漁業科學學系	SDG4、SDG7

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	物理學實驗	General Physics Lab.	This course is designed to provide students with a deep understanding of the physics principles taught in the classroom and to develop the ability to do hands-on experiments.	配合普通物理教學, 使學生從實驗中深刻體會課堂上所講授物理原理, 並培養學生動手實做的能力。	1	Required Course	環境生物與漁業科學學系	SDG4、SDG7、SDG9、SDG14
2021	Undergraduate	2	A	海洋生物資源概論	Introduction to Marine Biological Resources	To teach students to understand the characteristics, diversity, distribution, and abundance of marine biological resources, and to cultivate the concept of conservation of fishery resources and the ability to research fishery science in the future.	教導學生瞭解海洋生物資源之族群特性、多樣性、分布與豐度，進而培養對於漁業資源保育的觀念與未來漁業科學研究之能力	2	Elective Course	環境生物與漁業科學學系	SDG14
2021	Undergraduate	2	A	環境生物學(一)	Environmental Biology 1	The goals of environmental biology are: (1) to learn how nature works (2) to understand how we interact with the environment (3) to find ways to deal with environmental problems and to live more sustainably.	環境生物學的教學目標是要學生(1)學習大自然如何運作；(2)了解我們如何和環境互動(人類如何影響地球的生命支持系統；(3)尋求方法來處理環境問題，以及更永續的生活方式。	2	Required Course	環境生物與漁業科學學系	SDG4、SDG11、SDG13、SDG17
2021	Undergraduate	2	A	環境生物學(二)	Environmental Biology 2	1. To introduce the problems facing the environment (biology) and the ways of sustainability 2. To provide students with a thorough understanding of the impact of humans on the environment and ecosystems and how to respond to them. 3. To introduce the current situation of the major resources used by human beings and the strategies for their sustainable use.	1.介紹環境(生物)面臨的問題與永續之道 2.讓學生充分了解人類對環境與生態系的影響與因應之道 3.介紹人類主要利用資源之現況及永續利用的對策	2	Elective Course	環境生物與漁業科學學系	SDG12、SDG14
2021	Undergraduate	2	A	水產養殖學概論	Introduction to Aquaculture	This course will provide students with the general concepts and basic operational theories of aquaculture through the history of aquaculture development and the actual dynamics of the industry, supplemented by professional perspectives.	藉由水產養殖發展的歷史與產業實際動態走向輔以專業之觀點俾使學者能於此課程獲得水產養殖全般概念和基本操作理論	2	Elective Course	環境生物與漁業科學學系	SDG2、SDG14、SDG15
2021	Undergraduate	2	A	水產經營學導論	Introduction to fisheries administration and management	This course enables students to learn about the current system of fishery business administration and its relationship with Fishermen""s Association, and potential countermeasures to improve the new organization of fishery management. Through the above learning content, students are encouraged to think critically and identify ways to improve the countermeasures for fishery business administration.	此課程使學生瞭解支援水產經營之相關制度及與漁會間的關係，並學習為改善漁業經營新共同組織所做的對策。透過以上的學習內容，培養學生思考並尋找出如何改善水產業經營之對策為目的。	3	Elective Course	環境生物與漁業科學學系	SDG1、SDG8、SDG11、SDG12
2021	Undergraduate	2	A	海洋與漁村永續經營	Sustainable fishing communities and oceans	This course introduces the environment, economy, and local culture required for the sustainable management of oceans and fishing villages. Through group discussions and practical exercises, students will take stock of local resources that can be sustainably managed, cultivate the knowledge and ability to sustainably manage oceans and fishing villages, and consider and find solutions to sustainably manage oceans and fishing villages.	本課程介紹永續經營海洋與漁村時，所需瞭解之相關環境、經濟、地方文化等，透過學生分組討論及實務操作，盤點地方可永續經營之資源，培育學生具備永續經營海洋與漁村相關知識與能力，思考並尋找出如何永續經營海洋與漁村之對策為目的。	2	Elective Course	環境生物與漁業科學學系	SDG8、SDG12
2021	Undergraduate	2	A	有機化學	Organic Chemistry	This course begins from the principle of electron movement and progressing to complex organic compounds. However, this course is also emphasis on explaining the fundamental mechanistic similarities of reactions. After the students take this elective course should increasing their knowledge of organic chemistry.	以電子移動主導原理(electron movement)增進學生對有機化學理解，並強調以有機化學基礎之觀點角度，增加對生物化學以及與環境相關之有機化學的認識。	3	Elective Course	環境生物與漁業科學學系	SDG2、SDG6、SDG10
2021	Undergraduate	2	A	氣象學	Meteorology	To introduce essentials of meteorology including fluctuation and variabilities of weather system,	本課程介紹基礎氣象學，講述氣象變動,異常氣象之發生要因及實態、大氣及海洋之交互作用、天氣解析、天氣預報、熱帶氣象、氣象災害等相關知識。	2	Required Course	環境生物與漁業科學學系	SDG11、SDG13
2021	Undergraduate	2	A	海洋學	Oceanography	Teaching students to apply various scientific knowledge to investigate the occurrence, development, patterns of change, and exploitation of physical, chemical, biological, geological, and other processes and phenomena in the ocean is the main teaching objective of this course.	教導學生應用各種科學知識來探究海洋中的物理、化學、生物、地質及其他過程和現象的發生、發展、變化規律及其開發利用等，是本課程主要之教學目標。	2	Required Course	環境生物與漁業科學學系	SDG4、SDG13、SDG14
2021	Undergraduate	2	A	漁船論	Principles of Fishing Boat	This course will introduce the basic construction of fishing vessels, the equipment on board, the position system, and other ship service equipment in the static state, as well as the basic ship handling in the dynamic state and the emergency handling in case of distress at sea, so that students can understand the skills required to work on the vessels.	漁船是海洋漁業最重要的設施，如果缺乏漁船，幾乎無法從事海上捕撈活動，因此，漁業從業人員必須瞭解漁船構造設備、操船、維護保養...等相關知識與技能，及如何在海上航行期間，維持漁船的安全，本課程將介紹漁船在靜態時的基本構造、船上儀器、船位系統...等船務設備，及動態時的基本操船、海上遇難之緊急處置，讓學生瞭	2	Elective Course	環境生物與漁業科學學系	SDG9
2021	Undergraduate	2	A	遙感探測學	Remote Sensing	To learn the fundamentals for remote sensing, radiative transfer theory and its application on commercial fishery and oceanography.	習得遙感探測基本原理,分析分法及其在海洋與漁業之應用	2	Elective Course	環境生物與漁業科學學系	SDG13、SDG14
2021	Undergraduate	2	A	遙感探測學實驗	Remote Sensing Practice	remote sensing practice is the transformation and exploitation of 2d data - that is, of images processes in the ocean. This course teach the theory of image processing and the application of image processing techniques via many examples on ocean features. Handling multispectral data, transformations and filtering of images, classification, texture analysis ... all the key themes in image processing and its application on commercial fishery and oceanography are also introduced.	透過上機實習操作掌握不同衛星海洋遙測資料分析技巧,習得掌握海洋環境(鋒面,湧昇等)特徵之能力	1	Elective Course	環境生物與漁業科學學系	SDG13、SDG14
2021	Undergraduate	2	A	漁業資訊科技導論	Introduction to the Technology of Fishery Information	To learn the science fundamentals, theory and its application which is major in fishery industry and other aids.	本課程將針對各項科技之特性，介紹近年來應用在漁業產業資訊有關科技之原理、發展及其應用，授予學生各項漁業資訊科技之運用原理與應用領域，並透過實地參訪與體驗操作(含運用海洋研究船進行海洋構造及漁業生產實態之演練)，增進學生對各項科技應用於漁業產業之瞭解與興趣。	2	Elective Course	環境生物與漁業科學學系	SDG4、SDG8、SDG9、SDG14
2021	Undergraduate	3	A	遠洋漁業資源專題	Case Study Deep Sea Resource	In order to grasp the development trend of the industry, shorten the gap between industry and academia, and construct an international perspective, the course promotes the exchange of industry and academia related to the application and development of marine resources every year, and strengthens students' practical application and development of related industries, academia, and industry, in order to realize the teaching goal of "research-led teaching".	本課程以引導式教學方式帶領學生瞭解遠洋及大洋性漁業資源之開發利用及變動趨勢，為掌握產業發展趨勢，縮短產學落差並建構國際視野，每年度推動海洋資源應用開發相關產學交流、強化學生對於相關產業、學術與產學之實務應用與研發，以落實「研究引導教學」的教學目標。	2	Elective Course	環境生物與漁業科學學系	SDG17
2021	Undergraduate	3	A	生物海洋學	Biological Oceanography	The purpose of this course is to introduce the students to the division of the marine biotic environment in the vast ocean and the characteristics of the biotic and abiotic environmental factors in each region. Through the discussion of topics, students will explore the role of various biotic and abiotic environmental factors in the biological production process and the correlation between the spatial and geographical distribution of organisms and the changes of environmental factors.	本課程之目的在引導學生瞭解浩瀚大洋中海洋生物環境之區分及各分區之生物、非生物環境因子之特性。從而透過課題討論，探討各種生物、非生物環境因子在生物生產過程中所擔負之角色，以及生物之時空間、地理分布與環境因子變動之相關性。	2	Required Course	環境生物與漁業科學學系	SDG13、SDG14
2021	Undergraduate	3	A	生物多樣性	Biodiversity	Students will learn about the scale, extent, and value of life form diversity on Earth and the global response to conservation.	使學生瞭解地球生命形態多樣性的規模、程度與價值，以及全球的保護對策。	2	Elective Course	環境生物與漁業科學學系	SDG14、SDG15
2021	Undergraduate	3	A	保育型漁業	Conservation Fisheries	The fishery industry has shifted from a resource-robbing to a resource-management approach, enabling students to understand the concept and importance of conservation-oriented production techniques and management, as well as its development trends and challenges, in order to establish sustainable fisheries management and development.	漁業已由資源掠奪型轉向資源管理型，使學生了解保育型生產技術與管理概念、重要性與其發展趨勢與挑戰，以建立永續漁業經營發展	2	Elective Course	環境生物與漁業科學學系	SDG12、SDG14
2021	Undergraduate	3	A	保育生物學	Conservation Biology	The goal is to provide learners with an understanding of the importance of biological conservation and how to conduct various assessment exercises to identify problems and how to carry out conservation and management.	目的在讓學習者明白生物保育的重要性，並讓學習者知道如何進行各項評估工作，以發掘問題，並如何進行保育及管理。	2	Elective Course	環境生物與漁業科學學系	SDG14
2021	Undergraduate	3	A	海洋環境觀測	Marine Environmental Observations	The marine environmental monitoring and management become more and more important during the rapid development of industrialization and aquaculture. To strengthen teaching and research goal of the Department of Environmental Biology and Fisheries Science, as well as to protect the resource of fisheries resource and biodiversity, the course aim to train students' basic knowledge and experimental abilities for marine environment and fisheries management.	隨著工業化與淺海養殖之發展，海洋環境監測與管理重要性與日俱增，為落實本校環境生物與漁業科學教學與研究，維護海洋漁業資源與生物多樣性之海洋環境特性，建構跨領域之系統化學習，培養跨世紀的海洋環境與漁業研究人才以及研究人才之海洋環境與漁業管理的基本知識及實驗能力	2	Elective Course	環境生物與漁業科學學系	SDG14、SDG15
2021	Undergraduate	3	A	海上實習	Research Vessel Practical Experince	The Department of Environmental Biology and Fisheries Science at National Taiwan Ocean University aims to enable students to apply the professional knowledge they have acquired in school to the production, management, and research of the fisheries industry. The purpose of this program is to provide students with the opportunity to experience the hardships of life in the ocean, and at the same time, to participate in onsite fishing operations and sailing training, so that when students enter the field of fisheries management, planning, and research, they can fully understand the integrated relationship between "people", "sea", "fish", and "ships" in the fisheries industry.	培育漁業管理、企劃及研究人才是國立臺灣海洋大學環境生物與漁業科學學系之教育宗旨，本系為使學生能將校內所習得之專業理論知識，應用在漁業產業之生產、管理與研究上，因此在大學三年級的課程中規劃有暑期海上實習之訓練課程，此一課程之目的是希望藉由海上實習訓練，讓學生體驗漁業生產者在海洋中之生活甘苦，同時讓學生親身投入現場漁撈作業及航海操作訓練中，以使學生日後投入漁業管理、企劃與研究領域時，能充份認知漁業產業中「人」與「海」與「魚」與「船」之綜合關係。	1	Required Course	環境生物與漁業科學學系	SDG4
2021	Undergraduate	3	A	海洋生態學	Marine Ecology	Course objectives focus on introducing students to important concepts and principles in marine ecology. Several topics scheduled for discussion the values and ethics in the fields related to marine biology, oceanography, and marine ecology. Students are encouraged to deepen their understanding of these concepts through case studies and also to realize the difficulties and challenges in this field.	期予學生了解生態學之基礎觀念並加強海洋生物學、海洋環境及海洋生態學領域之概念,藉此刺激學生學習動力並接收多元領域資訊,同時鼓勵學生以實際漁業生物物種進行個案小組討論, 以利學生將理論與實際狀態作統合整理瞭解.	2	Elective Course	環境生物與漁業科學學系	SDG14

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	A	軟骨魚類學	Chondrichthyology	This course will provide learners with a thorough understanding of the biology of cartilaginous fishes, the current status of the resources, and the current state of conservation management internationally.	使學習者充分瞭解軟骨魚類生物學特性、資源現狀以及國際間保育管理現況。	2	Elective Course	環境生物與漁業科學學系	SDG14
2021	Undergraduate	3	A	漁場學	Fisheries Oceanography	1. To provide students with a thorough understanding of the characteristics and formation mechanism of fishing grounds 2. To introduce students to the concept of conservation and sustainable use of aquatic resources	1.讓學生充分了解漁場的特性與形成機制 2.引導學生水產資源保育及永續利用之理念	2	Required Course	環境生物與漁業科學學系	SDG1、SDG4、SDG12、SDG14
2021	Undergraduate	3	A	環境化學	Environmental Chemistry	The environmental pollution was more violent with human's activities. That's why we have to study the environmental chemistry. This course focus at the pollutant compounds, source, reactions and their effects to marine life.	環境的污染一直以來都伴隨著人類的發展而存在，並且隨著人類活動及科技的發展而日益嚴重，因此研究環境化學是保護自然的必要選擇。本課程著重在海洋環境污染物質的介紹、來源、轉換機制及對海洋生物的影響。	2	Elective Course	環境生物與漁業科學學系	SDG4、SDG6、SDG13、SDG14、SDG17
2021	Undergraduate	4	A	漁業資源永續利用與產業發展探索	Explore to the Fishery Sustainability and Industry Development	To introduction the information of history and development stage of fishery industries by interactive courses and group discussions. The purpose of the lecture is to understand the challenge of ecological sustainability to the fishery industries.	本課程將介紹各項漁業相關產業上之演進與現階段發展的重點，透過互動式課程與課題分組討論，讓學生認識在漁業資源永續利用下與各項漁業產業現階段與未來所面對的挑戰，以及如何達成漁業產業與海洋生態永續利用的目標。	2	Elective Course	環境生物與漁業科學學系	SDG12、SDG14
2021	Undergraduate	4	A	企業實習(一)	Internship(I)	The internship enables students to combine academic theories and practical work to understand the actual operation of the industry, to confirm what they have learned and to improve their professional knowledge, and to cultivate a correct understanding of the workplace and professional ethics, which will serve as a reference for their career exploration and employment counseling. The course will serve as a reference for career exploration and employment counseling. Students can experience the workplace early, shorten the career exploration period, establish the correct working attitude, and thus expand employment opportunities, and at the same time, enhance their employability through "learning by doing, doing by learning".	參與企業實習使學生結合學術理論和實務作業，瞭解產業實際運作狀況，印證所學增進專業知識，並培養學生對工作職場及專業倫理之正確認知，以作為其職業試探、就業輔導之參考。提早體驗職場，縮短職涯探索期，建立正確工作態度，從而拓展就業機會，同時亦可以由「做中學，學中做」提昇自我之就業力，讓相關產業問題經由學生實習參與，帶回教室、實驗室中研究解決，有效利用學校龐大之研究資源，做為企業之研發後盾。	9	Elective Course	環境生物與漁業科學學系	SDG17
2021	Undergraduate	4	A	企業實習(二)	Internship(II)	The internship enables students to combine academic theories and practical work to understand the actual operation of the industry, to confirm what they have learned and to improve their professional knowledge, and to cultivate a correct understanding of the workplace and professional ethics, which will serve as a reference for their career exploration and employment counseling. The course will serve as a reference for career exploration and employment counseling. Students can experience the workplace early, shorten the career exploration period, establish the correct working attitude, and thus expand employment opportunities, and at the same time, enhance their employability through "learning by doing, doing by learning".	參與企業實習使學生結合學術理論和實務作業，瞭解產業實際運作狀況，印證所學增進專業知識，並培養學生對工作職場及專業倫理之正確認知，以作為其職業試探、就業輔導之參考。提早體驗職場，縮短職涯探索期，建立正確工作態度，從而拓展就業機會，同時亦可以由「做中學，學中做」提昇自我之就業力，讓相關產業問題經由學生實習參與，帶回教室、實驗室中研究解決，有效利用學校龐大之研究資源，做為企業之研發後盾。	9	Elective Course	環境生物與漁業科學學系	SDG17
2021	Undergraduate	4	A	生態毒理學	Ecotoxicology	Environmental toxics are increased with the development of industry and business. It is very important that to realize the toxics in marine ecosystem. This course introduces the toxics by human and nature. And those toxics affect the marine life and food chain.	生態環境的毒性物質隨著人類的發展與日遽增，因此有必要針對海洋生態環境中的毒性物質加以瞭解，本課程講授海洋環境中所發現的毒性物質及其毒性物質對海洋生物以及食物鏈的影響。	2	Elective Course	環境生物與漁業科學學系	SDG2、SDG4、SDG6、SDG11、SDG14
2021	Undergraduate	4	A	海洋環境管理	Management of Marine Environment	The objective of this course is to use the professional knowledge acquired in the past, together with the basic theory of marine environmental monitoring and impact assessment, to understand the measures and methods that should be used for the protection and management of the marine environment.	本課程之教學目標是希望藉由過去所習得之專業知識，配合海洋環境監測與影響評估之基礎理論，來瞭解海洋環境保護與管理應有的措施及方法。	2	Elective Course	環境生物與漁業科學學系	SDG4、SDG11、SDG13、SDG14
2021	Undergraduate	4	A	海洋事務概論	Introduction to Marine Affairs	The goal of this course is to provide students with a holistic concept of marine affairs, including international marine management laws and regulations, organization and operation, as well as domestic marine patrol policies, marine conservation, and industrial operations.	台灣四面環海，國家安全、經濟發展與民眾福祉都與海洋息息相關，近年來海洋的永續管理逐漸受到重視，本課程的目標，旨在呼應國內外情勢，提供學生對於海洋事務全盤的概念，包括國際間相關海洋管理法規、組織運作，以及國內的海巡政策、海洋保育、產業經營，著重理論與實務的結合，並激發學生思考、分析、討論和表達的能力，以培養未來參與國家海洋事務的能力。	2	Elective Course	環境生物與漁業科學學系	SDG12、SDG14、SDG15
2021	Undergraduate	4	A	漁業生態學	Marine Fisheries Ecology	The Fisheries Science Program has shifted from pure production to sustainable management of resources, teaching students a broad understanding of fisheries science in the context of the interrelationship between biological, economic, and social dimensions.	漁業資源已從單純的生產轉向管理資源永續型態，教導學生從生物、經濟、社會層面交互關係中對漁業科學有廣泛的認知。	2	Elective Course	環境生物與漁業科學學系	SDG12
2021	Undergraduate	4	A	全球環境變遷	Global Environment Change	Global environmental change is a dangerous issue for human survival and development, and international and regional actions in progress and development will deeply affect everyone's life and career. This course is a systematic introduction to global environmental change issues. Through an issue-oriented curriculum, the course introduces the scientific basis of the major global change issues and the human, social, economic, and political issues involved, and explores the impact of global change in Taiwan, its adaptation, and response.	全球環境變遷是人類生存發展要面對的險惡問題，進行與發展中的國際及地區的行動將深深影響每一個人的生活與生涯，作為一個現代人必須具備正確的全球變遷基本學識，對主要議題的內涵具有辨識力與敘事力。本課程系統化介紹全球環境變遷議題，透過議題導向的課程設計，介紹全球變遷主要議題的科學基礎及其所牽涉之人文、社會、經濟、政治等層面的問題，並特別對台灣本地的全球變遷衝擊、調適與因應進行探討，培養學生對本地環境變遷議題的敘事能力。	2	Elective Course	環境生物與漁業科學學系	SDG13、SDG14
2021	Undergraduate	1	A	生物學	Biology	Biology is a fundamental subject in the exploration of life. Only after understanding the foundation of biology can we continue to explore other deeper sciences and apply them. This course focuses on evolution, biodiversity, ecology, and behavior.	生物學乃探索生命的基礎學科，瞭解生物學的基礎後方可繼續探索其他更深層的科學，並加以應用。本學期之生物學主要講授演化、生物多樣性、生態學及行為等三大部分。	2	Required Course	環境生物與漁業科學學系	SDG14、SDG15
2021	Undergraduate	1	A	生物學實驗	Biology Lab.	Through hands-on experience, we will observe and verify the biology of life phenomena, biodiversity, and the relationship between organisms and their environment.	藉親自動手操作，觀察印證生物學所敘述的生命現象、生物多樣性及生物與環境的關係。	1	Required Course	環境生物與漁業科學學系	SDG14、SDG15
2021	Undergraduate	1	A	水產概論	Introduction Fishery Sciences	This course provides a comprehensive overview of aquatic industry related disciplines and areas so that first-year students can have an overall understanding of the current status and content of the aquatic industry. The course covers basic professional knowledge and issues such as fisheries, aquatic food and aquaculture, as well as topics such as marine environment and ecological resources conservation.	本課程就水產有關學門及範圍，做全盤性概述介紹，使一年級學生對於水產業的現況與內容能有整體的認識，授課內容包括漁業、水產食品及養殖等基本的專業知識及事務，以及海洋環境及生態資源保育等課題。	2	Required Course	食品科學系	SDG14
2021	Undergraduate	1	B	生物學實驗	Biology Lab.	Through operating the experiments by themselves, the students will gain the knowledge of life science.	期望藉由實驗課程的操作，對生命科學有一基礎認知，繼而引發學生對生命科學的興趣，繼續進修相關的各項專科高階課程，或在對生命奧秘的探討有研究的熱忱。	1	Required Course	食品科學系	SDG4
2021	Undergraduate	1	A	生物學實驗	Biology Lab.	Through operating the experiments by themselves, the students will gain the knowledge of life science.	期望藉由實驗課程的操作，對生命科學有一基礎認知，繼而引發學生對生命科學的興趣，繼續進修相關的各項專科高階課程，或在對生命奧秘的探討有研究的熱忱。	1	Required Course	食品科學系	SDG14、SDG15
2021	Undergraduate	1	A	普通化學(一)	General Chemistry(1)	This course emphasizes the fundamental theories and definitions in chemistry, and it is designed to teach and learn together, to recognize the logic of life science concepts through chemical knowledge, and to build students' ability to read and study technical English. For more information, please refer to: www.chem.ntou.edu.tw	本課程強調化學領域的基礎理論和定義，配合教與學合一的理念，共同體認以化學知識闡述生命科學的邏輯概念，並建立學生研讀科技英語的能力。詳參：www.chem.ntou.edu.tw	2	Required Course	食品科學系	SDG4
2021	Undergraduate	1	A	水產概論	Introduction Fishery Sciences	This course provides a comprehensive overview of the disciplines and scope of the aquaculture industry so that first-year students can gain an overall understanding of the current status and content of the aquaculture industry. The course covers basic professional knowledge and issues such as fisheries, aquatic foods and aquaculture, as well as topics such as marine environment and ecological resources conservation.	本課程就水產有關學門及範圍做全盤性概述介紹，使一年級學生對於水產業的現況與內容能有整體的認識，授課內容包括漁業、水產食品及水產養殖等基本的專業知識及事務，以及海洋環境及生態資源保育等課題。	2	Required Course	水產養殖學系	SDG14
2021	Undergraduate	1	A	生物學(一)	Biology (I)	1. In order to provide students with a correct concept and understanding of biology and life sciences, the course covers different areas of definition, morphology, physiology, evolution, genetics, and environmental science. 2. The course introduces the developmental history and diversity of life through different taxonomic levels and evolutionary sequences, and builds students' understanding and respect for different forms of life. 3. Through the use of "domains" and "boundaries" as a way of summarizing, students can clearly understand the expression of different life forms and the characteristics and values of the existence of species diversity, and then develop a complete understanding of various organisms and their morphological and physiological manifestations, and use them as a way of differentiating between This course is designed to provide students with a thorough understanding of various organisms and their physical and physiological manifestations, and to serve as a basic education in cellular, tissue, individual, and ecological related disciplines. 4. The course is based on biology and introduces different applied sciences such as cell biology, genetic evolution, habitat ecology, and conservation ecology as a guide for extended learning.	1. 為使學生對於生物及生命科學有正確觀念與認知，因此課程內容同時涵蓋定義、型態、生理、演化、遺傳與環境科學等不同領域。 2. 分別藉由不同分類層階與演化順序，完整介紹生命發展之歷程與多樣性，建構學生對不同生命形式之瞭解與尊重。 3. 藉由以"域"及"界"為歸納方式，讓學生能清楚認識不同生命形式之表現，以及物種多樣性存在之特色與價值，進而產生對於各式生物及其形質與生理表現的完整理解，並作為分別於細胞、組織、個體或生態相關學門之基礎教育。 4. 以生物學為基礎，同時導入細胞生物學、遺傳演化、棲地生態與保育生態學等不同應用科學，作為延伸學習之引導。	3	Required Course	水產養殖學系	SDG4、SDG14
2021	Undergraduate	1	B	生物學實驗(一)	Biology Lab. (I)	Through hands-on experience, we will observe and verify biology's description of life phenomena, biodiversity, and the relationship between organisms and their environment.	藉親自動手操作，觀察印證生物學所敘述的生命現象、生物多樣性及生物與環境的關係。	1	Required Course	水產養殖學系	SDG14、SDG15

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	B	生物學實驗(二)	Biology Lab. (Ⅱ)	Through hands-on experience, we will observe and verify biology's description of life phenomena, biodiversity, and the relationship between organisms and their environment.	藉親自動手操作，觀察印證生物學所敘述的生命現象、生物多樣性及生物與環境的關係。	1	Required Course	水產養殖學系	SDG14、SDG15
2021	Undergraduate	1	A	生物學實驗(二)	Biology Lab. (Ⅱ)	Through hands-on experience, we will observe and verify biology's description of life phenomena, biodiversity, and the relationship between organisms and their environment.	藉親自動手操作，觀察印證生物學所敘述的生命現象、生物多樣性及生物與環境的關係。	1	Required Course	水產養殖學系	SDG14、SDG15
2021	Undergraduate	1	B	普通化學實驗(一)	General Chemistry Lab.(I)	Students are trained to be familiar with the basic experiments in general chemistry and to apply them to the course content in order to establish the interrelationship between theory and experimentation and to enable students to learn the basic operations of chemical experiments.	訓練學生熟悉普通化學中的基礎實驗,並應證與課程內容所述者,以建立理論與實驗的相互關係，並使學生學會化學實驗之基礎操作。	1	Required Course	水產養殖學系	SDG1、SDG3、SDG4、SDG6、SDG7
2021	Undergraduate	1	A	服務學習_愛校服務(I)	Service-Learning Program-Campus Service(I)	Students are encouraged to care for themselves, the environment, and public affairs, and to give back to their schools, departments, communities, and society.	增進學生關心自己、關懷生活環境及參與公共事務的意願與熱忱並提供學生回饋學校、系所、社區及社會，從生活體驗中，落實五育均衡的全人教育。	0	Service-Learning Program	水產養殖學系	SDG4
2021	Undergraduate	1	B	服務學習_愛校服務(I)	Service-Learning Program-Campus Service(I)	Students are encouraged to care for themselves, the environment, and public affairs, and to give back to their schools, departments, communities, and society.	增進學生關心自己、關懷生活環境及參與公共事務的意願與熱忱並提供學生回饋學校、系所、社區及社會，從生活體驗中，落實五育均衡的全人教育。	0	Service-Learning Program	水產養殖學系	SDG4
2021	Undergraduate	1	A	服務學習_愛校服務(Ⅱ)	Service-Learning Program-Campus Service(II)	To promote students' willingness and enthusiasm to care for themselves, their living environment and participate in public affairs, and to provide students with the opportunity to give back to their schools, neighborhoods, communities and society, and to implement a balanced whole-person education through life experiences.	增進學生關心自己、關懷生活環境及參與公共事務的意願與熱忱並提供學生回饋學校、鄰里、社區及社會，從生活體驗中，落實五育均衡的全人教育。	0	Service-Learning Program	水產養殖學系	SDG4
2021	Undergraduate	1	B	服務學習_愛校服務(Ⅱ)	Service-Learning Program-Campus Service(II)	Students are encouraged to care for themselves, the environment, and public affairs, and to give back to their schools, departments, communities, and society.	增進學生關心自己、關懷生活環境及參與公共事務的意願與熱忱並提供學生回饋學校、系所、社區及社會，從生活體驗中，落實五育均衡的全人教育。	0	Service-Learning Program	水產養殖學系	SDG4
2021	Undergraduate	2	A	水產品特性	Chemical properties of fishery products	Aquatic animals are different from land-base animals by their highly nutritious but easily spoiled nature. The muscle of aquatic animal is the main edible portion from whole organism, but with fast postmordem autolysis is believed to keep flesh fresh difficult without proper cooling device. Aquacultural fishery products are generally recognized much easily to maintain fresh than wild by their land based operation system and also can be carefully manipulated to avoid toxic compounds accumulation. However, in aquaculture, most of the nutritious components are needed to supplement through feeding system. Fishery products from farmed or wild has its own advantages and drawbacks, however their aquatic nature make them the same of easy spoilage. In this class, we would like to introduce the unique nature of aquatic species and their postmortem chemical changes.	魚蝦貝類有別於陸生動物大都具有營養價值高卻容易腐敗的特性，因其肌肉組織死後自家消化非常快速造成保鮮困難。養殖水產品一般比野生捕撈更容易掌控新鮮度，也能儘量避免有害成份蓄積，但食用的生物營養活性有賴於人為飼料中的添加。因此養殖與野生水產品各有其利弊，期盼經由本學科的介紹以便使同學們在相關領域有更進一步了解與認識。	2	Elective Course	水產養殖學系	SDG2
2021	Undergraduate	2	A	水生生物實驗(1)	Aquatic Biology Lab.(I)	Teaching hands-on courses on fish morphology, anatomy, and classification.	教導對魚類形態, 解剖, 分類等實作課程.	1	Elective Course	水產養殖學系	SDG4、SDG14、SDG15
2021	Undergraduate	2	A	水產無脊椎動物學	Aquatic Invertebrate	To cultivate students' knowledge of aquatic invertebrates, the teaching content introduces the physiology, endocrinology, immunity and aquatic disease control of aquatic invertebrates, and reinforces students' impression with live examples of aquaculture, hoping to achieve a comprehensive understanding of aquatic organisms.	為培養學生對水產無脊椎動物的認知，教學內容介紹了水產無脊椎動物的生理學、內分泌、免疫及水產疾病防治，並以養殖現場實例加深學生的印象，期望能達到學生對水產生物的通盤了解。	2	Elective Course	水產養殖學系	SDG1、SDG2、SDG3、SDG4、SDG11、SDG12、SDG14、SDG17
2021	Undergraduate	2	A	養殖學實驗(一)	Aquaculture Lab. (I)	In order to cultivate and strengthen aquaculture students' understanding and knowledge of aquatic organisms, and to train students with theoretical and practical learning attitudes and concepts of disease, we hope to establish a complete and perfect system of "experiments in aquaculture" for students, in order to educate and train students to be comprehensive and all-rounded aquaculture professionals.	為培養和強化水產養殖系學生對水產生物的了解與認知，同時為訓練學生具理論與實務病種之學習態度與觀念，特期望建立完整而完善的學生”養殖學實驗”制度，以期能達到教育和訓練學生通盤且全方位的水產養殖專業人才。	1	Required Course	水產養殖學系	SDG1、SDG2、SDG3、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG17
2021	Undergraduate	2	B	養殖學實驗(一)	Aquaculture Lab. (I)	In order to cultivate and strengthen aquaculture students' understanding and knowledge of aquatic organisms, and to train students with theoretical and practical learning attitudes and concepts of disease, we hope to establish a complete and perfect system of "experiments in aquaculture" for students, in order to educate and train students to be comprehensive and all-rounded aquaculture professionals.	為培養和強化水產養殖系學生對水產生物的了解與認知，同時為訓練學生具理論與實務病種之學習態度與觀念，特期望建立完整而完善的學生”養殖學實驗”制度，以期能達到教育和訓練學生通盤且全方位的水產養殖專業人才。	1	Required Course	水產養殖學系	SDG1、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG17
2021	Undergraduate	2	A	養殖學實驗(二)	Aquaculture Lab. (II)	This course is designed to help scholars develop the ability to operate in the field in conjunction with aquaculture theory, so that they can apply their skills in the field without being overly skilled.	配合水產養殖學理培養學者現場養殖操作能力,俾於現場應用得心應手,不至於眼高手低.	1	Required Course	水產養殖學系	SDG1、SDG2、SDG3、SDG4、SDG11、SDG12、SDG14、SDG17
2021	Undergraduate	2	A	水質學	Analysis of Water Quality	The importance of water, the relationship between water quality and aquatic life cultivation	水的重要性，水質與水生生物培育的關係	3	Required Course	水產養殖學系	SDG3、SDG4、SDG6、SDG7、SDG11、SDG12、SDG14、SDG17
2021	Undergraduate	2	A	水質學實驗	Analysis of Water Quality Lab.	The importance of water quality for aquaculture	水質對於水產養殖之重要性	1	Required Course	水產養殖學系	SDG1、SDG3、SDG4、SDG6、SDG11、SDG12、SDG14、SDG16、SDG17
2021	Undergraduate	2	B	水質學實驗	Analysis of Water Quality Lab.	The importance of water quality for aquaculture	水質對於水產養殖之重要性	1	Required Course	水產養殖學系	SDG6
2021	Undergraduate	2	A	人工智慧物聯網基礎實作	Practice for AIoT Fundamentals	The integration of artificial intelligence (AI) into various fields has become a trend in the development of new technologies. This course is the advanced level of the three-stage AI courses, which teach students with life science background to experience the applications with AI, and finally, to have the ability to independently propose a viable project of AI. This advanced level will strengthen the programming language ability and implement of the internet of things (IoT) related with life science topics. Depending on the student""s training background and attributes, this series of courses has three major goals: 1. To train students who have no previous experience on programming to have the ability to learn any programming language. 2. To have the ability to apply developed AI libraries with hardware kits. 3. To train students can communicate and collaborate effectively with professional engineers in the future.	人工智慧整合各領域已成為開發新技術的趨勢，本課程為人工智慧三階段課程之進階課程，以體驗人工智慧軟硬體套件的應用的方式來學習，最終能獨立規劃一個人工智慧小型專題。進階課程將強化程式語言能力以及加入與養殖或生命科學相關之物連網硬體實作部分，人工智慧部分則以內建函數庫為主要，讓學生體會到人工智慧如何能實現自己的創意。主要的練習課題為讓同學體驗硬體與程式語言之結合方式，並理解其人工智慧演算法的運作原理與功能上的極限。因應學生的訓練背景與屬性，本系列課程設立以下三個大目標: 1.將不具備程式設計能力的學生訓練到出自學任何程式語言的能力，2.能應用市面上已開發之人工智慧軟硬體套件程式庫等，3.訓練學生在將來能與資訊或電機工程師有效溝通與協作。	2	Elective Course	水產養殖學系	SDG9
2021	Undergraduate	2	A	生態學	Ecology	Ecology is a basic science. The objective is to allow students in various fields to learn and know the basic principles of ecology, understand interactive relation between living organisms and ecological environment. This course uses systematic description to introduce a variety of ecological connotation, principles and experimental methods, supplemented with the topical subject of "global climate change". Through a series of ecological examples, this course allows students to understand the changes in the earth environment and coping strategies in the future, thus achieving sustainable use of ecosystem resources.	生態學是門基礎科學，目的為讓各種領域之學生，學習與認識生態學的基本原理，瞭解生命體與環境互動之關係。本課程利用系統化的描述方式，介紹生態學中的各項內涵、原理及實驗方法等，再佐以目前全球最熱門的氣候變遷之議題，透過一系列生態實例，讓學生瞭解地球環境改變以及未來之因應策略，以期讓學生瞭解生態學之重要性，並利用生態學原理，保護現有生態資源，達到生態系資源的永續利用。	3	Required Course	水產養殖學系	SDG4、SDG6、SDG7、SDG13、SDG14、SDG15
2021	Undergraduate	2	A	水生幼生關鍵開口餌料生物	Key live feeds for first feeding of aquatic larvae	Based on the international research and industry trends in larviculture of aquatic organisms, this course introduces the biological features, aquaculture technologies of various key live feeds for aquatic first feeding. The training is designed to enhance the student’s capacity to develop aquaculture technology of using live feed for aquatic larviculture. Practical trainings are provided to students to investigate the effects of different live feeds to aquatic larvae, which enhances student’s research and manipulation abilities in aquatic larviculture and allow them to contributes to aquaculture industry and research activities.	依據國際間水生動物繁養殖研究潮流及產業脈動，此課程的教學目標為介紹水生動物幼苗初期關鍵的開口餌料生物的生物學及水產養殖技術之最新發展，使學生具有投入水生動物繁養殖及餌料生物開發、培養的能力，配合實作練習使同學探討不同餌料生物對於水生幼苗餵食效果的影響，同時訓練同學們在水生育苗實驗操作及數據收集的能力，未來對於相關產業及研究領域能有所貢獻。	3	Elective Course	水產養殖學系	SDG1、SDG2、SDG3、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG17
2021	Undergraduate	2	A	有機化學	Organic Chemistry	This course provides an introduction to organic chemistry for students who are aiming toward careers in the sciences and require a grounding in organic chemistry.	本課程介紹有機化學的基本知識，培養學生的學習興趣，以便進入有機化學殿堂。	3	Elective Course	水產養殖學系	SDG1、SDG2、SDG3、SDG6、SDG13、SDG17
2021	Undergraduate	2	B	魚類學	Ichthyology	Introduction to basic fish morphology, anatomy, ecology and evolution. 2021-9-28, 10:20 onwards, Aquaculture 2B Ichthyology by GOOGLE MEET Teleclass, please click on the following link to access the course. https://meet.google.com/tyr-idzo-vhk	引導認識基礎的魚類形態, 解剖, 生態及演化. 2021-9-28，10:20起，養2B魚類學 以GOOGLE MEET 遠距上課，請選課同學點擊下列鏈結，以進入課程。https://meet.google.com/tyr-idzo-vhk	2	Required Course	水產養殖學系	SDG4、SDG14、SDG15
2021	Undergraduate	2	A	魚類學	Ichthyology	Introduction to basic fish morphology, anatomy, ecology and evolution. 2021-9-29, 10:20 onwards, Aquaculture 2A Ichthyology by GOOGLE MEET Teleclass, please click on the following link to access the course. https://meet.google.com/pfu-hzpb-bii	引導認識基礎的魚類形態, 解剖, 生態及演化. 2021-9-29，10:20起，養2A魚類學 以GOOGLE MEET 遠距上課，請選課同學點擊下列鏈結，以進入課程。https://meet.google.com/pfu-hzpb-bii	2	Required Course	水產養殖學系	SDG4、SDG14、SDG15
2021	Undergraduate	2	A	養殖工程	Aquaculture Engineering	The purposes of this course are to let students understand the principles of various aquaculture systems and the planning, designing and construction of systems. In addition, how to prepare the water source for aquaculture farm, the treatment of water for aquaculture uses and operating method for aquaculture system will be discussed also. These are all to afford students the essential knowledge for aquaculture research and production.	本課程之教學目標在於使修習者理解各種養殖系統之原理、養殖系統之規劃設計建造、養殖用水水源之取得、養殖用水水質處理方法及養殖系統之操作，以充實從事水產養殖相關研究及水產養殖生產所必備之知識。	2	Elective Course	水產養殖學系	SDG6
2021	Undergraduate	3	A	水生動物生殖操作概論	The concept of reproductive manipulation in the aquatic animal	Many fish species are genetic sex determination and sexes is determined at fertilization but phynotypic sex observed in later developmental stage during fry growth period. Therefore, the treatment of sexually undifferentiated fry by administration of sex steroids has been shown to work well in a wide range of fish species. Thus, in this class, we review the main methods used to control sex determination and reproduction in fish.	多數魚類的性別是經由配子攜帶的特定染色體片段所決定但性別決定和性別分化的過程卻是在孵化後的階段所決定。因此魚類的性別容易經由額外的性類固醇操作所影響。所以我們在這裡將探討如何利用人為操作來影響魚類的性別和生殖發育及其原理。	3	Elective Course	水產養殖學系	SDG2、SDG12、SDG14

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2021	Undergraduate	3	A	水生動物生殖操作實驗	Reproductive manipulation in the aquatic animal	Control of sexes is critically important for the management of fish stock. Sex steroids are widely used for controlling the sex of fish in the aquaculture. This laboratory work is used in conjunction with textbook of concept of reproduction manipulation lecture. In addition to providing hands-on experience in applying reproductive concepts. Students will gain experience of basic skills in reproductive manipulation techniques.	魚類的性別容易受到外源性因子的調控，性別的不同會造成個體在體色、外觀與生長速率的不同。因此"性別的控制"在魚類的養殖上具有高度的價值。本課程將結合實驗設計與實作，期能使學生了解生物技術在性別控制上的應用。	1	Elective Course	水產養殖學系	SDG2、SDG12、SDG14
2021	Undergraduate	3	A	水產養殖實習	Aquaculture Internship	The purpose of the off-campus internship is to provide students with the opportunity to experience first-hand the various management and operations of the farming-related industries and research institutions, in order to validate their learning in the classroom and to achieve the effect of applying their knowledge.	校外實習旨在提供同學機會親身體驗養殖相關產業現場及研究機關各種管理及操作，以驗證平日課堂學習，達到學以致用的效果。	3	Elective Course	水產養殖學系	SDG1、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG17
2021	Undergraduate	3	A	生物化學(二)	Biochemistry (Ⅱ)	The goals of this course are: 1. to gain sufficient fundamental understanding of the chemistry of life to be able to understand and communicate the principles that underlie the properties and function of living tissue on a molecular level; 2. to gain knowledge and skills relevant to careers either in biological sciences or in careers that utilize the informational content of, or are impacted by, research in biochemistry; 3. to be able to use this information to analyze and evaluate new projects	1. 本課程介紹生物化學的基本知識與基本理論，進而了解細胞的奧妙 2. 培養學生生物化學相關技能，以便應用於未來的工作。	3	Required Course	水產養殖學系	SDG1、SDG2、SDG3、SDG4、SDG12、SDG13、SDG14
2021	Undergraduate	3	A	細胞生物學	Cell Biology	The object of this course is to make students rapidly advancing understanding of key concepts and experimental foundation of related research in cell biology by using Becker's World of the Cell 9th edition (2018) as the textbook. Molecular Cell Biology 8th edition (2016) are used as references.	本細胞生物學課程使用Becker's World of the Cell 9th edition (2018)為主要教材，以Molecular Cell Biology 8th edition (2016)為輔助教材，以期讓修課同學瞭解細胞生物學的重要概念及相關研究之實驗基礎。	3	Elective Course	水產養殖學系	SDG3、SDG4、SDG8、SDG9
2021	Undergraduate	3	A	魚類生理學	Fish Physiology	To understand the physiological characteristic of fish, we first focus on the cell constitution, tissue structure, and organ function. In the further, we discuss the distinctive mark of fish by comparative biology concepts.	本課程以對生物學有基礎概念的大學部學生為對象，內容將涵蓋細胞的特性、魚體組織與器官的運作，探討個體如何藉由生理反應來適應外在環境的改變。此外進一步比較魚類和其他物種間如何利用不同的生理反應來適應特定的環境。	3	Required Course	水產養殖學系	SDG12、SDG14
2021	Undergraduate	3	A	魚類生理學實驗	Fish Physiology Lab.	Fish physiology laboratory is used in conjunction with textbook of physiological lecture. In addition to providing hands-on experience in applying physiological concepts. Students will gain experience of basic skills in physiology laboratory techniques.	本課程目的由學生實驗操作，實驗項目大多為魚類生理學之章節而設計，從實驗的過程中讓學生進一步瞭解魚類生理學之概念，並學習生理學實驗的基礎技術。	1	Elective Course	水產養殖學系	SDG14
2021	Undergraduate	3	A	微細藻培養學	Microalgal Cultivation	1. Introduce students to microalgae cultivation techniques: Through the introduction of various microalgae and their cultivation techniques by teachers and external speakers, students will be introduced to the application of microalgae cultivation techniques in our country and the world. 2. To guide students to discover the connection between themselves and microalgae: teachers will guide students to inquire about various microalgae cultivation techniques so that they can understand the contribution of microalgae cultivation techniques to the industry. 3.To make students spontaneously care about the information of microalgae related industries: Through the course, students will start to pay attention to and think about the current situation and possible changes of microalgae related industries in China after understanding the algae, and increase students' care and understanding of microalgae related industries.	1. 引導學生認識微細藻類培養技術：藉由教師及校外演講者介紹我國及世界海域可見之各種微細藻類及其培養技術，引導學生認識微細藻類培養技術之應用範圍。 2. 引導學生發現自身與微細藻類的連結：由教師引導學生查詢各種微細藻類培養技術，使學生瞭解微細藻類培養技術對產業的貢獻。 3. 使學生自發性的關心微細藻類相關產業的資訊：藉由課程進行，使學生在瞭解藻類後，開始關注並思索我國微細藻類相關產業現況與未來可能的變化，增進學生對微細藻類相關產業的關心與瞭解。	2	Elective Course	水產養殖學系	SDG1、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG17
2021	Undergraduate	3	A	微細藻培養學實驗	Microalgal Cultivation Lab.	1. Introduce students to microalgae cultivation techniques: Through the introduction of various microalgae and their cultivation techniques by teachers and external speakers, students will be introduced to the application of microalgae cultivation techniques in our country and the world. 2. To guide students to discover the connection between themselves and microalgae: teachers will guide students to inquire about various microalgae cultivation techniques so that they can understand the contribution of microalgae cultivation techniques to the industry. 3.To make students spontaneously care about the information of microalgae related industries: Through the course, students will start to pay attention to and think about the current situation and possible changes of microalgae related industries in China after understanding the algae, and increase students' care and understanding of microalgae related industries.	1. 引導學生認識微細藻類培養技術：藉由教師及校外演講者介紹我國及世界海域可見之各種微細藻類及其培養技術，引導學生認識微細藻類培養技術之應用範圍。 2. 引導學生發現自身與微細藻類的連結：由教師引導學生查詢各種微細藻類培養技術，使學生瞭解微細藻類培養技術對產業的貢獻。 3. 使學生自發性的關心微細藻類相關產業的資訊：藉由課程進行，使學生在瞭解藻類後，開始關注並思索我國微細藻類相關產業現況與未來可能的變化，增進學生對微細藻類相關產業的關心與瞭解。	1	Elective Course	水產養殖學系	SDG1、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG17
2021	Undergraduate	3	A	營養與飼料學	Nutrition and Feeding	This course provides students with an understanding of basic nutrition and the characteristics of nutritional feeds for aquatic animals.	讓修此課程同學了解基本營養學及水產動物營養飼料之特性。	3	Required Course	水產養殖學系	SDG2
2021	Undergraduate	3	B	營養與飼料學	Nutrition and Feeding	This course will attempt to strike a balance and provide a more holistic view to finfish nutrition in aquaculture. It will approach the subject with due consideration of basic energetics and metabolism of finfish and ontogenetic and physiological features of importance to fish nutrition in aquaculture. This course also introduces ssthe nutrition requirements of individual finfish species.It will provide simple feed formulations, utilization of non-conventional feedstuffs and feed processing.	本課程將試圖在水產養殖中的鰭魚營養方面取得平衡並提供一個更全面的觀點。它將適當考慮到鰭魚的基本能量和代謝，以及對水產養殖中的魚類營養具有重要意義的本體和生理特徵來處理這個問題。本課程還介紹了個別鰭魚物種的營養需求。它將提供簡單的飼料配方，利用非常規的飼料和飼料加工。	3	Required Course	水產養殖學系	SDG2
2021	Undergraduate	3	B	營養與飼料學實驗	Nutrition and Feeding Lab.	This course will teach students to know how to analysis the chemical composition of the diets and ingredients. The experimental design for fish nutrition requiremnet will be included in this course.	本課程將教會學生如何分析糧食和原料的化學成分。本課程將包括魚類營養要求的實驗設計。	1	Required Course	水產養殖學系	SDG2
2021	Undergraduate	3	A	營養與飼料學實驗	Nutrition and Feeding Lab.	Students will learn how to identify the quality of feed and raw materials and practice recipes and feed preparation.	讓同學如何判別飼料及原料品質，並練習配方及飼料之製作。	1	Required Course	水產養殖學系	SDG2
2021	Undergraduate	4	A	水族館經營與管理	Aquarium Management	The aquarium industry has been developing rapidly in recent years. Although it has long been regarded as a leisure industry, it contains a wide range of biological, water environment, material cycle, bait nutrition, and ecological concepts, making it a high value-added, technology-intensive, and specific aquaculture environment, which is another option for students of this department to enter the industry in the future. In recent years, large aquariums have been established in countries around the world for the purpose of collecting, researching, and exhibiting, and they serve a variety of functions such as academic research and education. This course is designed for students who have completed Introduction to Aquatic Products and Aquaculture. The course is conducted through classroom lectures, presentations, group discussions, and visits to large aquarium exhibits. This course introduces the development and real-time dynamics of large aquariums in terms of software, hardware, resources, information and management from a macro perspective. In addition to conveying information on species, husbandry, management and operation of ornamental aquariums, the course also provides students with a correct and clear understanding of ornamental aquariums and the operation of large aquariums through the discussion of journals and information reports.	觀賞水族產業在近年來有快速發展，雖長久以來被視作休閒產業，然而其中所包含對生物、水質環境、物質循環、飼料營養與生態概念等廣泛領域涵蓋，卻使之成為一個具高附加價值、技術密集且具體而微的養殖環境，不失為本系學生將來投入產業的另一選擇。 以收集、研究或為展示構築目的的大型水族館，兼具有學術研究與推廣教育等多種功能，因此在近年來世界各國之大型水族館或展市場所陸續設立。本課程針對本系已修畢水產概論與養殖學之學生為主要授課對象，每週授課3小時，每學期3學分之選修課程。以課堂授課、參與講演、分組討論及大型水族展示場所參訪方式進行。本課程以宏觀角度，介紹大型水族館分別於軟、硬體，資源、資訊與管理上之發展與即時動態，除傳達相關於觀賞水族之物種、飼養、管理及相關操作等資訊，並藉由期刊與資訊之討論報告，讓參與學生能對觀賞水族與大型水族館運作，有正確而清楚的認識。	3	Elective Course	水產養殖學系	SDG2、SDG4、SDG6
2021	Undergraduate	4	A	分子生態學	Molecular Ecology	Molecular biology is taking advantage to permit scientist to address many fundamental questions, including phylogeography, population genetics, conservation genetics, evolution. I introduce students with basic principle, techniques and case study in molecular ecological researches	由於分子生物學的迅速發展，使得科學家可以深入研究包括親緣地理學、族群遺傳學、保育遺傳學、演化等學科。通過本課程，將向學生介紹分子生態學研究的基本原理、技術及相關案例。	3	Elective Course	水產養殖學系	SDG14
2021	Undergraduate	4	A	養殖場實務管理	Management of Practical Culture	In order to cultivate and strengthen aquaculture students' understanding and knowledge of aquatic organisms, and to train students with theoretical and practical learning attitudes and concepts, we hope to establish a complete and comprehensive system of "practical management of aquaculture farms" for students, in order to educate and train students to be comprehensive and all-round aquaculture professionals.	為培養和強化水產養殖系學生對水產生物的了解與認知，同時為訓練學生具理論與實務兩種之學習態度與觀念，特期望建立完整而完善的學生"養殖場實務管理"制度，以期能達到教育和訓練學生通盤且全方位的水產養殖專業人才。	3	Elective Course	水產養殖學系	SDG1、SDG2、SDG3、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG17
2021	Undergraduate	4	A	活魚運輸	Live Fish Transportation	Introduce the basic principles of fish transport and the key factors affecting it during closed packaging system and long term transportation (aquatic organism species, size, age or developmental stages, quality, packaging materials, transport time, water quality control and metabolism products, etc.) are evaluated on the basis of an analysis of the pertinent literature.	介紹活魚運輸基本原理以及在密閉包裝環境與長途/長時運輸下，諸如水生生物種別、體型、年齡或不同發育成長階段、品質、包裝資材、運輸時間、水質管控以及代謝產物等主要影響因素，作為發展並建立相關技術之基礎。	2	Elective Course	水產養殖學系	SDG6

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	4	A	經濟水生植物栽培學	Cultivation of Economic Seaweeds and Water Plants	This course focuses on marine algae and freshwater aquatic plants with economic value, and provides a foundation for their cultivation and culture. The 21st century is the century of biotechnology, and biotechnology research on marine algae and aquatic plants is booming. Taiwan has abundant marine algae and aquatic plant resources, and with the development of algae culture technology and the market demand for aquatic plants, this course introduces the current status of economic aquatic plant utilization, aquatic plant growth and development, production techniques and processes, and the relationship between aquatic plants and the environment. This course provides students with new choices of aquaculture species for the future.	本課程主要是針對具經濟價值之海洋藻類及淡水水生植物，提供養殖與栽培的基礎。二十一世紀是生物科技的世紀，海藻與水生植物的相關生技研究正蓬勃發展，而台灣具有豐富的海藻與水生植物資源，隨著海藻養殖技術的發展與水生植物市場需求，本課程介紹經濟水生植物的利用現況，水生植物生長發育、生產技術與過程，及水生植物與環境的關係。提供修課學生未來水產養殖物種的新選擇。	2	Elective Course	水產養殖學系	SDG14
2021	Undergraduate	4	A	進階水產品特性	Advanced fishery products	With the global depletion of fisheries, sustainable fishing is the future trend and the ultimate goal of consumers. Unlike terrestrial animals, fish contain high quality proteins, unsaturated fatty acids, and a variety of active ingredients, most of which are easily perishable. The wide variety of aquatic organisms (cultured or wild), the difficulty in distinguishing the freshness of invertebrates, and the improper use of artificial additives not only cause economic fraud but also endanger the health of consumers. Therefore, the certification of sustainable aquatic products is not only a promise to consumers, but also an inevitable trend. We hope that through the introduction of this course, students will have a better understanding and knowledge of the related fields.	全球漁源捕撈枯竭，永續漁業是未來的趨勢也是消費者的終極目標。魚類含優質蛋白質及不飽和脂肪酸及多樣活性成分，有別於陸生動物，大都具有容易腐敗的特性，而且肌肉組織鬆散死後自家消化快速而造成保鮮困難。水生生物(養殖或野生)種類繁多、無脊椎類外觀新鮮度判別不易以及人為添加物的不當使用，不但造成經濟詐欺更危害消費者的健康。遮食物生物養殖、棲地保護、建立配額制度是恢復漁業增產的首要目標，但不當操作恐對環境造成巨大傷害，更對產業毫無幫助，因此永續水產品認証不單是對消費者的承諾也是必然的趨勢，期盼經由本學科的介紹以便使同學們在相關領域有更進一步了解與認識。	2	Elective Course	水產養殖學系	SDG12、SDG14
2021	Undergraduate	4	A	溪流生態保育與管理	Conservation and Management of Stream Ecology	1.Understand how stream ecology and stream's diversity 2.Understand stream of fish and the survey method of physical habitat 3.Learn the domestic and oversea ways to stream conservation and restored stream 4.Cultivate the ability to review the stream conservation effect 5. Propose a new opinion of stream conservation	1.了解溪流生態系及溪流生物多樣性 2.認識溪流魚類及物理棲地調查的方法 3.學習國內外溪流保育策略及相關復育作法 4.培養檢討溪流保育成效的能力 5.提出溪流保育新見解	2	Elective Course	水產養殖學系	SDG14、SDG15
2021	Undergraduate	4	A	水產養殖產業實習	Industrial Training	aquaculture industrial prctice	與企業接軌	6	Elective Course	水產養殖學系	SDG1、SDG2、SDG3、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG16、SDG17
2021	Undergraduate	4	A	水產休眠與養殖運用	Aquatic Dormancy and Aquaculture Application	The course aims to enhance student's understanding on the mechanisms, biology and application of dormancy in aquatic animals.	此課程意旨進一步提升修課同學對於水生生物休眠機制、生物學及其應用價值的認知。	3	Elective Course	水產養殖學系	SDG3、SDG4、SDG7、SDG9、SDG11、SDG12、SDG13、SDG14
2021	Undergraduate	4	A	水生動物福利	Aquatic Animal Welfare	Introduce the animal welfare principles established by experimental animals, and refer to the relevant implementation forms of livestock, exhibition and service animals, respectively. To take aquatic animals as the mainstay, and search the friendly aquaculture and sustainable fisheries as the main axis. Introduce thecurrent international trends, relevant regulations, specific feasible operating techniques and strategies to "Aquatic animal welfare", and how to apply them to aquaculture, fishery, live-fish and seafood processing, leisure fishing and The technical application and development of the aquarium pet related industry.	介紹源自實驗動物所建立的動物福利原則，並參考分別於畜產、展演與役使動物之相關落實形式，以水生動物為對象，以友善養殖與永續漁業為主軸，介紹目前動物福利落實於水產生物的國際趨勢、相關法規、具體可行之操作技術與策略，以及如何應用於我國水產養殖、漁業撈捕、食品加工、休閒垂釣與水族寵物相關產業之技術應用及其發展。	3	Elective Course	水產養殖學系	SDG12
2021	Undergraduate	4	A	養殖經濟學	Aquaculture Economics	The ultimate goal of the R&D of farmed fishery technology is to generate profits. Through the principles of economics, this course presents analyses on production economics, marketing economics and case studies, and teaches students to analyze the factors that affect industry profits, and assess the feasibility of industrial inputs or moderately revise.	養殖漁業除生產技術研發，最終目的就是創造利潤，因此，本課程透過經濟學原理，針對生產經濟、運銷經濟、市場經濟及案例分析，教導學生分析影響產業獲利之關鍵，以期評估產業投入之可行性或是進行適度之修正。	3	Elective Course	水產養殖學系	SDG17
2021	Undergraduate	4	A	蝦類養殖經營管理	Management of Prawn Culture	In order to cultivate and strengthen aquaculture students' understanding and knowledge of aquatic organisms, and to train students with theoretical and practical learning attitudes and concepts of disease, we hope to establish a complete and comprehensive system of "shrimp aquaculture management" for students, with the aim of educating and training students to be comprehensive and all-rounded aquaculture professionals.	為培養和強化水產養殖系學生對水產生物的了解與認知，同時為訓練學生具理論與實務病種之學習態度與觀念，特期望建立完整而完善的學生"蝦類養殖經營管理"制度，以期能達到教育和訓練學生通盤且全方位的水產養殖專業人才。	3	Elective Course	水產養殖學系	SDG4
2021	Undergraduate	1	A	程式設計與資料處理	Programming and Data Processing	Using programming logic and syntax, students will construct data processing models and create the required application forms. Students in this course will learn and explore 1. Programming: including programming logic and structure, designing solutions through a problem-oriented approach. 2.Data processing: including data planning and data formatting to make effective use of data. 3.Programming and data processing: Integrating the computation of programs and data to construct the required application programs. 4. Other supporting technologies: including the exploration of other input and output modes.	透過程式設計邏輯與語法，建構起資料處理模式，並且製作出所需之應用表單。學生於本課程將學習與探討 1. 程式設計：包含程式設計邏輯與結構，透過問題導向方式設計解決方案。 2. 資料處理：包含資料規劃與資料格式處理，將資料能做有效使用。 3. 程式設計與資料處理：整合程式與資料之運算，建構所需應用程式。 4. 其他輔助技術：包含其他輸入或輸出模式之探討。	2	Required Course	海洋生物科技學士學位學程	SDG9
2021	Undergraduate	1	A	海洋生物科技與產業	Marine Biotechnology and Biotech Industries	This course mainly invites scholars and experts related to the development of marine science and technology industry to give lectures, so that students can understand the current situation of marine biotechnology and the actual operation of related industries, as well as the future development direction.	本課程主要邀請與海洋科技產業發展相關學者專家或產業人士蒞校演講，使學生瞭解海洋生物科技現況與相關產業的實際運作，以及未來發展方向。	2	Required Course	海洋生物科技學士學位學程	SDG1、SDG2、SDG4、SDG8、SDG9、SDG14
2021	Undergraduate	1	A	生物學(一)	Biology (I)	The purpose of the course in biology is aimed to stimulate the interest of students in biological sciences and enlighten the curiosity of natural phenomena.	生物學是生命科學中的基礎學科，目的為給學生對生物及生命科學具有正確觀念與認知。本學期課程設計以細胞生物學、分子生物學及遺傳演化學三單元為主，除了教授課本中基本知識外，也補充最新科學知識，以使學生除了具備基本知識外也兼具現代	3	Required Course	海洋生物科技學士學位學程	SDG14、SDG15
2021	Undergraduate	1	A	生物學實驗(一)	Biology Lab. (I)	Through operating the experiments by themselves, the students will gain the knowledge of life science.	期望藉由實驗課程的操作，對生命科學有一基礎認知，繼而引發學生對生命科學的興趣，繼續進修相關的各項專科高階課程，或在對生命奧秘的探討有研究的熱忱。	1	Required Course	海洋生物科技學士學位學程	SDG14、SDG15
2021	Undergraduate	1	A	生物學(二)	Biology (Ⅱ)	The purpose of the course in biology is aimed to stimulate the interest of students in biological sciences and enlighten the curiosity of natural phenomena.	生物學是生命科學中的基礎學科，目的為給學生對生物及生命科學具有正確觀念與認知。本學期課程設計以生物多樣性、動物及植物三個單元為主，除了教授課本中基本知識外，也補充最新科學知識，以使學生除了具備基本知識外也兼具現代科學觀。	3	Required Course	海洋生物科技學士學位學程	SDG14、SDG15
2021	Undergraduate	1	A	普通化學實驗(一)	General Chemistry Lab.(I)	To enable students to learn the basic operations of chemical experiments	使學生學會化學實驗之基礎操作	1	Required Course	海洋生物科技學士學位學程	SDG4
2021	Undergraduate	1	A	微積分(一)	Calculus (I)	The objective of this course is to teach students to fully grasp the basic tool of mathematics, to learn the ability of analyzing and solving problems, and to cultivate students the ability of learning advanced mathematics.	希望能讓學生從微積分這門完整的基礎數學知識中學到如何運用數學語言進行思考，建立起分析問題與解決問題的能力。	3	Required Course	海洋生物科技學士學位學程	SDG4、SDG5
2021	Undergraduate	1	A	服務學習_愛校服務(Ⅱ)	Service-Learning Program-Campus Service (II)	Students are encouraged to care for themselves, the environment, and public affairs, and to give back to their schools, departments, communities, and society.	增進學生關心自己、關懷生活環境及參與公共事務的意願與熱忱並提供學生回饋學校、系所、社區及社會，從生活體驗中，落實五育均衡的全人教育。	0	Service-Learning Program	海洋生物科技學士學位學程	SDG4
2021	Undergraduate	2	A	海洋經濟學	Marine Economics	The course of ocean economics mainly provides the practical knowledge and methods of economic analysis on the marine-related industries. It contain the general concepts of economic and economics, and analysis methods of production, marketing, investment decision, sustainable management problems faced by the marine industry, aim to achieve the goal of effective operation.	本課程以海洋經濟為名，主要提供海洋相關產業之經濟分析的理論和應用的知識與方法。內容包括經濟與經濟學的一般概念，以漁業為主體的海洋產業所面臨的生產、投資、市場行銷產業經營的理論和方法，以期達到海洋產業有效經營的目標。	3	Required Course	海洋生物科技學士學位學程	SDG12、SDG14
2021	Undergraduate	2	A	海洋活性物質利用與藥物開發	Marine Active Substance Utilization and Drug Development	The marine environment is characterized by high salt, high pressure, low temperature and anoxia, which are very different from the terrestrial environment. In this special growth environment, marine organisms have formed different metabolic pathways and organism defense mechanisms from terrestrial organisms in the long-term evolutionary process, resulting in some active substances with unique structures and significant pharmacological and toxicological effects. Therefore, the specificity of marine environment and the diversity of species form the basis of the diversity of marine natural active products. Students will be able to understand the characteristics and applications of their studies by linking industrial applications with academic theories.	海洋環境具有高鹽、高壓、低溫、缺氧等迥異於陸地環境的特點，在此特殊的生長環境中，海洋生物在長期的進化過程中也隨之形成了與陸地生物不同的代謝途徑和機體防禦機制，產生了一些結構獨特而藥理毒理作用顯著的活性物質。因此，海洋環境的特殊性和物種的多樣性構成了海洋天然活性產物的多樣性基礎。將產業應用與學術理論做串聯，使學生得以瞭解自身所學之特色及可應用方向。	3	Required Course	海洋生物科技學士學位學程	SDG3、SDG4、SDG9、SDG12
2021	Undergraduate	2	A	應用藻類學	Applied Phycology	To understand well to characteristics and propagation and culture technology of marine plants	理解深化海洋植物的特徵與增養技術	2	Elective Course	海洋生物科技學士學位學程	SDG6、SDG11、SDG13、SDG14
2021	Undergraduate	2	A	生態學	Ecology	Ecology is a branch of biology that studies the interactions among organisms and their environments. The aim of this course is to provide students with the concepts in ecological sciences. The lecture also includes the significant ecological issues.	生態學是一門瞭解地球上生命體與環境互動關係之綜合學科。課程除介紹生態學中的基本概念外，並佐以現今熱門之生態議題，透過實例使學生思考地球環境改變及其相關之因應策略，以期讓學生瞭解生態學之探討重點及其實際應用，並討論以生態學觀點出發保護現有之資源，以期達到生態資源之永續利用。	3	Required Course	海洋生物科技學士學位學程	SDG4、SDG13、SDG14、SDG15
2021	Undergraduate	2	A	導讀海洋生物科技技術	Commentary marine biological technology	The goal of the course is to train students to have the theoretical foundation and ability to marine biotechnology, and to teach marine biotechnology knowledge and related applications in aquatic technology industry.	課程目標為培養學生具有海洋生物科技的理論基礎及能力，同時教導海洋生物技術知識及水產生技產業相關應用。	1	Elective Course	海洋生物科技學士學位學程	SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	癌症藥物設計與開發導論	Introduction to Cancer Drug Design and Development	Marine biodiversity makes marine life the most recognized resource for new drug development. This course will introduce the achievements of scientists in the development and application of marine natural products and medicines in recent years.	海洋生物多樣性使海洋生物成為新藥開發最公認的資源。本課程將介紹近年來科學家在海洋天然產物和藥物的開發和應用中取得的成就。	2	Elective Course	海洋生物科技學士學位學程	SDG14、SDG15
2021	Undergraduate	2	A	有機化學(一)	Organic Chemistry (I)	This course emphasizes the fundamental theories and definitions in the field of organic chemistry, and together with the concept of teaching and learning, it recognizes the logical concepts of life science through the knowledge of organic chemistry and builds students' ability to study and read technical English.	本課程強調有機化學領域的基礎理論和定義，配合教與學合一的理念，共同體認以有機化學知識闡述生命科學的邏輯概念，並建立學生研讀科技英語的能力。	3	Required Course	海洋生物科技學士學位學程	SDG4
2021	Undergraduate	2	A	細胞生物學	Cell Biology	This program is based on the biological function of mammalian cells, detailing the structure, function and biosynthesis of cell membranes and organelles; cell cycle and carcinogenesis; transport, receptor and cell signaling; cytoskeleton, extracellular matrix and cell motility. The cell biology course provides a basic discipline for understanding the internal structure and function of cells. The purpose of this course is to enable students to have a deeper and systematic understanding and understanding of the structure and function of cells on the basis of biology. The course is optional, and will cover different areas of life science applications, including biological histology, molecular biology, biotechnology, biomedicine, etc.	本課程以哺乳生物細胞的生物功能為基礎，詳述細胞膜和細胞器的結構，功能和生物合成；細胞生長和致癌轉化; 運輸，受體和細胞信號傳導; 細胞骨架，細胞外基質和細胞運動。細胞生物學課程提供了解細胞內部構造與功能的基本學科，本課程目的讓學生於既有的生物學基礎上，對細胞之結構及功能有更深入及有系統的瞭解與認識。介紹細胞運作的基本原則，結合現今生物醫學研究的概況，啟發學生對於細胞生物研究的興趣。課程開設為選修科目，涵蓋不同生命科學應用範疇，包括生物組織學、分子生物學、生物技術、生物醫學等。為配合學生興趣及社會需求，本課程把各章節包裝為五大學習主題，分別為細胞結構功能、細胞訊息的調控、細胞週期、細胞骨架、細胞再生與凋亡、癌化之教學等，供學生修讀。課程又透過年度研討會訓練學生的創意及科學研究能力。課程修畢學生在科學研究、生物及教育等範疇均會有卓越的成就。	3	Required Course	海洋生物科技學士學位學程	SDG4
2021	Undergraduate	2	A	微生物學	Microbiology	Microbiology course involved structural function studies of microorganisms, genetics, immunity, biochemistry, epidemiology and others. This course offers study of identification, characteristics of microorganisms, the bacterial pathogenicity, the physiology growth of microorganisms, the genetic information of microorganisms, the detailed descriptions of microorganism, infection and immunity of hosts, the diseases involving bacterial and viral pathogens, and the environment and application of microorganisms. Students are able to learn importance of microbiology in medicinal, ecology and also industrial development. This course is optional. In order to address student’s interests and requirements, this course has been divided into six main themes, from outlines of prokaryotic organisms, viruses, nutritional metabolism of microorganisms, the growth and ecological conditions required, microbial genetics, effects of interaction between host defense and microorganisms	微生物學涉及微生物的結構功能、遺傳、免疫、生化、流病、生態學等多項領域。本課程詳述微生物特徵和分類辨識，細菌致病性，微生物生長和生理知識，微生物遺傳訊息，微生物各論說明，宿主感染與免疫，細菌、黴菌及病毒病原體與相關疾病，環境與應用微生物學；讓學生了解微生物學可以前瞻未來，支配生物、醫藥、生態與工業發展。課程開設為選修科目，為配合學生興趣及社會需求，本課程把各章節包裝為六大學習主題，分別為原核生物概要，病毒，微生物營養代謝、生態與生長要件，微生物遺傳，微生物與宿主防禦的交互影響，專一性免疫的獲得及其應用之教學等，供學生修讀。	3	Required Course	海洋生物科技學士學位學程	SDG2
2021	Undergraduate	3	A	海洋產業實習	Marine Industry Internship	In order to cultivate professional and applied talents in marine science and technology with the ability to work in the field, through the students' employment attributes and suitable materials, after friendly consultation between the school and the internship company, both sides, based on the principle of mutual benefit, mutual support and common development, give full play to the strengths of both sides, both sides to develop in-depth cooperation in the construction of teaching and practice bases, talent cultivation, etc., now the school students to conduct professional industrial internship in the company field	為培養具有現場實作能力的海洋科技技術專業應用型人才，經由學生就業屬性,適材適用，經學校和實習公司友好協商，雙方本著互惠互利、互相支持、共謀發展的原則，發揮雙方優勢，雙方在教學實踐基地建設、人才培育養成等方面開展深度合作，現就學校學生到公司現場進行專業產業實習	2	Elective Course	海洋生物科技學士學位學程	SDG17
2021	Undergraduate	3	A	海洋生物多樣性	Marine Biodiversity	This course aims to understand the importance of marine biodiversity.	本課程之內容主要著重在海洋生物多樣性，瞭解海洋生物物種在基因間、物種間和生態系統在環境時空變遷下的變動情形，人為活動對於生物多樣性產生的衝擊及其後續在生態保育與政策擬定的相關議題，以期讓同學瞭解海洋生物多樣性之內涵，現今地球環境的現況與困境，與未來發展的方向及因應之道等。	2	Required Course	海洋生物科技學士學位學程	SDG14、SDG15
2021	Undergraduate	4	A	病毒學原理與應用	Virology: Principles and Applications	This course is designed for upper-level undergraduate and graduate students to gain an understanding of contemporary virology, including how viruses replicate and proliferate, infect host cells, spread and evolve, and ultimately lead to various diseases. The course includes an introduction to various plant and animal viruses and their mechanisms of infection at the molecular level, host defense mechanisms against viruses, and the development and preparation of antiviral drugs and vaccines.	本課程旨在提供高年級大學部學生及研究生修習以了解當代病毒學相關內容，包括病毒如何複製增殖、感染宿主細胞、擴散並演化，最終導致各種疾病的發生。課程涵蓋簡介各動植物病毒與其分子層次的感染機轉，宿主對抗病毒的防禦機制以及抗病毒藥與疫苗的研發與製備，此外本課程也會涵蓋噬菌體及類病毒的介紹，同時亦會介紹病毒學相關實驗技術，著重於如何製備且定量病毒以及利用病毒作為載體來進行研究或治療動植物的基因療法等。	2	Elective Course	海洋生物科技學士學位學程	SDG17
2021	Undergraduate	2	A	分析化學(二)	Analytical Chemistry (Ⅱ)	This course consists of both theoretical lectures and experiments, aiming to familiarize students with the principles, applications and operations of traditional quantitative analysis.	本課程包含理論講授與實驗兩部份，旨在使同學熟悉傳統定量分析之原理、應用及操作。	2	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	2	A	分析化學實驗(二)	Analytical Chemistry Lab. (Ⅱ)	Students are trained to obtain correct chemical analysis results by combining theoretical knowledge with practical procedures in a rigorous manner.	訓練學生經由實際操作之過程，結合學理上之知識，以嚴謹的態度取得得到正確之化學分析結果。	1	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	2	A	食品安全風險評估	Food Safety Risk Assessment	1. To introduce principles of food safety risk assessment 2. To integrate and calculate risk from hazard identification, exposure results and quantitative 3. To address the uncertainties by using a probabilistic approach to risk characterization 4. To develop reading and communication skills	1. 介紹食品安全風險評估的原則 2. 整合併計算來自危害識別、暴露結果和定量的風險。 3. 通過使用概率方法來處理風險特徵的不確定因素 4. 發展閱讀和交流技能	3	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	2	A	生物化學實驗(一)	Biochemistry Lab. (I)	Skill for experimental technique of biochemistry	使同學熟悉生物化學實驗基本操作.	1	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	2	B	生物化學實驗(一)	Biochemistry Lab. (I)	Basic techniques in biochemical research and analytical laboratories. Intended for students who are not proceeding further in biochemistry.	使同學熟悉生物化學實驗基本操作.	1	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	2	A	生物化學(一)	Biochemistry (I)	This course explores the fundamental chemical reaction mechanisms of the life sciences and is essential for entry into biotechnology-related disciplines.	探討生命科學之基本化學反應原理機制，此課程為進入生物科技相關學門的必要關鍵。	3	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	2	A	有機化學(二)	Organic Chemistry (Ⅱ)	The electron-movement oriented approach is employed to encourage the understanding of organic reactions. The basis biochemistry and environmental chemistry will also be covered in organic chemist`s veiw.	以電子移動主導原理(electron movement)增進學生對有機化學理解，並強調以有機化學基礎之觀點角度，增加對生物化學以及與環境相關之有機化學的認識	3	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	2	A	有機化學實驗(二)	Organic Chemistry Lab. (Ⅱ)	In order to provide students with the basic techniques of experimental operations in conjunction with the organic chemistry curriculum.	配合有機化學課程教學，提供學生學習實驗操作之基本技術。	1	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	2	A	食品加工學(二)	Food Products Technology (Ⅱ)	Enable students in the course to acquire basic knowledge of food science and food processing principles.	使修課同學獲取食品科學基本知識與食品加工原理。	3	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	2	A	普通微生物學(二)	Microbiology (Ⅱ)	The topic of this course is to introduce the knowledge of Microbiology for the students study in the field of Food Science and related disciplines.	本課程為主修食品科學及相關學門者，對微生物學學習的入門。	3	Elective Course	食品科學系食品科學組	SDG4、SDG8、SDG9
2021	Undergraduate	3	A	專題演講(二)	Undergraduate Seminar (Ⅱ)	To enhance the students' extracurricular knowledge in different areas and to validate the theories they have learned.	增進同學不同領域之課外知識及驗證所學理論。	1	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	3	A	食品分析(含實驗)(一)	Food Analysis Lab.(I)	This course provides students with an understanding of the types of analytical methods for the major and minor components of food matrices, and their application to different food types that require AOAC analytical methods.	本課程主要讓學生了解食品基質中之主要成分與次成分的分析方法種類，與其應用於不同食品種類所需要的適合公定(AOAC)的分析方法，透過實驗課程的練習，建立實驗數據的確校觀念，進而達到政府和國際的所要求的標準	2	Required Course	食品科學系食品科學組	SDG3、SDG4、SDG6
2021	Undergraduate	3	A	食品分析(含實驗)(二)	Food Analysis Lab.(Ⅱ)	The purpose of this course is to provide students with an understanding of the quality of food products available on the market and to enable them to effectively control the quality of products that are nutritious, hygienic, safe, and in compliance with regulatory requirements when they are engaged in the food processing industry in the future.	本課程之目的是讓學生了解市面上展售食品之品質以及將來在食品加工業從事生產時，能夠有效控制產品之品質，使其具有營養、衛生和安全並且符合法令規章之要求。	2	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	3	A	飲料調製與管理	Beverage Preparation and Management	Students will learn about the characteristics and management of various beverage ingredients, strengthen their skills in the application of different ingredients to beverage products, and instill in them the ability to drink beverages correctly so that practitioners will have a professional attitude and professionalism and strengthen their ability to think in reverse.	俾使學生瞭解各種飲料原料特性及管理之知識，強化學生對不同原料應用於飲料製品之技能，灌輸學生具備正確飲用飲料使從業人員具備專業態度與專業素養態度，加強反向思考能力。	2	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	3	A	肉品加工	Processed Meats	Recognize knowledge of Meat Science	熟悉肉品加工學相關知識	3	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	3	A	水產化學(一)	Marine Biochemistry (I)	To provide students with an in-depth understanding of the basic biochemical properties of aquatic animal muscle and the changes in properties during storage, freezing, freezing storage and other processes	使學生對水產動物肌肉之生化學基本特性及在貯藏、凍結、凍結貯藏及其他加工過程之特性變化有較深入的瞭解	2	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	3	A	非熱加工技術	Non-Thermal Technologies	Enable students to understand the basic non-thermal food processing concepts, principles and techniques to the acknowledging importance of food processing.	讓學生瞭解非熱食品加工的基本概念、原理及技術，從而認知食品加工的重要性。	3	Elective Course	食品科學系食品科學組	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	A	生物化學(二)	Biochemistry (Ⅱ)	This course are key to life science. All students will extend the basic knowledge and the fundamental viewpoint of Biomedical Sciences.	生命科學之基本化學反應原理機制探討，此課程為一切進入生物科技相關學門的必要關鍵。	3	Elective Course	食品科學系食品科學組	SDG2、SDG3、SDG4、SDG9、SDG10、SDG12、SDG16、SDG17
2021	Undergraduate	3	A	食品行銷管理	Food marketing management	In order to meet the trend of social needs and industrial development, and to enhance students' cross-disciplinary knowledge and skills to enhance their academic research and employment competitiveness, this course teaches students to learn the professional knowledge of food and health care and marketing management, focusing on cultivating students' expertise in food marketing and management, so that students will be equipped with the following knowledge and skills for future marketing after entering the food, health, biotechnology or medicine related industries The goal of this program is to prepare students to enter the food, health, biotechnology, and pharmaceutical industries. The vision is that students will be able to develop professional knowledge in the five major areas of food marketing and management, and to use their knowledge to actively grasp the trends and future employment opportunities. This course is a systematic exploration of marketing management theories and their applications, emphasizing the analysis of important concepts and explaining the application of the theories with real-life examples from home and abroad, in order to enhance students' interest in marketing issues and to develop their professional ability to analyze and solve marketing problems.	為因應社會需求及產業發展之多元趨勢，增拓學生跨領域知識及技能，以提升學術研究及就業競爭力，本課程教導學生學習食品保健及行銷管理等專業知識，著眼於培養學生食品行銷管理專長，使學生修習本學程後能具備以下各種知能，為未來進入食品、健康、生技或醫藥等相關產業後之行銷管理能力作良好準備。願景為透過課程使修習之學生能完整建構食品行銷管理領域五大面向之專業知能，並能善用所學積極掌握各種面向之趨勢發展及未來就業機會。本課程乃有系統地探討行銷管理理論及其應用，強調重要觀念的解析，並以國內外實例與生活見聞來解釋學理的應用，藉以提升同學對行銷議題的興趣，並培養同學分析與解決行銷問題的專業能力。	2	Elective Course	食品科學系食品科學組	SDG3、SDG4、SDG12
2021	Undergraduate	3	A	食品工廠管理	Food Plant Management	This course is designed to provide students with basic concepts of food factory management. The course is designed to introduce the activities of a food factory and the methods of decision analysis, covering production planning, organization, control, coordination, food business departments and staff management. Specifically, this course aims to train students: -Understand the basic concepts of management and its application in food business. -To be able to consult the literature on management and apply it to practical examples	本課程的目的是提供學生食品工廠經營管理的基本觀念，課程主要為介紹食品工廠的活動以及決策分析的方法，課程涵蓋生產計劃、組織、控制、協調、食品企業部門及員工管理。具體來說，本課程主要目的在訓練學生： -了解經營管理的基本概念，及在食品企業的應用。 -能查詢經營管理的文獻並能應用到實例中	2	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	3	A	食品化學(二)	Food Chemistry (Ⅱ)	This course describes the composition of meat, eggs, dairy products, fruits, vegetables, cereals, and natural colors by food type, their specific chemical properties, chemical, physiological and biochemical changes in storage and processing, and functional properties, as well as the relationship between food quality and safety. From raw materials, processing from raw materials, chemical and biochemical changes in processing and storage and the effects on the functional properties of foods, and to stimulate students' ability to make assumptions from what is known	按食品類別分述肉品、蛋類、乳品、蔬果、穀類及天然色素等之成分，特有之化學性質，貯藏與加工中之化學、生理生化變化與功能特性、食品品質安全性之關係。由原料、加工由原料，加工及貯藏中的化學與生化變化及對食品功能特性的影響，並激發學生從已知推想的能力。	2	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	3	B	食品加工實習(一)	Food Products Technology Lab. (I)	The purpose of this course is introducing the practical application of various food processing methods and the explanation of chemical and physical changes in raw materials during processing.	本課程之目的在介紹各種類食品加工方法運用之實務，及原料在加工中其化學、物理變化現象之解明等。	2	Required Course	食品科學系食品科學組	SDG3、SDG4、SDG9
2021	Undergraduate	3	A	食品加工實習(二)	Food Products Technology Lab. (Ⅱ)	The purpose of this course is providing students with hands-on experience and corroborating with the theories presented in the class. Students will also observe the chemical and physical changes of raw materials during processing.	本課程之目的在讓學生有實作經驗，並與上課之學理印證。並觀察原料在加工中之化學、物理變化等。	2	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	3	A	食品冷凍學	Frozen Foods Technology	This course provides a series of introduction to the principles of freezing and processing techniques in order to provide students with a foundation in food preservation. Students will be introduced to the principles of low-temperature preservation of food products, the methods of freezing and processing, and the changes in quality during the freezing process, so that they can understand the current operation of the food freezing industry and have the ability to produce, quality control, and develop low-temperature products.	本課程就冷凍的原理、加工技術做一系列介紹，期以奠定學生在食品保藏之基礎。教導學生低溫保存食品的原理, 介紹各種食品凍結與加工的方法, 探討冷凍加工過程中品質的變化, 使學生瞭解食品冷凍產業的運作現況, 進而具有生產、品管、及研發低溫產品的能力。	2	Elective Course	食品科學系食品科學組	SDG17
2021	Undergraduate	3	A	食品冷凍機械	Food Refrigeration System	The objective of this course is to introduce the basic concept of food freezing machinery, and then be able to adapt to the needs of the food industry.	使學生具有食品冷凍機械之基本概念，進而能適應產業界之需求	2	Elective Course	食品科學系食品科學組	SDG2、SDG9、SDG12
2021	Undergraduate	3	A	食品冷凍機械	Food Refrigeration System	The objective of this course is to introduce the basic concept of food freezing machinery, and then be able to adapt to the needs of the food industry.	使學生具有食品冷凍機械之基本概念，進而能適應產業界之需求	2	Elective Course	食品科學系食品科學組	SDG2、SDG9、SDG12
2021	Undergraduate	3	A	食品微生物學	Microbiology of Foods	Students will be equipped with knowledge and skills in food microbiology for their future career in the food industry and related academic or research institutions, and will be able to apply their knowledge to perform practical work and to analyze and integrate food microbiology-related problems.	培養學生具備食品微生物相關知識與技術,以供其未來至食品業界與相關學術或研究單位,可運用所學執行相關實務工作,並具備分析統合及處理食品微生物相關問題.	3	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	3	A	專題討論	Seminar	1. Train students to collect, read, and digest academic journal literature. 2. Develop motivation and debate to participate actively in academic activities through on-site discussions. 3. Learn about the achievements of other academic institutions and the latest academic developments.	1.給予修課同學訓練收集、閱讀及消化學術期刊文獻。 2.透過現場討論的方式培養積極參與學術活動的動機與辯證態度。 3.了解其他學術單位的成就及最新學術發展方向。	1	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	3	A	營養學	Nutrition	This course will introduce the basic principles of nutrients in food and the physiological metabolism of nutrients in the body.	本課程將介紹食品中營養素之基本原理以及營養在體內之生理代謝。	3	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	4	A	團體膳食管理及實驗	Quantity Food Management & Lab	1. Students will acquire the basic knowledge and techniques of designing and preparing group meals and understand the key points of their management. 2. To combine the core knowledge of food science to stimulate students' interest in the design, production and management of healthy food industry.	1. 使學生具備設計與製備團體膳食之基礎知識與技術，明瞭其管理要點。 2. 結合食品科學核心領域知識，啟發學生投入健康餐食產業設計、生產與管理之興趣。	3	Elective Course	食品科學系食品科學組	SDG8
2021	Undergraduate	3	A	水產加工學	Fishery Food Processing	Students will learn the basic principles and methods of manufacturing various processed products, as well as the current production and marketing trends of the aquatic product industry.	使修課同學獲取水產原料特性與保鮮處理方式；學習各種加工產品製造有關之基本原理與方法；以及認識水產加工業之產銷現況與趨勢等。	2	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	4	A	分子料理學	Molecular Gastronomy	The purpose of this course is to dispel the myths of the general public about food preparation from a scientific point of view, and to build students' understanding of the physical and chemical properties of food ingredients and their suitability for use in cooking or processing products.	本課程目的在於以科學的角度，破除一般大眾對於食品烹調的迷思，並建立學生充分瞭解食品成分分子的物理化學特性，及其運用於料理、或是加工產品的適性，同時可培養和激發學生對於創作料理及創新產品的觸角。	3	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	4	A	食品產業校外實習	Food Industry Extracurricular Practice	In addition to the knowledge acquired in the classroom, the students will be able to learn about what is happening outside the school.	使同學除課堂上習得之知識外,並能實地了解校外之動態.	9	Elective Course	食品科學系食品科學組	SDG4、SDG8、SDG9
2021	Undergraduate	4	A	保健食品概論	Introduction Nutritional Supplement	This course introduces the current situation of health care in our country, followed by a detailed description of the situation in other countries, so that students can have a consistent understanding of the development and management of the world.	介紹我國保健之現況，接著詳細說明其他國家之情形，讓學生能一貫性地瞭解世界各國之發展與管理的情形。	3	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	4	A	食品新產品開發	Food New Product Development	The objective of this course is to introduce the development process of new food products. Provide students with the ability to evaluate the possibility, cost-effectiveness and market potential of developing new foods. Through sharing examples, students will lean the skill to developing new food products.	本課程的目標是向學生介紹食品新產品之開發流程。使學生具備能力評估開發新食品的可能性、成本效益及市場潛力。並藉由實例分享獲得食品開發新產品之技能。	2	Elective Course	食品科學系食品科學組	SDG4
2021	Undergraduate	4	A	食品發酵技術與開發功能性食品	Food Fermentation Technology and Development of Functional Food	Introducing the development and prospect of food industry as well as teaching students to realize the identification, principle and application of novel or alternative food processing. To investigate of specific functional food products and its application of new functional food	介紹食品工業之發展現況及展望。並瞭解近年來發展或流行的食品加工技術及應用，探討特定保健功能產品及其在保健食品的開發。	3	Elective Course	食品科學系食品科學組	SDG3、SDG4、SDG12
2021	Undergraduate	3	A	食品衛生與安全	Food Sanitation and Safety	In addition to choosing fresh and nutritious raw materials, food must be properly cleaned and cooked to maintain the health of those who consume it because of possible contamination with food poisoning bacteria and toxic and other unclean substances. This course is designed to teach students the knowledge of food safety and hygiene so that they can maintain their physical and mental health by taking care of their diets in their daily lives.	人人需要飲食,而吃出健康是飲食的重點,食物原材料除了要選擇新鮮,營養外 由於可能污染食物中毒菌與有毒及其他不潔的物質,所以必須經過妥善清洗與烹調,以維護攝食者的健康。本課程以傳授食品安全與衛生有關的知識,讓學生在生活中注意飲食以保持身心健康,同時講授食物調理場所及供膳場所的安全與衛生作業知識,以作為職場經營的參	2	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	4	A	食品微生物學實驗	Microbiology of Foods Lab.	The objective of this course is to develop and train students with the ability to analyze food-related microorganisms independently through practical exercises	本課程目標乃藉由實際操作培養及訓練學生具有獨立分析食品相關微生物之能力	2	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	4	B	食品微生物學實驗	Microbiology of Foods Lab.	Students who have completed this course will have the ability to perform basic food-related microbiology experiments independently.	培育修畢本課程的學生具有初步獨立進行基礎食品相關微生物學實驗之能力	2	Required Course	食品科學系食品科學組	SDG4
2021	Undergraduate	4	A	食品廢棄物處理	Food Waste Treatment	This course provides students with the basic principles and methods of food waste and wastewater treatment and recycling.	使修課同學獲取食品廢棄物與廢水處理、回收利用有關之基本原理與方法。	2	Elective Course	食品科學系食品科學組	SDG6、SDG11、SDG12
2021	Undergraduate	4	A	新穎食品加工技術	Novel Food Processing	This course enables students to acquire food processing and preservation techniques and food processing principles.	使修課同學獲取食品加工保藏技術之與食品加工原理。	3	Elective Course	食品科學系食品科學組	SDG9、SDG11、SDG12
2021	Undergraduate	4	A	儀器分析(二)	Instrumental Analysis (Ⅱ)	The aim of the course is to introduce the students to the main methods of instrumental analysis. The students will gain an understanding of mass spectroscopy and chromatographic separation.	本課程旨在使同學熟悉質譜及之原理、判讀及應用與常用色層分析之原理、應用及操作。	2	Elective Course	食品科學系食品科學組	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	4	A	膳食療養及實驗	Therapeutic Nutrition and Laboratory	1. Enable students to understand the role of food in disease control and treatment, and develop core knowledge in preparing diets for disease. 2. To integrate knowledge in the field of food science to stimulate students' motivation for active learning and cultivate their interest in innovative research and development. 3. To strengthen students' skills in data compilation, peer collaboration, communication, synthesis and analysis, and logical thinking for employment and further study.	1. 使學生明瞭食物於疾病控制與治療之角色，培養學生製備疾病飲食之核心知能。 2. 結合食品科學領域知識，啟發學生主動學習之動機，培養創新研發之興趣。 3. 強化學生彙整資料、同儕合作、表達溝通、綜論分析及邏輯思考等就業或升學所需能力。	3	Elective Course	食品科學系食品科學組	SDG2、SDG3、SDG4、SDG9、SDG10、SDG12、SDG16
2021	Undergraduate	2	A	分析化學(二)	Analytical Chemistry (Ⅱ)	The course is to acquaint the student with laboratory techniques for chemical analysis and the appropriate selection and use of these methods for their future success in data analysis and experimental design of any chemical related problems in every scientific disciplinary including chemistry, biology, biotechnology, forensic science, food science, material science, clinical chemistry, environmental science, etc.	本課程旨在引導學生熟稔化學分析技術以及適當地選擇及應用分析方法的能力，藉以養成生物技術、法醫學、食品科學、材料科學、臨床化學、環境科學等銜接學科中數據分析及實驗設計的基本知能。	2	Required Course	食品科學系生物科技組	SDG4
2021	Undergraduate	2	A	分析化學實驗(二)	Analytical Chemistry Lab. (Ⅱ)	To learn and master the basic skills needed to perform quantitative analytical measurements (mass and volume measurements, quantitative transfer, etc.) To understand and apply a variety of chemical reactions (precipitation, acid-base, complexation, and oxidation-reduction) for the quantitative analysis of three or more certified unknowns To introduce students to formal laboratory report writing To learn how to calculate the concentration of an analyte in an unknown sample (and the associated uncertainty, when applicable) To learn how to handle the statistical treatment (mean, standard deviation, 95% confidence interval, etc.) of experimental data obtained via volumetric and instrumental methods of analysis To understand the difference between accuracy and precision of the results obtained	本課程旨在引導學生熟稔化學分析技術以及適當地選擇及應用分析方法的能力，藉以養成生物技術、法醫學、食品科學、材料科學、臨床化學、環境科學等銜接學科中數據分析及實驗設計的基本知能。	1	Required Course	食品科學系生物科技組	SDG4
2021	Undergraduate	2	A	生物化學實驗(一)	Biochemistry Lab. (I)	Skill for experimental technique of biochemistry	使同學熟悉生物化學實驗基本操作.	1	Required Course	食品科學系生物科技組	SDG4
2021	Undergraduate	2	A	有機化學實驗(二)	Organic Chemistry Lab. (Ⅱ)	In conjunction with the organic chemistry curriculum, this course provides students with the basic techniques of laboratory operations.	配合有機化學課程教學，提供學生學習實驗操作之基本技術。	1	Elective Course	食品科學系生物科技組	SDG4
2021	Undergraduate	3	A	專題演講(一)	Undergraduate Seminar (I)	Enhance students' extracurricular knowledge in different areas and validate theories learned.	增進同學不同領域之課外知識及驗證所學理論。	1	Elective Course	食品科學系生物科技組	SDG4、SDG8、SDG17
2021	Undergraduate	3	A	專題演講(二)	Undergraduate Seminar (Ⅱ)	Enhance students' extracurricular knowledge in different areas and validate theories learned.	增進同學不同領域之課外知識及驗證所學理論。	1	Elective Course	食品科學系生物科技組	SDG4
2021	Undergraduate	3	A	分子生物學	Molecular Biology	Objectives: Our objective is to provide a stimulating environment in which students can obtain: a) an in-depth understanding of the organization, replication and expression of the genetic material in prokaryotic and eukaryotic cells, b) an understanding of contemporary methods and approaches used in the analysis of gene structure and function, c) experience and confidence in applying this knowledge to solve new and interesting problems in molecular biology. --- ** The purpose of this course is intended fo	我們的目標是提供一個刺激性的環境，使學生能夠獲得： a）深入了解原核細胞和真核細胞中遺傳物質的組織、複製和表達； b）了解用於分析基因結構和功能的當代方法和途徑； c）應用這些知識解決分子生物學中新的和有趣的問題的經驗和信心。	4	Required Course	食品科學系生物科技組	SDG3、SDG4
2021	Undergraduate	3	B	生物技術學實驗	Biotechnology Lab.	This course is designed to implement the theory of biotechnology in basic experiments and to familiarize students with basic biotechnology operations.	本課程設計為落實生物技術學的理論於基礎實驗中，使學生熟悉基礎的生物技術操作。	3	Required Course	食品科學系生物科技組	SDG4
2021	Undergraduate	3	A	生物技術學實驗	Biotechnology Lab.	This course is designed to implement the theory of biotechnology in basic experiments and to familiarize students with basic biotechnology operations.	本課程設計為落實生物技術學的理論於基礎實驗中，使學生熟悉基礎的生物技術操作。	3	Required Course	食品科學系生物科技組	SDG4
2021	Undergraduate	3	A	生物技術學	Biotechnology	The aim of the class is to introduce upper level undergraduate students to the main theoretical concepts and experimental designs in biotechnology. Specific course aims include: (1) an introduction of the basic concepts and issues in biotechnology, (2) development of techniques and data analysis, (3) develop skills in protein production, purification and characterization, and (4) develop an understanding of the application of these techniques in medicine and the agriculture.	簡介生物技術的發展、原理。	3	Required Course	食品科學系生物科技組	SDG4
2021	Undergraduate	3	A	食品加工實習(一)	Food Products Technology Lab. (I)	The purpose of this course is to introduce the practical application of various food processing methods and the explanation of chemical and physical changes in raw materials during processing.	本課程之目的在介紹各種類食品加工方法運用之實務，及原料在加工中其化學、物理變化現象之解明等。	2	Required Course	食品科學系生物科技組	SDG4、SDG9
2021	Undergraduate	3	A	專題討論	Seminar	Learn how to collect and publish scientific journals, and understand how to write and report scientific reports.	學習科學期刊資料的收集整理與發表,了解科學報告的撰寫及報告	1	Required Course	食品科學系生物科技組	SDG4
2021	Undergraduate	3	A	營養學	Nutrition	1. To provide students with basic nutrition knowledge and understanding of the role of food components in maintaining human physiological functions and preventing diseases. 2. To integrate core areas of food science knowledge to stimulate students' interest in researching innovative foods and learning advanced nutrition courses. 3.Students will develop the ability to compile data, collaborate with peers, analyze and think, and communicate..	1. 使學生具備基礎營養知識，明瞭食物成分在維持人體生理功能及預防疾病之角色。 2. 結合食品科學核心領域知識，啟發學生研究創新食品、學習進階營養課程之興趣。 3. 培養學生彙整資料、同儕合作、分析思考及表達溝通...等能力。	3	Required Course	食品科學系生物科技組	SDG4
2021	Undergraduate	4	A	免疫學	Immunology	This course was designed through seminar presentation, that will extend the basic knowledge of immunology. The lectures will focus on intensively active areas of cellolar immunology research. Basic principles will be reinforced by considering disease states in which basic cell biological processes as well as immune response are defective.	為日間部學院生物技術學程課程，宗旨是期待能增加生命科技的發展性及因應國際間免疫科技之教學趨勢，教授及探討基本學術原理及日常生活性、產業研發的免疫機制議題，因此本課程為有志進入生技產學界的必要選擇考慮。	3	Elective Course	食品科學系生物科技組	SDG17
2021	Undergraduate	3	A	食品衛生與安全	Food Sanitation and Safety	This course is designed to provide students with an understanding of current food hygiene and safety related knowledge, including knowledge and prevention of food poisoning, mycotoxin poisoning, natural toxin poisoning of plants and animals, chemical substances added to food or environmental contaminants, hygiene and safety of food packaging and management, heavy metal contamination, etc., and is supplemented by information on relevant regulations and policies.	本課程目的在於使學生瞭解現有食品衛生與安全之相關知識，包括食品中毒相關知識與防治、黴菌毒素中毒、動植物天然毒素中毒、食品添加物或環境污染物之化學物質、食品包裝容器之衛生安全與管理、重金屬污染等等，並導入相關法規與政策資訊輔之。	2	Required Course	食品科學系生物科技組	SDG4
2021	Undergraduate	4	A	食品微生物學實驗	Microbiology of Foods Lab.	Students who have completed this course will have the ability to perform basic food-related microbiology experiments independently.	培育修畢本課程的學生具有初步獨立進行基礎食品相關微生物學實驗之能力	2	Required Course	食品科學系生物科技組	SDG4
2021	Undergraduate	1	A	程式設計及資料處理	Programming language and data processing	Basic Python programming, English typing and basic biological information and the ability to observe protein structures	具備基本的Python程式設計,英文打字與基礎生物資訊及觀察蛋白質結構的能力	2	Required Course	生命科學暨生物科技學系	SDG3、SDG4、SDG9、SDG11、SDG12、SDG13、SDG14
2021	Undergraduate	1	A	生物學實驗(一)	Biology Lab. (I)	Through operating the experiments by themselves, the students will gain the knowledge of life science.	期望藉由實驗課程的操作，對生命科學有一基礎認知，繼而引發學生對生命科學的興趣，繼續進修相關的各項專科高階課程，或在對生命奧秘的探討有研究的熱忱。	1	Required Course	生命科學暨生物科技學系	SDG4
2021	Undergraduate	1	A	服務學習_愛校服務	Service-Learning Program-Campus Service	Cultivate the spirit of school care and service-learning attitude through campus public area cleaning service	透過校園公共區域打掃服務培養愛校精神與服務學習態度	0	Service-Learning Program	生命科學暨生物科技學系	SDG1、SDG3、SDG4、SDG5、SDG7、SDG11、SDG12、SDG16
2021	Undergraduate	1	A	水產概論	Concept of Modern Fisheries	This course performs a comprehensive overview on disciplines and the scope of the fisheries science and technology, the freshmen will acquire overall understanding of the status and contents of the development of fisheries science and technology. The contents include aquatic biology, fisheries, food and farming expertise and affairs, as well as the marine environment and ecological resources conservation topics.	本課程就水產有關學門及範圍，做全盤性概述介紹，使一年級學生對於水產業及水產科技的發展現況與內容能有整體的認識，授課內容包括水產生物、漁業、水產食品及養殖等基本的專業知識及事務，以及海洋環境及生態資源保育等課題。	2	Required Course	生命科學暨生物科技學系	SDG14

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	海洋生物多樣性實驗(一)	Lab. Practical of Marine Biodiversity (I)	This course is taught in the beginning weeks of the summer The course will be held at three main venues: Ocean University, the Aquatic Research and Conservation Center, and the National Museum of Marine Science and Technology. Course date: Due to the epidemic Postponed to 08/02-08/05 Please note that the course will be announced again if it is not yet unblocked, so please pay special attention to avoid absence. Maximum number of students: 25. (During summer vacation) Meeting time: August 2, 0900 a.m. Meeting place: Room 506, General Bldg. 2, OSI Classes will be held at A indoor course：Sea Science Center/Insitute of Marine Biology Room 506 B Field Course: Ecological Survey of Northeast Cape Streams Course Fee: NT 1,000 (including meals, materials, and equipment rental from 6/22 to 6/29) Accommodation is on your own. Students with questions about this course Please contact Mr. Chen Yixiong (0928152503) 5320 Ext. This course aims to train students to understand the diversity of ecological systems in various waters. Students will learn the basic techniques of field ecological surveys, species identification and specimen production. Students will learn the basic techniques of field ecological surveys, species identification and specimen preparation, and understand the meaning of biodiversity in waters.	本課程教學，暑期集中於開始的周次 海大課程 全程在 海洋大學及水生生物研究暨保育中心與國立海洋科技博物館 三個主場地進行 授課日期疫情關係 延後到08/02-08/05 若是尚未解封，會再公告，請特別注意，以免缺席。 修課人數上限：25人 修課時間：8月2日至8月5日 (為暑假期間) 集合時間：8月2日上午0900 集合地點：海生所綜合二館506室 上課地點： A室內課程：海科館/海生所506室 B野外課程：東北角溪流生態調查 課程費用：報名費為NT 1,000 (包含6/22~6/29餐費、材料費、裝備租借等費用) 住宿自理 此課程有問題問學 請洽陳義雄老師(0928152503) 5320分機 本課程教學目標，旨在訓練學生瞭解各水域生態系之多樣性， 並學習在野外生態調查基本技術，及物種鑑定與標本製作， 已瞭解水域生物多樣性之內涵。	2	Elective Course	生命科學暨生物科技學系	SDG14、SDG15
2021	Undergraduate	3	A	無脊椎動物免疫學	Invertebrate Immunology	Our current knowledge about immunology mainly comes from the study in vertebrates, however, since the invertebrates are the most abundant, diverse, and successful animals on earth, we should also learn the immunity in invertebrates. The purpose of this course is to acquaint the students with latest knowledge and development of invertebrate immunology, so that the students will have better understanding toward this novel and increasingly important study field.	相較於脊椎動物，無脊椎動物的相關研究較少，但無脊椎動物的多樣性和豐富性,證明它們是地球上生存相當成功的物種，因此應該對它們有更深入的了解才是。它們成功的原因之一，在於它們具有高效率且特殊的免疫系統，能保護他們抵抗各式病原體的攻擊，而本課程的目的在於將現今無脊椎動物免疫學的最新發展趨勢介紹給學生，進一步擴展學生對無脊椎動物的了解。	2	Elective Course	生命科學暨生物科技學系	SDG14
2021	Undergraduate	3	A	海洋生態與全球變遷	Marine Ecology and Global Change	Students will understand the types and functions of marine ecosystems and the impact of global change on marine ecosystems.	使學生了解海洋生態環境的種類與功能，以及全球變遷對海洋生態環境的衝擊。	2	Elective Course	生命科學暨生物科技學系	SDG14
2021	Undergraduate	3	A	生理學	Physiology	Understand how the various organ systems of animals (including humans) operate to perform their functions	瞭解動物(涵蓋人類)的各個器官系統如何運作執行其功能	3	Elective Course	生命科學暨生物科技學系	SDG4
2021	Undergraduate	3	A	天然物製備學及應用	Preparation and application of natural materials	Natural substances are closely related to our lives. Many of the foods, food additives, health products, cosmetics, and medicines used in our daily lives are derived from natural substances in nature. Natural products sometimes have therapeutic effects such as curing or improving diseases, so natural products are the pioneering knowledge for drug development. This course will explain the extraction, purification, and application of natural substances, and reinforce the characteristics of marine natural substances.	天然物和我們的生活息息相關，舉凡日常生活中所使用的食品、食品添加劑、保健品、化妝品、藥物等，許多都源自於自然界的天然物質。天然產物有時具有治療或改善疾病等治療效果，因此天然物是藥物開發的先導知識。 本課程針對天然物之萃取、純化及應用進行說明，並強化海洋天然物之特色。	3	Elective Course	生命科學暨生物科技學系	SDG3
2021	Undergraduate	3	A	免疫學	Immunology	To learn the basic concepts of immunology, how the immune system works, and immune-related diseases	學習免疫學之基本概念、免疫系統如何運作以及免疫相關疾病	3	Elective Course	生命科學暨生物科技學系	SDG17
2021	Undergraduate	4	B	專題討論(二)	Seminar (Ⅱ)	Training students on how to read papers in life science related professional journals	訓練學生如何閱讀生命科學相關專業期刊論文	1	Required Course	生命科學暨生物科技學系	SDG4
2021	Undergraduate	3	A	普通微生物學(二)	Microbiology (Ⅱ)	This lecture leads the students know the principle of microbiology. There are three main purposes: 1.Let students know the fundamental knowledge of viruses. 2.To investigate the interaction between microbe and host. 3.Let students know the concepts of microorganisms and human disease.	1. 承接微生物學（一），能更深入掌握各微生物的特性。 2. 了解微生物和寄主之間的關係。 3. 能關懷微生物與人類疾病間關係，並具備研究能力。	3	Elective Course	生命科學暨生物科技學系	SDG3、SDG4、SDG6
2021	Undergraduate	1	A	海洋工程導論	The Introduction of Ocean Engineering	Students who have completed this course should have the ability to. 1. explain the meaning and basic methodology of marine engineering with their own vocabulary and understanding. 2. describe the fundamental aspects of marine engineering in various disciplines. 3. have a basic understanding of the social responsibility and code of conduct for engineers.	修完這門課的同學，應擁有以下能力： 1. 以自己的詞彙和理解說明海洋工程的內涵與基本的方法論。 2. 能說明各種專業海洋工程的基本內涵。 3. 對工程師的社會責任與應具備的守則有基本認識。	2	Elective Course	工學院	SDG12
2021	Undergraduate	1	A	船艦概論	Introduction to Naval Architecture	This course is an introduction to the series of courses in shipbuilding engineering and therefore focuses on developing students': 1.Understand the functions and characteristics of various types of ships; (inform) 2.Be familiar with the basic professional knowledge of naval vessels; (explain) 3.To master the current status, process and future development of ship design and construction; (Demonstration) 4.To stimulate students' interest and self-learning ability in future courses related to naval vessels. (Inspiration)	本課程為修讀造船工程專業系列課程之入門，因此著重於培養學生 瞭解各種船艦之功能與特性；(告知) 熟悉船艦基本專業知識；(解釋) 掌握船艦設計與建造之現況、流程與未來發展；(示範) 激勵學生對日後修讀船艦相關課程之興趣與自學能力。(啟發)	3	Required Course	系統工程暨造船學系	SDG7、SDG9、SDG12、SDG13、SDG14、SDG17
2021	Undergraduate	2	A	船舶監造實務	Practical Ship Survey	Practical ship supervision and survey courses to equip students with the knowledge of ship construction and survey for future planning and maintenance of ships	實務性之船舶監造與檢驗課程，使同學未來在規劃建造或船舶保養維修時應具備之船舶建造及檢驗知識	3	Elective Course	系統工程暨造船學系	SDG7、SDG9、SDG12、SDG13、SDG14、SDG17
2021	Undergraduate	2	A	工程數學(一)	Engineering Mathematics (I)	This course will focus on ordinary differential equations, which deal with functions of a single variable (which we can usually think of as time). Differential equations are the mathematical language in which the laws of nature are expressed, and an understanding of the properties of differential equations and their solutions is a fundamental threshold for entering modern science and engineering. This course covers first-order ordinary differential equations, higher-order (including second-order) ordinary differential equations, and matrices. We expect that by the end of the semester, students who take the course will have developed the ability to 1. be able to use their own vocabulary to describe what a differential equation is and to define the basic terms for differential equations and matrix operations. 2. be able to use basic theoretical and analytical methods to solve systems and equations of chi-square and non-chi-square ordinary differential equations. 3. be able to use basic qualitative analysis to investigate the properties of solutions of ordinary differential equations. 4. to investigate the properties of systems of linear algebraic equations using theorems related to matrices; and to find the eigenvalues and eigenvectors of a coefficient matrix when it is a square matrix. 5. be able to apply the principle of equilibrium and Newton's laws of motion to convert problems of force motion into mathematical equations and to explain the meaning of each of the differential equations. 6. be able to solve differential equations using appropriate theoretical analytical or graphical methods and explain the physical significance of the solutions.	本課程內容將以常微分方程式為主軸，此等方程式所要處理的乃是單一變數的函數（我們通常可把這個變數當作是時間）。微分方程式是自然界各種定律用以表達的數學語言，了解微分方程式與其解的屬性，乃是進入現代科學與工程的基礎門檻。本課程涵蓋的範圍包括一階常微分方程式、高階（含二階）常微分方程式、矩陣。我們希望在學期結束之後，修課的學生能發展出以下的能力： 1. 能用自己的辭彙說明什麼是微分方程式，並定義微分方程式與矩陣運算的基本名詞。 2. 能使用基本的理論解析法求解齊性與非齊性常微分方程式與方程組。 3. 能使用基本的定性分析法，來探討常微分方程式之解的特性。 4. 能使用矩陣的相關定理，探討線性代數方程組的特性；並求取係數矩陣為方陣時的特徵值與特徵向量。 5. 能運用平衡原理與牛頓運動定律，將力學運動問題轉換成數學方程式，並解釋微分方程式各項的意義。 6. 能運用適當的理論解析法或圖解法求解微分方程式，並解釋其解之物理意義。	3	Required Course	系統工程暨造船學系	SDG4
2021	Undergraduate	2	A	專題實作(二)	Project-Based Practice and Implementation(Ⅱ)	This course aims to train students to integrate various professional fundamentals learned in the classroom and to develop practical application skills in the field of systems and shipbuilding engineering. The possible topics of this course include fluid mechanics, CAE application and development, fluid-solid coupling system design, application of artificial intelligence in the field of ship engineering, and ship design. The objectives of this course can be completed in one or two semesters.	本課程旨在培育學生整合課堂所學之各種專業基礎知識，並發展系統與造船工程領域相關科技之實務應用能力。 本課程可能的議題涵蓋流體機械、相關CAE應用與開發、流固偶合系統設計、人工智慧在船舶工程領域之應用、船舶設計等方面，學生可依其興趣，擇定適當之專題實作題目，進行本課程之實務演練。本課程所需完成之目標，可於一學期或兩學期間完成。	3	Elective Course	系統工程暨造船學系	SDG9
2021	Undergraduate	2	A	基礎Java程式設計	Fundamental Java Programming	The class teaches students basic programming capability using Java programming language.	本課程設計除了讓學生學會Java程式語法，最重要是教導學生如何建立程式設計能力。	3	Elective Course	系統工程暨造船學系	SDG1、SDG4、SDG5、SDG8、SDG9、SDG10、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	專題實作(一)	Project-Based Practice and Implementation(Ⅰ)	The main objectives are (1) to train students to integrate and apply what was learned in fundamental courses in a practical project and (2) to develop students' application ability of innovation and creative practice in systems engineering and naval architecture. The topics include, but do not restrict to, fluid machinery, sensor design, CAE, structural system, fluid-structure interaction, AI, Industry 4.0, digital system design, noise engineering, rail engineering, and ship design. Students are encouraged to discuss with professors to choose a topic for practical implementation.	本課程旨在培育學生整合課堂所學之各種專業基礎知識，並發展系統與造船工程領域相關科技之實務應用能力。 本課程可能的議題涵蓋流體機械、感測器設計、相關CAE應用與開發、結構系統設計、流固偶合系統設計、人工智慧在船舶工程領域之應用、工業4.0在船舶工程領域之應用、數位系統設計、噪音工程、軌道工程、船舶設計等方面，學生可依其興趣，選定適合之指導教授、擇定適當之專題實作題目，進行本課程之實務演練。	3	Elective Course	系統工程暨造船學系	SDG9
2021	Undergraduate	2	A	資料庫系統導論	Introduction of Database System	Database system is a necessary tool to the world nowadays. Due to the importance of big data, any fields or businesses cannot live without it up to a country or down to a person.	資料庫之應用除了必要，因應大數據分析之重要，在各個應用領域愈顯不可或缺，上至國家、下至個人。本課程主要教導學生如何規劃並可自行創建全新資料庫。	2	Elective Course	系統工程暨造船學系	SDG1、SDG4、SDG5、SDG8、SDG9、SDG10、SDG12
2021	Undergraduate	3	A	造船廠生產管理自動化	Automation Production Management in Shipyards	In addition, the construction environment and machinery in shipyards are different from other large factories, and the focus and implementation of production management is also different. The purpose of this course is to allow students to understand the current shipyard production and manufacturing environment, needs and constraints, and how to improve the effectiveness of production management automation in shipyards through course lectures, actual shipyard visits and group discussions, as well as through practical contact with field engineers.	船舶並不是大量生產而販賣的產品，即使是同型船，依然會發生相當多的客製化需求，此外，造船廠的施工環境及機械也與其他大型工廠有所不同，生產管理的重點與實施方式亦有所不同。 本課程目的在讓修課學生透過課程講解、造船廠實際參訪以及分組討論方式，並藉由與現場工程師的實際接觸，了解現今造船廠的船舶生產與製造環境與需要及限制之因素，如何才能提昇造船廠生產管理自動化的效能。	3	Elective Course	系統工程暨造船學系	SDG4、SDG9、SDG14
2021	Undergraduate	3	A	離岸風電之規劃、設計及管理	Planning, Design & Management of Offshore Wind	Offshore wind power substantive courses to have those who interested in green energy and technology obtain knowledge of offshore wind power as another choice for future employment.	實務性離岸風電課程，讓有志於投入綠色能源的同學具備離岸風電之基本知識與技術，作為未來就業的另一份選擇。	3	Elective Course	系統工程暨造船學系	SDG7、SDG9
2021	Undergraduate	3	A	風力發電機系統設計	System Design of Wind Turbine	1. To develop students' knowledge of wind energy generation and conversion 2. To develop students' understanding of the characteristics and advantages and disadvantages of different types of wind turbines 3. To train students' ability to design small and medium-sized wind turbines, including: Blade design, structural design, generator matching, electronic control logic simulation, over wind speed protection mechanism simulation, wind farm test execution, and power generation statistics.	1.培養學生對風能產生及轉換之概念 2.培養學生了解不同種類風機之特色與優缺點 3.訓練學生對中小型風機設計的能力，包含: 葉片設計、結構設計、發電機匹配、電控邏輯模擬、過風速保護機制模擬、風場測試執行、發電量統計法則	2	Elective Course	系統工程暨造船學系	SDG7
2021	Undergraduate	3	A	智慧船舶與航儀系統	Smart Vessel and Navigation Instruments	The practical course of ship belt assembly enables students to have the knowledge of ship systems and equipment, and to know the regulations of ship belt assembly by classification association and international related regulations, and to establish the overall practical ability of students in ship planning, design, construction, examination of drawings, supervision, management and repair and maintenance in the future, so that students can follow and enter the work of shipbuilding factory, shipping company, ship R&D and design in the future employment.	本課程將介紹智慧船舶之組成要素，藉由科技之發展利用各類感知器、通信技術、海事資訊系統、船聯網等各類技術如何將智慧因子導入船舶設計中。課程中將介紹各式海洋船舶之基本航儀系統，以及如何經由各航儀間之資訊如何形成海事資訊系統使船舶駕駛更具航行安全性。由海洋運輸系統概念、船舶碼頭席位排程及如何自動化、貨物貨櫃裝卸排程以及如何自動化等等所帶來之便利性、智慧系統設計方法及其相關應	2	Elective Course	系統工程暨造船學系	SDG17
2021	Undergraduate	3	B	艤裝學	Outfitting	The practical course of ship belt assembly enables students to have the knowledge of ship systems and equipment, and to know the regulations of ship belt assembly by classification association and international related regulations, and to establish the overall practical ability of students in ship planning, design, construction, examination of drawings, supervision, management and repair and maintenance in the future, so that students can follow and enter the work of shipbuilding factory, shipping company, ship R&D and design in the future employment.	實務性之船舶艤裝課程，使同學具備船舶各系統及裝備之知識，並且認識船級協會與國際相關法規對船舶艤裝部份之規定，建立同學未來在船舶規劃、設計、建造、審圖、監造、管理以及維修保養時之整體實務能力，可以讓同學未來就業時無論從事造船廠、航運公司、船舶研發設計等工作能有所遵循與切入。	3	Elective Course	系統工程暨造船學系	SDG17
2021	Undergraduate	3	A	艤裝學	Outfitting	The practical course of ship belt assembly enables students to have the knowledge of ship systems and equipment, and to know the regulations of ship belt assembly by classification association and international related regulations, and to establish the overall practical ability of students in ship planning, design, construction, examination of drawings, supervision, management and repair and maintenance in the future, so that students can follow and enter the work of shipbuilding factory, shipping company, ship R&D and design in the future employment.	實務性之船舶艤裝課程，使同學具備船舶各系統及裝備之知識，並且認識船級協會與國際相關法規對船舶艤裝部份之規定，建立同學未來在船舶規劃、設計、建造、審圖、監造、管理以及維修保養時之整體實務能力，可以讓同學未來就業時無論從事造船廠、航運公司、船舶研發設計等工作能有所遵循與切入。	3	Elective Course	系統工程暨造船學系	SDG17
2021	Undergraduate	3	A	進階Java程式設計	Advanced Java Programming	Nowadays, there"""re many free packages available to programmers for application development. Thus, further progress may easily be made concerning automation and artificial intelligence along various phases in the world. More free packages are there, hotter is the programming language. Therefore, the class teaches students what the object-oriented programming is and how to use free packages to develop your own applications. In the end of the class, a project must be proposed and finished as a part of your learning evaluation.	現今的程式語言都屬物件導向程式語言，而且網際網路上都可尋得許多程式庫套件，免費提供開發者整合，以促進自動化或智慧化之相關軟體研發，免費程式庫越多、程式語言越熱門。但若不了解物件導向程式設計的概念，就不瞭解應如何運用這些免費程式庫，而Java程式語言一值是物件導向程式設計的領頭羊。因此，本課程以Java程式語言為工具，藉由開發圖形使用者介面為例，教授同學瞭解物件導向程式設計(object-oriented programming, OOP)的概念，且懂得如何應用程式庫套件；課程最後必須提出期	3	Elective Course	系統工程暨造船學系	SDG1、SDG4、SDG5、SDG8、SDG9、SDG10、SDG12
2021	Undergraduate	4	A	中階造船實習	Basic Shipbuilding Practice	The internship was mainly conducted at two major domestic shipbuilding design and manufacturing companies. (1) Ship Design Fundamentals at the Ship and Marine Industry Research and Development Center, followed by a. Ship Line Drawing and Basic Performance Calculation, b. Ship Engine Design Analysis, c. Ship Structural Design and Hull Survey, d. Ship Rigging Design Practice, e. Ship Electrical Design Analysis, f. Ship Computational Flow Application, g. Ship Maneuvering and Motion Simulation Analysis Practice, and h. Yacht Design and Practice. Design practice of one major internship project of their choice among the eight projects. (2) The Kaohsiung Plant of Taiwan Shipbuilding Corporation selects a major internship project among the five projects of a. basic design, b. hull design, c. boat design, d. engine design, and e. on-site production, and conducts a special project using the actual production design software of Taiwan Shipbuilding to truly understand the work nature of the shipbuilding design and production unit.	實習主要於二家國內主要造船設計與製造公司進行： (1)財團法人船舶暨海洋產業研發中心學習船舶設計基本知識，然後於a.船舶線形設繪與基本性能計算、b.船舶輪機設計分析、c.船舶結構設計與船體檢驗、d.舟義裝設計實務、e.船舶電機設基分析、f.船舶計算流力應用、g.船舶操縱與運動模擬分析實務、h.遊艇設計與實務8個項目中自選一個主要實習項目設計實作； (2)台灣造船公司高雄廠於a.基本設計、b.船體設計、c.舟義裝設計、d.輪機設計及e.現場生產5個項目中，自選一個主要實習項目，利用台船實際生產設計之軟體進行一專題實作，以真正瞭解造船設計生產單位之工作性質。	2	Elective Course	系統工程暨造船學系	SDG17
2021	Undergraduate	1	A	河海工程概論	Introduction on Harbour & River Engineering	The purpose of this course is to provide freshmen with an in-depth discussion of the scope of river and marine engineering and to provide them with an understanding of what river and marine engineering entails and the future direction of research and development. The course covers (a) marine engineering, (b) structural engineering, (c) water resources and environmental engineering, (d) geotechnical and transportation planning and management, and (e) practical applications of engineering, and aims to develop the following skills through presentations and lectures. 1. understand the scope of river and marine engineering and related basic knowledge. 2. to understand contemporary issues and the importance of engineering technology on the environment, ecology and society. 3. to recognize the concept and importance of lifelong learning. 4. to appreciate the responsibility of engineers to society.	本課程之目的乃針對河海工程所涵蓋之範圍，作一深入淺出之探討，以提供大一新生瞭解河海工程學之內涵與未來之研究發展方向及出路。課程內容涵蓋(a)海洋工程領域(b)結構工程領域(c)水資源及環境工程領域(d)大地與運輸規劃管理領域(e)工程實務應用領域等單元，希冀透過專題介紹與演講方式培養同學具備下列各項能力： 1.瞭解河海工程所涵蓋的範圍及相關基礎知識。 2.認識當代議題，瞭解工程技術對環境、生態及社會影響的重要性。 3.體認終身學習的觀念與重要性。 4.體會工程師對社會所應負的責任。	2	Elective Course	河海工程學系	SDG6
2021	Undergraduate	2	B	水文學	Hydrology	Hydrology is the study of the occurrence, circulation, distribution, physical and chemical properties of water on Earth and its relationship to all living things. This course is an application of the principles of hydrology from an engineering point of view to solve human problems in water resource development. The course will attempt to simulate the relationship between the total volume of water and its temporal distribution during the hydrological cycle in order to serve as a standard for the design of water resources projects and to further understand the risks faced by the project facilities.	水文學屬於地球科學學門，是研究地球上水的發生、循環、分佈、物理與化學特性以及和所有生物間的關係。本課程乃是由工程觀點，應用水文學原理解決人類在水資源開發所面臨的問題。針對水在時間與空間上之變化特性，工程水文學試圖模擬水文循環過程中，水體總量與時間分佈之關係，以作為水資源工程設計之標準，並進一步瞭解工程設施所面臨的風險。	3	Required Course	河海工程學系	SDG6、SDG9
2021	Undergraduate	2	A	水文學	Hydrology	Hydrology is the study of the occurrence, circulation, distribution, physical and chemical properties of water on Earth and its relationship to all living things. This course is an application of the principles of hydrology from an engineering point of view to solve human problems in water resource development. The course will attempt to simulate the relationship between the total volume of water and its temporal distribution during the hydrological cycle in order to serve as a standard for the design of water resources projects and to further understand the risks faced by the project facilities.	水文學屬於地球科學學門，是研究地球上水的發生、循環、分佈、物理與化學特性以及和所有生物間的關係。本課程乃是由工程觀點，應用水文學原理解決人類在水資源開發所面臨的問題。針對水在時間與空間上之變化特性，工程水文學試圖模擬水文循環過程中，水體總量與時間分佈之關係，以作為水資源工程設計之標準，並進一步瞭解工程設施所面臨的風險。	3	Required Course	河海工程學系	SDG6、SDG9
2021	Undergraduate	2	A	水力發電工程概論	An Introduction to Hydropower Engineering	Hydroelectricity is a fast, green, clean, and environmentally friendly energy source, and hydroelectricity can be recycled. This course is designed to provide students with the knowledge of hydroelectric power generation, such as the principle, type and capacity of power generation, investigation of planning procedures, water diversion facilities, dams or weirs, various waterways/hydraulic structures, and types and features of hydraulic turbines. Students are expected to acquire a basic knowledge of hydroelectric power generation, an overview of the principles of power generation and related applications, and subsequent applications in practical planning and design work.	水力發電是快速、綠能清潔又環保之能源，且水力可循環利用，因此水力能源是世界各國重要的資源與開發項目。本課程期讓學生獲得水力發電之相關知識，如發電原理、型式與發電量，調查規劃程序、引水設施、壩工或堰、各水路/水工結構物、水輪機之類別與特性等。冀修課學生獲得水力發電之基本知識，瞭解發電原理及有關應用之概要，並為後續於實務規劃及設計工作時之應用。	3	Elective Course	河海工程學系	SDG7、SDG9
2021	Undergraduate	2	A	水資源概論	Introduction of Water Resources	to introduce the relationship between water resources and humans, and the water management with optimal utilization.	使學生瞭解水與人類生活之密切性及如何合理運用水資源.	2	Elective Course	河海工程學系	SDG6

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	水利法規	Water Act	Students will learn about the legislative background, history, intent and organizational structure of the Water Resources Act, its impact on Taiwan's social and economic development and water development and utilization, as well as its impact and challenges. The course will explore and explain the relevant water theory and regulations, and supplemented by practical examples, so that students can easily understand, hoping that students have a basic and correct understanding of the practical operation of water projects and the operation and management of water resources.	讓學生了解水利法的立法背景、沿革、歷程、用意與組織架構，其對台灣社會、經濟發展與水源開發利用的影響，衝擊與挑戰。課程中將探討說明所涉及相關的水理與法規條文理論，並輔以實例，使學生易於瞭解，冀望學生對於水利工程實務運作與從事水資源操作運用管理上，有基本而正確的認識。	2	Elective Course	河海工程學系	SDG6
2021	Undergraduate	2	A	遙測學概論	Fundamental of Remote Sensing	This course aims to provide fundamental theory and concept of remote sensing to undergraduate students and some applications of remote sensing in environmental monitoring will be introduced.	本課程旨在讓大學部學生了解遙測相關的基礎原理，以及遙測的相關應用案例介紹	2	Elective Course	河海工程學系	SDG4、SDG10、SDG11、SDG13、SDG15
2021	Undergraduate	2	A	地震學概論	Introduction to Seismology	This course provides an overview of the basic concepts of seismology, including what seismology is, the internal structure of the earth, types of seismic waves and their propagation properties, seismograph principles, earthquake forecasting, earthquake prediction, earthquake hazard and prevention, etc. This course will enhance students' understanding of seismology and increase their ability to learn the fundamentals of earthquake engineering.	本課程將概要性介紹地震學的基本概念，包括什麼是地震學、地球內部結構、地震波的類型以及傳播性質、地震儀原理、地震預報、地震預測、地震災害與預防等等。通過本課程的學習，將會提升學生對地震學的認識，增加學生學習地震工程的基礎能力。	3	Elective Course	河海工程學系	SDG11、SDG13
2021	Undergraduate	4	A	運輸工程	Transportation Engineering	The course establishes students' basic knowledge of traffic engineering, cultivates their interest in practical analysis and processing, and provides them with the ability to plan and design for traffic safety.	建立學生基本交通工程知識，培養實務分析、處理興趣，進而具備交通安全規劃設計之能力。	3	Elective Course	河海工程學系	SDG11
2021	Undergraduate	3	C	土壤力學	Soil Mechanics	Soil mechanics is an engineering science that explores the physical properties of soils and the behavior of soils under different conditions of stress. The course provides students with a complete and in-depth understanding of soil sources and particle size, engineering classification of soils, soil compaction, permeability, stress and compressibility in soils, and shear strength.	土壤力學是一門探討土壤與物理性質，和研究土體在不同受利情況下行為的工程科學，課程主要使同學對土壤來源與粒徑、土壤之工程分類、土壤夯實、滲透性、土體中之應力與壓縮性、剪力強度有完整深入了解，使同學能運用土壤力學之原理應用於實際工程，減少工程災害之發生。	3	Required Course	河海工程學系	SDG11、SDG13
2021	Undergraduate	3	A	山坡地工程	Slope Engineering	This course aims to teach students to understand hillside engineering problems and disasters that occur in the special topography, geology, and hydrology of Taiwan, to cultivate students' understanding of hillside engineering and disaster prevention, to enable them to grasp the types and timing of hillside disasters, and to formulate appropriate countermeasures to apply to hillside engineering disaster prevention issues, to train students to prepare and present engineering research projects, and to learn the content knowledge for the Geotechnical Technician examination.	本課程教學目標在教導學生瞭解台灣地區特殊地形、地質與水文情形下所發生之山坡地工程問題與災害，培養學生對山坡地工程與災害防治之認識，使學生具有掌握山坡地災害之型態及時機，並擬定適當之對策，進而應用於山坡地工程之防災課題,訓練學生具備工程研究計畫投標準備與簡報能力並學習大地工程技師應考科目內容知識	3	Elective Course	河海工程學系	SDG11、SDG13
2021	Undergraduate	3	A	海洋能源開發與應用	Exploitation of ocean renewable energy	The course will first provide students with an understanding of the types of marine energy sources and their energy application principles, as well as the suitable environment and constraints of marine energy capture systems, and introduce various cases of marine energy development and applications around the world, as well as their energy capture and conversion systems. The overall objective of the course is to provide students with an understanding of the principles and fundamentals of ocean energy institutions, and to develop their creative abilities to think of new ocean energy institutions and facilities.	本課程首先讓學生了解海洋能源的種類以及其能源應用原理，同時說明海洋能源擷取系統的適合環境與限制條件，並介紹目前全世界各類海洋能源開發與應用的案例，以及其能量擷取與轉換系統，最後則須由學生自行構思並提出一種海洋能源擷取與轉換系統。整體教學目標除讓學生在了解海洋能源機構的原理與基礎後，期能發揮創新能力，思考新型的海洋能源機構與設施。	3	Elective Course	河海工程學系	SDG7、SDG9
2021	Undergraduate	3	A	海岸開發與保育	Coastal Development and Conservation	The course introduces the basic theories of coastal change, reflecting the latest research results and development prospects, so that students can acquire comprehensive knowledge and application paths to be inspired in their future research applications.	介紹海岸變遷的基礎理論，反應最新研究成果與發展前景，使學生獲得全面的知識與應用途徑，以在往後的研究應用上受到啟發。	3	Elective Course	河海工程學系	SDG14
2021	Undergraduate	3	C	生態工程	Ecological engineering	This course combines the theories of river continuity, flood pulse, and river corridor with basic hydraulic engineering and ecology to explore the habitat degradation, conservation, and restoration from the upper river catchment to the lower estuarine coastal wetlands. Through the introduction and discussion of actual cases and research results of ecological engineering in Taiwan and overseas, students are expected to understand the necessity and potential of ecological engineering that combines hydraulic engineering and ecology.	本課程藉由基本的水利工程及生態學講述，結合水利工程及生態學的河川連續、洪水脈衝、河川廊道等理論，探討由河川上游集水區至下游河口海岸濕地面臨之棲地劣化、保育及復育等課題。並經由臺灣與國外的生態工程實際案例及研究成果之介紹與討論，期望學生瞭解結合水利工程與生態學之生態工程之必要性及發展應用潛力。	3	Elective Course	河海工程學系	SDG14
2021	Undergraduate	3	A	專題研究-廢棄物之性質與應用	Special Topic Research – Properties of Waste and Applications	The goal of this course is to help students understand their own expertise and interests, to familiarize them with research methods and practices, and to train them in data collection, independent research, and report writing. Students in the third and fourth years of the department who wish to pursue further education or participate in graduate school may conduct research projects with faculty members outside of class time. At the end of the semester, students will submit a research project report to the department office, and the instructor will evaluate and sign the report. Students will acquire the following competencies through this course. 1. the ability to apply professional knowledge in river and marine engineering 2. Ability to operate experimental design and analyze data 3. Communication and presentation skills	本課程的目標係 協助同學了解自己的專長與興趣，修習本課程有助於學生從事研究工作，讓同學熟悉研究方法與實作，訓練學生蒐尋資料、獨立研究及撰寫報告之能力。本系三、四年級同學有志深造或參加研究所推甄者，可利用課餘時間隨系上教師進行專題研究，選課前須洽訪指導老師並確定專題方向，工作時間由指導教師自行安排。期末繳交乙份研究專題報告書至系辦公室，並由指導教師評定報告成績並予簽名，成績及格者即可取得本課程學分。透過本課程學生可獲得以下的能力： 1.河海工程專業知識應用的能力 2.實驗設計操作及數據分析的能力 3.溝通表達的能力	2	Elective Course	河海工程學系	SDG11、SDG12
2021	Undergraduate	3	A	專題研究-資源永續利用與循環經濟	Special Topic Research - Sustainable uas of resources and circular Economy	The goal of this course is to help students understand their own expertise and interests, to familiarize them with research methods and practices, and to train them in data collection, independent research, and report writing. Students in the third and fourth years of the department who wish to pursue further education or participate in graduate school may conduct research projects with faculty members outside of class time. At the end of the semester, students will submit a research project report to the department office, and the instructor will evaluate and sign the report. Students will acquire the following competencies through this course. 1. the ability to apply professional knowledge in river and marine engineering 2. Ability to operate experimental design and analyze data 3. Communication and presentation skills	本課程的目標係 協助同學了解自己的專長與興趣，修習本課程有助於學生從事研究工作，讓同學熟悉研究方法與實作，訓練學生蒐尋資料、獨立研究及撰寫報告之能力。本系三、四年級同學有志深造或參加研究所推甄者，可利用課餘時間隨系上教師進行專題研究，選課前須洽訪指導老師並確定專題方向，工作時間由指導教師自行安排。期末繳交乙份研究專題報告書至系辦公室，並由指導教師評定報告成績並予簽名，成績及格者即可取得本課程學分。透過本課程學生可獲得以下的能力： 1.河海工程專業知識應用的能力 2.實驗設計操作及數據分析的能力 3.溝通表達的能力	2	Elective Course	河海工程學系	SDG12、SDG14
2021	Undergraduate	3	A	專題研究-海洋汙染擴散	Special Topic Research-Introduction to coastal	Providing university students with an early understanding of the basic characteristics, scientific knowledge and theories of marine pollutants	提供大學部學生先行瞭解海洋污染物的基礎特性、科普知識與相關學理	2	Elective Course	河海工程學系	SDG14
2021	Undergraduate	3	A	專題研究-遙測於防減災之應用	Special Topic Research-Remote sensing application in disaster management	In general, the spatial coverage of various kind of disasters is relatively large and some disaster such as landslide occur in remote area where people very difficult to reach. Remote sensing is a state-of-the-art tool to monitor the land surface changes from space and it provides repeat observations to monitor the change of the disaster. With a proper environmental issue, this course is aiming to lead student to realise an environmental issue or a disaster issue and monitor it with cloud-based remote sensing tools.	一般而言，災害影響範圍大或發生於人員難及之處，基於上述特性，衛星遙測即為相當適合的監測工具，從太空中了解地球表面之變化情形，而衛星的重複觀測能力提供災害演變的監測能力，最重要的事情為選定所要探討之環境議題，例如：ＮＡＳＡ的暑期工讀生便以衛星影像監測海岸生態的變化。本課程主要目標即在於教導學生使用雲端遙測工具，分析衛星影像，監測大範圍之災害事件與生態環境之影響。	2	Elective Course	河海工程學系	SDG6、SDG11、SDG13、SDG15
2021	Undergraduate	3	A	河海工程綜論	Comprehensive of Harbor and River Engineer Practice	The Department of River and Marine Engineering is a department that combines civil, hydraulic, and marine engineering. In order to meet the educational objectives of the department, graduates who have served in civil, hydraulic, harbor, marine, construction, and transportation planning engineering organizations and held important positions are invited to share their practical engineering experiences. The Department of River and Ocean Engineering will also provide students with the opportunity to explore the Department of River and Ocean Engineering through presentations, lectures and presentations. Through lectures, presentations, and fieldwork visits, students are trained to have a basic knowledge of civil engineering in general and a specialization in river and marine engineering, so that they can become engineers with both theoretical and practical skills to support the country's major construction and development of marine technology.	河海工程學系是一個結合土木、水利與海洋工程的系所，本課程為配合本學系教育目標，特邀請在土木、水利、港灣、海洋、營建、運輸規劃等工程機構服務並擔任重要職務的畢業系友，來分享他們的工程實務經驗；並針對海岸海洋工程、結構與材料工程、水資源及環境工程、大地工程與運輸規劃管理等領域，由學生分組製作專題報告，讓學生主動探索河海工程學系的內涵。透過專題演講聆聽、專題報告討論及現地工程參訪，訓練學生具有一般土木工程基礎素養，並有河海工程之專業，成為一個理論與實際並重的工程師，以配合國家從事重大建設與發展海洋科技。	2	Elective Course	河海工程學系	SDG4、SDG6
2021	Undergraduate	3	A	海岸工程學	Coastal Engineering	Understand fundamental theory and engineering applications subject to coastal engineering	本課程以海岸工程實務會發生的災害問題為主。主要延續海岸水力學(波浪力學)的後續，即波浪變形, 潮汐運動, 海岸漂砂, 港池振盪, 海工結構物設置, 污染物擴散等。主要授課精神即培養學生基本的海岸工程實務應用概念。	2	Required Course	河海工程學系	SDG11、SDG13
2021	Undergraduate	3	B	海岸工程學	Coastal Engineering	Understand fundamental theory and engineering applications subject to coastal engineering	本課程以海岸工程實務會發生的災害問題為主。主要延續海岸水力學(波浪力學)的後續，即波浪變形, 潮汐運動, 海岸漂砂, 港池振盪, 海工結構物設置, 污染物擴散等。主要授課精神即培養學生基本的海岸工程實務應用概念。	2	Required Course	河海工程學系	SDG11、SDG13

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	A	防災工程實務	Disaster Prevention and Mitigation Engineering	This course provides comprehensive disaster management knowledge and skills to enhance the capabilities of disaster prevention.	本課程主要目標在於讓學生認識災害與成因，並培養大學生有關防災工程實務方面之基本素養與技能。	3	Elective Course	河海工程學系	SDG11、SDG13
2021	Undergraduate	3	A	專題研究-都市水環境與雨水利用	Special Topic Research	This course combines the theories of river continuity, flood pulse, and river corridor with basic hydraulic engineering and ecology to explore the habitat degradation, conservation, and restoration from the upper river catchment to the lower estuarine coastal wetlands. Through the introduction and discussion of actual cases and research results of ecological engineering in Taiwan and overseas, students are expected to understand the necessity and potential of ecological engineering that combines hydraulic engineering and ecology.	本課程的目標係 協助同學了解自己的專長與興趣，修習本課程有助於學生從事研究工作，讓同學熟悉研究方法與實作，訓練學生蒐尋資料、獨立研究及撰寫報告之能力。 本系三、四年級同學有志深造或參加研究所推甄者，可利用課餘時間隨系上教師進行專題研究，選課前須洽訪指導老師並確定專題方向，工作時間由指導教師自行安排。 期末繳交乙份研究專題報告書至系辦公室，並由指導教師評定報告成績並予簽名，成績及格者即可取得本課程學分。透過本課程學生可獲得以下的能力： 1.河海工程專業知識應用的能力 2.實驗設計操作及數據分析的能力 3.溝通表達的能☉	2	Elective Course	河海工程學系	SDG6、SDG11
2021	Undergraduate	3	A	專題研究-水資源管理與系統分析	Special Topic Research	Students will be introduced to the tools of water resources management and system analysis, with theory and practice complementing each other.	教導學生初識水資源管理及系統分析之工具，理論與實務互為配合。	2	Elective Course	河海工程學系	SDG6
2021	Undergraduate	3	A	專題研究-水資源管理與系統分析	Special Topic Research	This course combines the theories of river continuity, flood pulse, and river corridor with basic hydraulic engineering and ecology to explore the habitat degradation, conservation, and restoration from the upper river catchment to the lower estuarine coastal wetlands. Through the introduction and discussion of actual cases and research results of ecological engineering in Taiwan and overseas, students are expected to understand the necessity and potential of ecological engineering that combines hydraulic engineering and ecology.	本課程的目標係 協助同學了解自己的專長與興趣，修習本課程有助於學生從事研究工作，讓同學熟悉研究方法與實作，訓練學生蒐尋資料、獨立研究及撰寫報告之能力。 本系三、四年級同學有志深造或參加研究所推甄者，可利用課餘時間隨系上教師進行專題研究，選課前須洽訪指導老師並確定專題方向，工作時間由指導教師自行安排。 期末繳交乙份研究專題報告書至系辦公室，並由指導教師評定報告成績並予簽名，成績及格者即可取得本課程學分。透過本課程學生可獲得以下的能力： 1.河海工程專業知識應用的能力 2.實驗設計操作及數據分析的能力 3.溝通表達的能☉	2	Elective Course	河海工程學系	SDG6
2021	Undergraduate	3	A	專題研究-國土防災與氣候變遷調適策略	Special Topic Research	This course combines the theories of river continuity, flood pulse, and river corridor with basic hydraulic engineering and ecology to explore the habitat degradation, conservation, and restoration from the upper river catchment to the lower estuarine coastal wetlands. Through the introduction and discussion of actual cases and research results of ecological engineering in Taiwan and overseas, students are expected to understand the necessity and potential of ecological engineering that combines hydraulic engineering and ecology.	本課程的目標係 協助同學了解自己的專長與興趣，修習本課程有助於學生從事研究工作，讓同學熟悉研究方法與實作，訓練學生蒐尋資料、獨立研究及撰寫報告之能力。 本系三、四年級同學有志深造或參加研究所推甄者，可利用課餘時間隨系上教師進行專題研究，選課前須洽訪指導老師並確定專題方向，工作時間由指導教師自行安排。 期末繳交乙份研究專題報告書至系辦公室，並由指導教師評定報告成績並予簽名，成績及格者即可取得本課程學分。透過本課程學生可獲得以下的能力： 1.河海工程專業知識應用的能力 2.實驗設計操作及數據分析的能力 3.溝通表達的能力	2	Elective Course	河海工程學系	SDG13
2021	Undergraduate	3	A	專題研究-環境汙染與災害	Special Topic Research	Wind tunnel experiment simulates air pollution dispersion	風洞實驗模擬空氣污染擴散	2	Elective Course	河海工程學系	SDG11、SDG13
2021	Undergraduate	3	A	專題研究-永續運輸規劃	Special Topic Research	This course combines the theories of river continuity, flood pulse, and river corridor with basic hydraulic engineering and ecology to explore the habitat degradation, conservation, and restoration from the upper river catchment to the lower estuarine coastal wetlands. Through the introduction and discussion of actual cases and research results of ecological engineering in Taiwan and overseas, students are expected to understand the necessity and potential of ecological engineering that combines hydraulic engineering and ecology.	本課程的目標係 協助同學了解自己的專長與興趣，修習本課程有助於學生從事研究工作，讓同學熟悉研究方法與實作，訓練學生蒐尋資料、獨立研究及撰寫報告之能力。 本系三、四年級同學有志深造或參加研究所推甄者，可利用課餘時間隨系上教師進行專題研究，選課前須洽訪指導老師並確定專題方向，工作時間由指導教師自行安排。 期末繳交乙份研究專題報告書至系辦公室，並由指導教師評定報告成績並予簽名，成績及格者即可取得本課程學分。透過本課程學生可獲得以下的能力： 1.河海工程專業知識應用的能力 2.實驗設計操作及數據分析的能力 3.溝通表達的能☉	2	Elective Course	河海工程學系	SDG11、SDG12
2021	Undergraduate	3	A	專題研究-坡地災害調查分析與實務應用	Special Topic Research	The objective of this course is to develop students' understanding of geotechnical slope hazards and to equip them with the ability to grasp the types and knowledge of slope hazards and to formulate appropriate disaster prevention strategies. The course content introduces the background of slope hazards in Taiwan and explains the investigation, analysis methods, stabilization methods, monitoring, and geotechnical disaster prevention and control of slope hazards.	本課程教學目標在培養學生對大地工程坡地災害之認識，使學生具有掌握坡地災害問題種類及知識之能力，並擬定適當之防災對策。 課程內容從介紹台灣地區坡地災害的背景，並從坡地災害問題之調查、分析方法、穩定工法、監測、至大地工程災害防治等分別加以說明解釋，課程目標在使學生具有掌握坡地災害問題種類及知識之能力，以提昇學生對於坡地災害防治之能力。	2	Elective Course	河海工程學系	SDG11、SDG13
2021	Undergraduate	3	A	專題研究-坡地災害調查分析與實務應用	Special Topic Research	This course combines the theories of river continuity, flood pulse, and river corridor with basic hydraulic engineering and ecology to explore the habitat degradation, conservation, and restoration from the upper river catchment to the lower estuarine coastal wetlands. Through the introduction and discussion of actual cases and research results of ecological engineering in Taiwan and overseas, students are expected to understand the necessity and potential of ecological engineering that combines hydraulic engineering and ecology.	本課程的目標係 協助同學了解自己的專長與興趣，修習本課程有助於學生從事研究工作，讓同學熟悉研究方法與實作，訓練學生蒐尋資料、獨立研究及撰寫報告之能力。 本系三、四年級同學有志深造或參加研究所推甄者，可利用課餘時間隨系上教師進行專題研究，選課前須洽訪指導老師並確定專題方向，工作時間由指導教師自行安排。 期末繳交乙份研究專題報告書至系辦公室，並由指導教師評定報告成績並予簽名，成績及格者即可取得本課程學分。透過本課程學生可獲得以下的能力： 1.河海工程專業知識應用的能力 2.實驗設計操作及數據分析的能力 3.溝通表達的能☉	2	Elective Course	河海工程學系	SDG11、SDG13
2021	Undergraduate	3	A	集水區經營	Watershed Management	1.The main purpose of catchment management is to ensure the quality and quantity of water, and most of the early related theories focus on forest catchment testing and forest hydrology; however, as time changes and social needs change, it is necessary to maintain the sustainable use of natural resources as a strategy for national sustainable development. The problems and factors involved in catchment management are becoming increasingly complex. 2.This course is designed to help students understand the basic concepts of catchment management, the characteristics of catchment areas, problems and management methods, and to understand how to prepare, implement, evaluate and manage catchment management plans. 3.To establish the correct concept of students, train them to solve problems, and improve their ability to express themselves.	1. 集水區經營的主要目的在確保水之質與量，早期相關學說大多以森林集水區試驗及森林水文為主；然而隨著時代變遷與社會需要改變，同時維護自然資源的永續利用，為國家永續發展的必要策略。集水區經營面臨的問題與牽涉的因素日趨複雜。 2. 本課程主要以整合的觀念，協助學生從集水區經營的基本概念，集水區的特性、問題與經營方法，進而瞭解集水區經營計畫擬定、執行、評估及管理之方式。 3. 建立學生正確觀念，訓練學生解決問題，增進學生表達能力。	3	Elective Course	河海工程學系	SDG12、SDG14
2021	Undergraduate	3	A	應用水力學	Applied Hydraulics	The purpose of this course is to analyze engineering measures for soil and water hazard control. The course is divided into two main parts: catchment hydrology and catchment hydraulic analysis. The content of catchment hydrological analysis includes: frequency analysis, different scale of catchment hydrological analysis, urban hydrology, runoff analysis in areas without flow records, numerical elevation model and GIS application. The course covers: quantitative flow analysis, distributed runoff calculations, catchment erosion and channel flushing, soil and rock flow, hydraulic modeling theory, and sediment movement model. The course focuses on the theory of catchment hydraulic analysis, and each topic is introduced with basic theory followed by appropriate analysis and calculation examples to enable students to apply the theory of hydrology and hydraulics for engineering analysis and design.	本課程之目的乃針對水土災害防治工程措施進行分析，課程分為集水區水文分析與集水區水力分析兩大部分。集水區水文分析內容涵蓋：頻率分析、不同尺度集水區水文分析方式、都市水文學、無流量紀錄地區之逕流分析、數值高程模式與地理資訊系統應用。集水區水力分析內容涵蓋：定量流分析、分佈式逕流演算、集水區沖蝕與河道沖淤、土石流、水工模型理論與泥砂運動模型。本學期課程以集水區水力分析理論為主，課程中每一主題均先講述基本理論，而後配合適當分析演算實例，使同學能夠應用水文學與水力學的理論，進行工程分析與設計工作。	3	Elective Course	河海工程學系	SDG11、SDG13
2021	Undergraduate	3	C	環境永續規劃與設計	Sustainable Environment Planmong and Design	This course introduces the principles and concepts of sustainable planning and design through the history of sustainable development, the concept of low-impact development (LID), which is often used in practice, and case studies from China and abroad, and finally the planning and design of ecological engineering and ecological restoration. It is expected that students will understand the meaning of sustainable environment and the competition between human and ecological needs from the beginning to the end.	本課程藉由永續發展的沿革的講述，引入永續規劃及設計的原則及概念，並縱談實務上經常被使用的低衝擊開發LID的概念及國內外案例，最後再導入生態工程及生態復育的規劃設計。期望學生能由淺入深瞭解到永續環境的意涵，及人居需求與生態需求之間競合問題。	3	Required Course	河海工程學系	SDG12

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	A	環境永續規劃與設計	Sustainable Environment Planmong and Design	1.Principles and Importance of Sustainable Development 2.Eco-building: Green Building,Green Campus, Ecological Community and City, Ecological Roads ,Rooftop Greening 3.Rainfall and Architecture Rainfall Patterns and Building Types,Architectural rainwater reuse systems,Rainwater Storage and Infiltration Facilities,Water quality control 4.Green Building Materials Healthy building materials,Ecological building materials,Recycled Building Materials,High performance building materials 5.Site Planning and Design Sustainable Development and Local Design,Site Analysis,Design of Habitat,Project Management	一、永續發展的原則與重要性 二、生態建設 -- 綠建築 -- 綠校園 -- 生態社區與都市 -- 生態道路 -- 屋頂綠化 三、雨水與建築學 -- 降雨型態與建築型式 -- 建築雨水再利用系統 -- 雨水貯集與滲透設施 -- 水質控制 四、綠建材 -- 健康建材 -- 生態建材 -- 再生建材 -- 高性能建材 五、現地規劃與設計 -- 永續發展與現地設計 -- 現地分析 -- 人居環境的設計 -- 工程管理項目	3	Elective Course	河海工程學系	SDG11、SDG13
2021	Undergraduate	4	A	水資源工程	Water Resources Engineering	This course introduces the basic knowledge of water supply and drainage in water resources engineering and the planning and design procedures, with practicality as the main teaching objective.	本課程主要介紹水資源工程中有關給水與排水的基本知識與規劃設計步驟方法，並以實用性為主要教學目標。	3	Elective Course	河海工程學系	SDG6
2021	Undergraduate	4	A	綠建築概論	Introduction to Green Building	The course provides a general introduction to the ecological principles of green buildings, CO2 reduction, life cycle, green building indicators, and energy conservation in ventilation, lighting, air conditioning, envelope, and lighting, etc. Through the discussion of domestic and international case studies, students will be able to understand the various profiles of green building design in Taiwan and abroad.	對綠建築的生態原則、CO2減量、生命週期、綠建築指標，以及通風、採光、空調、外殼與照明節能等內容，作概論性的介紹，並經由國內外案例之討論，讓學生了解國內外綠建築設計的各種概況。	3	Elective Course	河海工程學系	SDG11、SDG12
2021	Undergraduate	4	A	結構矩陣分析	Matrix Structural Analysis	The course is based on the structural theory and the application of the energy principle, the virtual work method, the complementary virtual work method and the Carpenter's theorem in structural science, and the derivation of the flexibility and stiffness matrix of trusses, beams and rigid frames.	以結構學理論為基礎講解能量原理、虛功法、互補虛功法及卡氏定理在結構學之應用，推導桁架、樑及剛架之柔度與勁度矩陣，使學習本課程學生了解使用電腦進行結構設計與分析之必要知識。	3	Elective Course	河海工程學系	SDG17
2021	Undergraduate	4	A	漁港工程	Fishery Engineering	Introduction to the classification of fishing ports in Taiwan and their principles, basic and general facilities of fishing ports, current status and future development of recreational fisheries and fishing ports in Taiwan. Introduction to the types and configurations of breakwaters, water facilities, dock use distinctions, port planning considerations, and the construction of sand breakwaters on sandy shores. Introduction to the current status and future outlook of fishing port development in Taiwan and the current status and future outlook of recreational port development.	簡介台灣漁港分類及其原則，漁港基本設施及一般設施，台灣休閒漁業及漁港開發現況與未來發展。介紹防波堤種類、配置、水域設施、碼頭使用區分、規劃港口時應注意事項、漂砂海岸構築防砂堤應注意事項。介紹目前台灣漁港開發現況與未來展望、遊憩港開發現況與未來展望。	2	Elective Course	河海工程學系	SDG9
2021	Undergraduate	1	A	計算機概論	Introduction to Computer Science	Let students be familiar with the fundamental contents of computer science.	瞭解電腦軟硬體系統、程式語言、軟體設計流程和電腦網路概念。	3	Elective Course	電機工程學系	SDG3、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG16、SDG17
2021	Undergraduate	2	A	微控制器介面與驅動設計	MCU Interface and Driver Design	learn 32-bit MCU programming learn MCU interface and sensor driver design learn voice assistant and chatbot programming learn AI machine learning model programming learn AI object detection, face recognition, voice command application design learn AI autonomous robot design	學習32位元微控制器程式設計 學習微控制器介面與感測器驅動程式設計 學習智慧語音助理與聊天機器人程式設計 學習人工智慧機器學習模型與程式設計 學習人工智慧之物件偵測,人臉辨識,語音命令等應用設計 學習人工智慧自走機器人設計	3	Elective Course	電機工程學系	SDG9
2021	Undergraduate	3	A	無線傳輸專題	Special Topic on Wireless Transmission Techniques	Topic 1: Design of waveguide type filter Topic 2: Microwave Image Target Recognition	專題1: 導波管型濾波器設計 專題2: 微波影像目標物辨識	2	Elective Course	電機工程學系	SDG9
2021	Undergraduate	3	A	人工智慧與物聯網裝置設計	Artificial Intelligence and IoT Device Design	Learn AI Deep Learning Models and Examples AI Deep Learning Project Design and Implementation	學習人工智慧深度學習之模型與範例 人工智慧深度學習之專題實作	3	Elective Course	電機工程學系	SDG9
2021	Undergraduate	3	A	無線通訊專題實驗	Wireless Communications Project Experiment	1.Learning wireless communication knowledge 2. Learning communication system software design and simulation	1.學習無線通訊知識 2・學習通訊系統軟體設計與模擬	1	Elective Course	電機工程學系	SDG9
2021	Undergraduate	3	A	數位通訊專題實驗	Special Topic of Digital Communications	Realization of communication system and signal analysis by computer simulation	以電腦模擬方式實現通訊系統及進行訊號分析	1	Elective Course	電機工程學系	SDG9
2021	Undergraduate	3	A	通訊工程實驗	Communication Engineering Lab.	Verify the fundamental theory and techniques of analog communication systems via labs.	經由實習來驗證類比通訊系統理論及技術。	1	Elective Course	電機工程學系	SDG3、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG16、SDG17
2021	Undergraduate	3	B	通訊工程實驗	Communication Engineering Lab.	Verify the fundamental theory and techniques of analog communication systems via labs.	經由實習來驗證類比通訊系統理論及技術。	1	Elective Course	電機工程學系	SDG9
2021	Undergraduate	3	A	通訊工程	Communication Engineering	Teach the fundamental theory and techniques of analog communication systems.	講授類比通訊系統之基本理論與技術。	3	Elective Course	電機工程學系	SDG3、SDG8、SDG9、SDG11、SDG12、SDG14
2021	Undergraduate	3	A	程式設計實習	Introduction to Programming Lab.	In conjunction with the programming course, the course reinforces the development of basic programming skills in the C language.	配合程式設計課程，加強C語言基本程式設計能力之培養。	1	Elective Course	電機工程學系	SDG3、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG16、SDG17
2021	Undergraduate	3	A	程式設計	Introduction to Programming	This course is designed for retake students. The objective of this course is still to introduce the basic principles of programming language and basic programming skills based on the C language, but in consideration of the special needs of retake students, special emphasis will be placed on the training and development of practical skills.	本課程專為重修同學開授，教學目標仍然是基於C語言介紹程式語言基本原理及基礎程式設計技巧，但考慮重修同學特殊之需求，將特別著重實作能力的訓練及培養。	3	Elective Course	電機工程學系	SDG3、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG16、SDG17
2021	Undergraduate	3	A	電力系統	Power Systems	1. Study Power system principle 2. Power system operation 3. Taiwan power system overview 4. Renewable power	1.學習電力系統的基本概念 2.電力系統之運轉 3.台灣電力系統現況 4.再生能源	3	Elective Course	電機工程學系	SDG7、SDG9
2021	Undergraduate	3	A	電子電路	Electronic Circuits	To teach students to have basic knowledge and analysis abilities of electronic circuit, with which the students will apply the profession on the course of communication, control, computer, etc.	培訓學生認識及瞭解電子電路學之基本原理，建立歸納比較之能力且幫助加深觀念，再由解題技巧過程來釐清觀念。本課程主要講授基本電子電路理論與解析方法，以應用於電子、通訊、控制、計算機…等相關課程，而建立適切電路分析與設計能力。	3	Elective Course	電機工程學系	SDG9
2021	Undergraduate	3	A	數位通訊導論	Introduction to Digital Communications	Teach the fundamental theory and techniques of digital communication systems.	講授數位通訊系統之基本理論與技術	3	Elective Course	電機工程學系	SDG9
2021	Undergraduate	3	B	數位通訊導論實驗	Introduction to Digital Communication Lab.	Verify the fundamental theory and techniques of communication systems via labs.	以實驗方式驗證數位通訊系統之基本理論與技術	1	Elective Course	電機工程學系	SDG9
2021	Undergraduate	3	A	數位通訊導論實驗	Introduction to Digital Communication Lab.	Verify the fundamental theory and techniques of communication systems via labs.	以實驗方式驗證數位通訊系統之基本理論與技術	1	Elective Course	電機工程學系	SDG9
2021	Undergraduate	4	A	產業實習	Industrial Training	The objective of this course is to teach students to link industry with academic cooperation through short-term(summer vacation) workplace practice. 1. To participate the the procedure of professional operation in a company. 2. To cultivate students the scope of the enterprise in the future. 3. To enhance the adaptation and competition abilities in the job markets.	透過短期(暑假)的職場實務訓練使其理解資訊理論與實務的結合, 並讓學生參與產業之實務應用與實作, 使其了解產業經營及研發流程以便提昇學生未來進入職場的適應力及競爭力。	9	Elective Course	電機工程學系	SDG17
2021	Undergraduate	1	A	電路學	Electric Circuits	This course focuses on basic circuit theory and analysis methods for application in electronics, communications, control, computing, and other related courses to develop appropriate circuit analysis and design skills.	本課程主要講授基本電路理論與解析方法，以應用於電子學、通訊、控制、計算機等相關課程，而建立適切電路分析與設計能力。	3	Required Course	電機工程學系	SDG9
2021	Undergraduate	1	B	電路學	Electric Circuits	This course focuses on basic circuit theory and analysis methods for application in electronics, communications, control, computing, and other related courses to develop appropriate circuit analysis and design skills.	本課程主要講授基本電路理論與解析方法，以應用於電子學、通訊、控制、計算機等相關課程，而建立適切電路分析與設計能力。	3	Required Course	電機工程學系	SDG9

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	B	電子學	Electronics	Students are trained to understand the basic principles of electronics, to develop the ability to compare and contrast, and to clarify concepts through the process of problem solving techniques. This course focuses on basic electronic theory and analytical methods for application in electronics, communications, control, and computing courses, and builds appropriate circuit analysis and design skills.	培訓學生認識及瞭解電子學之基本原理，建立歸納比較之能力且幫助加深觀念，再由解題技巧過程來釐清觀念。本課程主要講授基本電子理論與解析方法，以應用於電子學、通訊、控制、計算機等相關課程，而建立適切電路分析與設計能力。	3	Required Course	電機工程學系	SDG9
2021	Undergraduate	2	A	電子學	Electronics	Students are trained to understand the basic principles of electronics, to develop the ability to compare and contrast, and to clarify concepts through the process of problem solving techniques. This course focuses on basic electronic theory and analytical methods for application in electronics, communications, control, and computing courses, and builds appropriate circuit analysis and design skills.	培訓學生認識及瞭解電子技術之相關原理，及其基本應用原理。 讓學生了解電子學及電子電路之基本原理	3	Required Course	電機工程學系	SDG4、SDG9
2021	Undergraduate	2	A	電路學	Electric Circuits	This course focuses on basic circuit theory and analysis methods for application in electronics, communications, control, computing, and other related courses to develop appropriate circuit analysis and design skills.	本課程主要講授基本電路理論與解析方法，以應用於電子學、通訊、控制、計算機等相關課程，而建立適切電路分析與設計能力。	3	Elective Course	電機工程學系	SDG9
2021	Undergraduate	2	B	電路學	Electric Circuits	This course focuses on basic circuit theory and analysis methods for application in electronics, communications, control, computing, and other related courses to develop appropriate circuit analysis and design skills.	本課程主要講授基本電路理論與解析方法，以應用於電子學、通訊、控制、計算機等相關課程，而建立適切電路分析與設計能力。	3	Required Course	電機工程學系	SDG9
2021	Undergraduate	2	A	電路學	Electric Circuits	This course focuses on basic circuit theory and analysis methods for application in electronics, communications, control, computing, and other related courses to develop appropriate circuit analysis and design skills.	本課程主要講授基本電路理論與解析方法，以應用於電子學、通訊、控制、計算機等相關課程，而建立適切電路分析與設計能力。	3	Required Course	電機工程學系	SDG9
2021	Undergraduate	3	D	電工實驗	Electrical Lab.	Please talk to the instructor before taking this course.	注意：選課前請先與開課教師洽談。 1. 磨練FPGA電路設計所需之程式設計能力。 2. 熟習FPGA設計所需的開發工具，尤其是利用FPGA原廠開發平台上所提供的設計資源進行電路及系統設計和驗證。 3. 學習使用FPGA開發板，利用開發板上的多樣化硬體資源，如記憶體、儲存設備介面，及其它周邊裝置，建構完整的數位系統。 注意：選課前請先與授課教師洽談。	1	Required Course	電機工程學系	SDG14
2021	Undergraduate	3	O	電工實驗	Electrical Lab.	Learn to write power software applications, solve problems related to simulated power systems and energy saving issues.	學習電力軟體應用撰寫, 解決模擬電力系統相關問題及節能議題.	1	Required Course	電機工程學系	SDG12
2021	Undergraduate	3	K	電工實驗	Electrical Lab.	Realization of communication system and signal analysis by computer simulation	以電腦模擬方式實現通訊系統及進行訊號分析	1	Required Course	電機工程學系	SDG9
2021	Undergraduate	3	U	電工實驗	Electrical Lab.	This is a "hands-on" course, not a "didactic" course. Students can use Texas Instruments microcontrollers (MSP430 series, MSP432 series, or C2000 series) to complete their projects, and are free to work on topics or discuss suitable topics with their instructors, such as: robotic systems (https://training.ti.com/ti-robotics-system-learning-kit-max). The focus of this project is on the project students need to work hands-on to complete a project and develop the ability to solve problems independently and self-learning, to do that score count to that, in principle, to adopt the happy learning method.	這是「專題實作」課程，而非「教學」課程。專題學生可使用美國德州儀器微控制器(MSP430系列、MSP432系列或C2000系列)完成專題，專題題目可自由發揮，或與指導教授討論適合的題目，例如:機器人系統(https://training.ti.com/ti-robotics-system-learning-kit-max)。本專題實作的重點放在專題學生需動手實作完成一個專題及培養獨立解決問題和自我學習的能力，做到那分數算到那，原則上採快樂學習法。 備註： 0.由於課程系統有誤，這不是應用通訊專題製作，而是電工實驗四的專題製作。 1.詳情請洽林正凱老師面談或私訊討論後再加選。 2.歡迎參觀實驗室(電機二館3樓309室)。 3.教師信箱：cklin@mail.ntou.edu.tw 4.教師研究室：EE2-630 5.修課人數依系上規定有人數上限的限制	1	Required Course	電機工程學系	SDG9
2021	Undergraduate	3	V	電工實驗	Electrical Lab.	Students will be taught how to find a topic, set a topic, work on it, and analyze and discuss possible improvement methods. Students will be equipped with the skills they will need before attending graduate school. There are three directions of the project 1. Smart Life Technology 2. Marine artificial intelligence 3. Introduction to cross-disciplinary technology For more information, please refer to the website of Smart Life Technology Lab http://sltlab.ntou.edu.tw/	以專題實作的形式教導修課學生如何找題目、訂題目、實作出來並分析討論可能改善方法。讓修課學生具有未來就讀研究所前應具備之能力。指導專題方向有三： 1.智慧生活科技 2.海洋人工智慧 3.跨領域科技導入 詳情可參考智慧生活科技實驗室網頁 http://sltlab.ntou.edu.tw/	1	Required Course	電機工程學系	SDG9
2021	Undergraduate	3	W	電工實驗	Electrical Lab.	This electrical engineering laboratory course is designed for the topic of intelligent energy, and focuses on "practical work", including circuit fabrication, programming, or simulation.... The main goal of this course is to develop problem-solving skills. Please contact Mr. Yu-Shan Cheng for research topics. Teacher's email: yscheng@mail.ntou.edu.tw Faculty Research Room: EE2-520	此電工實驗課程為智慧能源專題製作，著重在【實作】，包括電路製作、程式撰寫、或模擬...等多面向能力，且以培養解決問題之能力為主要目標。研究題目請洽鄭于珊老師。 教師信箱：yscheng@mail.ntou.edu.tw 教師研究室：EE2-520	1	Required Course	電機工程學系	SDG7、SDG9
2021	Undergraduate	2	A	海洋能源開發與應用	Exploitation of ocean renewable energy	Students will be able to establish a clear understanding and concept of marine energy applications and policies, and become familiar with the marine energy industry, applications, and evaluation methods, and at the same time, they will be trained to collect relevant data and defend themselves through interactive presentations in the course.	使學生在海洋能源應用與政策導向上建立清楚的認識與概念，進而熟悉海洋能源產業、應用與評估方法，同時藉由課程中專題報告方式互動訓練學生各面向相關資料之彙整蒐集能力以及答辯能力，以期盼有效掌握世界綠能科技相關產業之脈動與發展，厚植自身本職學能，因應未來新興能源就業市場需求。	3	Required Course	海洋工程科技學士學位學程	SDG7、SDG9
2021	Undergraduate	2	A	海洋工程科技海外實務學習(II)	Overseas Practice Learning of Ocean Engineering & Technology(II)	In recent years, marine engineering construction in coastal areas of China has been booming, and no effort has been spared in the development and application of marine energy and offshore wind power engineering, which has also enhanced the quality of related research and teaching and the development of engineering technology. In order to increase students' practical engineering experience, broaden their horizons, and corroborate what they have learned in class, and to enhance cross-strait exchanges, we arrange to conduct off-site teaching activities at the School of Civil Engineering and School of Oceanography of Fuzhou University and the School of Transportation and Civil Engineering of Fujian Agriculture and Forestry University during each semester, through activities such as lectures, engineering visits, and soccer tournaments in the fields of water and electricity, bridges, and offshore wind power. Through the arrangement of activities such as lectures, engineering visits, and ball games, the students' vision and interest in marine engineering, water conservancy and hydropower engineering will be enhanced, and the academic exchange opportunities between teachers and students of both schools will be promoted.	近年來中國大陸沿海地區的海洋工程建設蓬勃發展，對於海洋能源開發與應用及離岸風電工程建設不遺餘力，同時也提升了相關的研究教學品質與工程技術發展。為了增加學生實際工程經驗與增廣見聞，並印證課堂學習之知識，且為增進兩岸交流學習，安排於每學期中到「福州大學土木工程學院及海洋學院」、「福建農林大學交通與土木工程學院」進行異地教學活動，藉由水利水電、橋樑、離岸風電等工程專業講座、工程參訪研習及球類友誼賽等活動安排，增加學生對於海洋工程、水利水電等工程的視野與興趣，同時能促進雙方學校師生學術交流機會與增加雙方互訪深度。	1	Elective Course	海洋工程科技學士學位學程	SDG7、SDG9、SDG11
2021	Undergraduate	2	A	海洋環境營造	Ocean Environment Construction	The damage to marine ecology and the environment is becoming increasingly serious under the influence of global climate change and the active development of human beings into the ocean. On the premise of coexistence of economic development and ecological landscape environment, it is necessary to think hard about how to conserve the marine ecological environment while taking into account the marine landscape and providing a leisure and hydrophilic environment. This course introduces the basic problems of the ocean environment (including coastal areas), the utilization and development of Taiwan"s ocean environment, the construction of ocean ecological environment, the creation of ocean landscape environment, the construction of ocean recreation environment, and the planning and implementation cases of domestic and foreign ocean environment construction. It helps students to have a more specific knowledge and understanding of issues related to improving the ocean ecological environment.	在面臨全球氣候變遷以及人類積極向海洋發展的影響下，海洋生態與環境遭受破壞的情況日趨嚴重，如何在經濟開發與生態景觀環境並存的前提下，研議對海洋生態環境的保育且兼顧海洋景觀及提供休閒親水環境，為必須努力思考的課題。 本課程介紹海洋環境(包含海岸地區)基本問題、台灣海洋環境的利用與發展、海洋生態環境營造、海洋景觀環境營造、海洋遊憩親水環境營造及國內外海洋環境營造規劃與執行案例，俾能有助於學生對改善海洋生態環境相關議題有較具體之認識與了解。	3	Elective Course	海洋工程科技學士學位學程	SDG13、SDG14
2021	Undergraduate	2	A	材料力學	Mechanics of Material	Mechanics of materials is a basic engineering subject that must be understood by anyone concerned with the strength and physical performance of structures, whether those structures are man-made or nature. The subject matter includes such fundamental concepts as stresses and strains, deformations and displacements, elasticity and inelasticity, strain energy, and load-carrying capacity. Those concepts underlie the design and analysis of a huge variety of mechanical and structural systems. The main topics of this course are the analysis and design of structural members subjected to tension, compression, torsion, and bending, including the fundamental concepts mentioned before. Other topics of general interest are the transformations of stress and strain, combined loadings, stress concentrations, deflections of structures, and stability of columns.	若欲瞭解結構物(不論其為人造或自然結構物)之強度及其物理行為，材料力學是必須學習的基本工程學科。其內容包含對於應力與應變、變形與位移、彈性與非彈性、應變能及載重能力等之基本觀念。 這些觀念是結構分析與設計之基礎。 因此，本課程之主要目標在於學習結構桿件承受張拉力、壓力、扭力與彎矩實之分析與設計，以及了解如前所述之結構行為。其他對於應力與應變之轉換、載重組合、應力集中、結構物變形以及柱穩定等亦將予以介紹。	3	Required Course	海洋工程科技學士學位學程	SDG4、SDG9

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	漁港工程	Fishery Engineering	Introduction to the classification of fishing ports in Taiwan and their principles, basic and general facilities of fishing ports, current status and future development of recreational fisheries and fishing ports in Taiwan. Introduction to the types and configurations of breakwaters, water facilities, dock use distinctions, port planning considerations, and the construction of sand breakwaters on sandy shores. Introduction to the current status and future outlook of fishing port development in Taiwan and the current status and future outlook of recreational port	簡介台灣漁港分類及其原則，漁港基本設施及一般設施，台灣休閒漁業及漁港開發現況與未來發展。介紹防波堤種類、配置、水域設施、碼頭使用區分、規劃港口時應注意事項、漂砂海岸構築防砂堤應注意事項。介紹目前台灣漁港開發現況與未來展望、遊憩港開發現況與未來展望。	2	Elective Course	海洋工程科技學士學位學程	SDG9
2021	Undergraduate	3	A	工程地質	Engineering Geology	This course provides students with an in-depth understanding of the definition and basic principles of engineering geology, geological structures, geological materials and engineering, description and evaluation of rock weak surfaces, and quantification of engineering geology, as well as its application and understanding in land planning and land use, slope engineering development, environmental engineering geology, reservoir engineering, and tunnel engineering	本課程主要使同學對工程地質之定義與基本原理、地質構造、地質材料與工程及岩石弱面描述評估及工程地質之計量化有完整深入了解，及加強其在國土規劃與土地利用、坡地工程開發、環境工程地質及水庫工程、隧道工程之應用與認識，最後利用工程地質案例之探討進行說明，以增進同學對工程與工程地質之瞭解，減少工程地質災害之發生。	3	Elective Course	海洋工程科技學士學位學程	SDG11、SDG13
2021	Undergraduate	3	A	波浪力學	Wave Mechanics	The course introduces fundamental ocean wave theories and nearshore wave dynamics, and explain physical characteristics with linear differential equations. With the course completed, students could apply for the plan and design of coastal and ocean engineering.	本課程介紹微小振幅波理論，了解使用數學方程式來解釋波浪水動力現象。介紹波浪淺化特性之物理特性，進而應用於海岸與海洋工程之規劃與設計。	3	Required Course	海洋工程科技學士學位學程	SDG4、SDG13、SDG14
2021	Undergraduate	3	A	環境大地工程	Environmental Geotechniques	Environmental geotechnical engineering is a science that explores the basic principles and techniques of geotechnical engineering, and studies the safety and health of human living environment under different environments. Firstly, we will discuss the evolution of geotechnical engineering, how it evolved from simple soil engineering to the current environmental geotechnical engineering. Then, the scope of environmental geotechnical engineering and the necessary knowledge and techniques for environmental geotechnical engineers are discussed, such as environmental geotechnics and soil properties, waste-soil interaction, environmental site characteristics and investigation, environmental and soil mechanics behavior, foundation design, environmental geotechnical hazards and prevention, etc. Finally, topics related to environmental geotechnical engineering are discussed in depth. Students will be able to apply the principles of environmental geotechnical engineering to the assessment and adjustment of environmental risks in actual projects, and to reduce the occurrence of engineering disasters by applying them to marine geotechnical engineering.	環境大地工程是一門探討大地工程基本原理與技術，和研究不同環境下人類生存環境的安全與衛生的科學。首先探討大地工程之演變，如何由單純之土壤工程演變至目前之環境大地工程。接著討論環境大地工程業務範圍和環境大地工程師必備之知識與技術，如環境大地力學與土壤特性、廢料與土壤之交互作用、環境工址特性與調查、環境與土壤力學行為、基礎設計、環境地工災害與防治等，有完整深入了解；最後論及與環境大地工程相關之課題。使同學能運用環境大地工程之原理應用於實際工程環境風險評估與調適，及應用於海域大地工程，減少工程災害之發生。	3	Required Course	海洋工程科技學士學位學程	SDG11、SDG13
2021	Undergraduate	3	A	大數據分析與應用	Big Data Analysis and Applications	The concepts and related techniques of artificial intelligence will be introduced. Through programming practices, students can understand basic concepts and theories, including Training/Testing, Cross-Validation, Divide and Conquer, Linear Models, Probabilistic methods, Artificial Neural Networks, etc., and they can further apply these to ocean problems in the future.	簡介人工智慧概念及相關技術，並透過程式實做，了解基本概念及理論，包含 Training/Testing, Cross-Validation, Divide and Conquer, Linear Models, Probabilistic methods, Artificial Neural Networks, 等，作為未來應用於海洋相關問題基礎	3	Elective Course	海洋工程科技學士學位學程	SDG9
2021	Undergraduate	3	A	海氣象觀測分析與應用	Ocean Meteorological Observation Analysis and Application	The mastery of marine meteorological data is necessary for coastal and marine engineering research or practical coastal and marine engineering planning and design, such as harbor engineering, marine civil engineering, coastal protection, offshore wind power, marine energy and deep seawater industry planning, design and development, etc. The first thing that must be effectively mastered is wind, wave, tide, current and near-shore currents and other sea conditions. The objectives of this course are to introduce the characteristics of the marine environment, such as the planning of wind, wave, tidal, current and nearshore current observations, the processing and analysis of observation data, and the application of observation results to practical planning and design work. Students will learn about marine meteorology, the principles and applications of observations, and basic observation and planning skills.	海氣象資料之掌握為從事海岸海洋工程研究或從事實務海岸及海洋工程規劃與設計之需，舉凡港灣工程、海洋土木工程、海岸保護、離岸風電、海洋能源及海洋深層海水產業之規劃、設計及開發等，首先必須有效掌握風、波浪、潮汐、潮流及近岸流等海域營力條件。本課程教學目標主要介紹海洋環境特性，如進行風、波浪、潮汐、潮流及近岸流之觀測規劃，觀測資料處理分析，觀測成果如何應用於實務規劃及設計工作。讓修課學生認識海氣象，瞭解其觀測原理方法及應用，並具基本觀測規劃能力。	3	Elective Course	海洋工程科技學士學位學程	SDG7、SDG9
2021	Undergraduate	3	A	鋼結構設計	Steel Structure Design	This course focuses on the application of analytical methods and test results to the design of steel structures using design codes, and increases the understanding of the practical structural design process in addition to theoretical courses related to structural mechanics. After taking this course, students will be able to engage in the design of general steel building structures. This course is designed to establish students' ability to have correct concepts and basic design checks on the principles of structural mechanics, structural systems, joint types and characteristics, and design specifications of steel structures. Students will then be introduced to the practical applications of steel structures, including the design of steel structures for buildings, factories, bridges, and support systems for green energy generation equipment, etc., so that students will have the basic skills of steel structure design.	鋼結構設計主要為應用解析方法及試驗結果，利用設計規範來設計鋼結構，除了結構力學相關理論課程外，並增加對實務結構設計過程之認識。修習本課程後，學生即能從事一般鋼造建築結構之設計。本課程設計首先建立學生對於鋼結構之力學原理、結構系統、接頭型式與特性、設計規範等具有正確觀念與基本設計檢核能力。再進入鋼結構實務各應用層面的實況，包括建築鋼結構、廠房鋼結構、橋梁鋼結構及綠能發電設備支撐系統的設計等，使修課學生具備鋼結構設計的基本技能。	3	Required Course	海洋工程科技學士學位學程	SDG7
2021	Undergraduate	3	A	海洋工程學	Ocean Engineering	This course introduces marine water quality, winds, currents, waves, tides, storm surges, earthquakes, marine geology, tsunamis, and other marine environments, allowing students to understand how the marine environment and its forces affect the design, construction, maintenance, and operation of various marine structures.	介紹海域水質、風、流、波浪、潮汐、暴潮、地震、海岸地質、海嘯等海域環境，最修課學生瞭解海域環境及其營造力如何影響各種海洋結構物的設計、施工、維護及操作。	3	Required Course	海洋工程科技學士學位學程	SDG6
2021	Undergraduate	4	A	水下量測原理與繪圖	Hydrographic Surveying and Introduction to Chart Production	This course is designed to introduce the techniques related to hydrographic and nautical chart production in order to achieve and establish the precise production of nautical charts with reference to the International Hydrographic Organization (IHO) norms and hydrographic survey techniques. This course is themed "Introduction to Hydrographic Mapping and Chart Production" and covers the course methodology/objectives and objectives/assessment, and is centered on understanding the basics of survey, conducting basic surveys to construct the required accuracy, and generating reports detailing the construction process. This course explores the importance of research methods in both academic and practical terms. Students who take this course will acquire the basic knowledge of research work, and learn the skills of fieldwork and writing technical reports on mapping, and will be able to write academic papers and submit technical analysis reports in practice, in order to realize research methods in theory and fieldwork. The results of the mapping will be the basis for the actual assessment of the course.	本課程旨在介紹水文測繪和海圖生產概論的相關技術，參照國際水文組織(International Hydrographic Organization)的規範與水文測量技術進而達到並建立精確製作海圖之量能。本該課程以"水文測繪和海圖生產概論"為主題，涵蓋課程方法/目標與目的/評估，圍繞於了解調查的基礎知識，進行基本調查而構建達到所需的準確性，並生成詳細說明建置過程報告。本課程探討研究方法在學術與實務上的重要性，修習本課程的同學，能夠獲得從事研究工作之基本學養之外，並能從中學習實測與撰寫製圖技術報告之技巧，在學術上可以撰寫學術論文實務上可以提交技術分析報告，以求研究方法在理論與實測上的實現，海圖測繪成果將是本課程的實際評量之依據。	3	Elective Course	海洋工程科技學士學位學程	SDG4
2021	Undergraduate	1	A	微積分	Calculus	The objective of this course is to teach students to fully grasp the basic tool of mathematics, to learn the ability of analyzing and solving problems, and to cultivate students the ability of learning advanced mathematics.	期使學生能充分掌握微積分這項數學工具，學習分析問題與解決問題的能力。培養學生更高深的數學的興趣與學習能力。	3	Required Course	海洋工程科技學士學位學程	SDG4、SDG5
2021	Undergraduate	2	A	工程數學	Engineering Mathematics	Engineering mathematics is a tool for engineers to solve engineering problems. The course schedule allows students to understand engineering problems and the corresponding mathematical models, to establish correct concepts, and to further develop the ability to mathematically analyze and simplify and solve engineering problems.	工程數學是工程師解決工程問題的工具。課程進度安排期能讓學生了解工程問題與所對應的數學模型，建立正確觀念，進一步培養同學具有數學分析及簡化與求解工程問題能力。	3	Required Course	海洋工程科技學士學位學程	SDG4
2021	Undergraduate	1	A	普通物理	General Physics	A calculus-based physics course for non-physics major students	本課程針對非物理系學生，教授基本的物理學觀念。 本課程之目的為建立同學正確之物理觀念，利用物理知識來解決相關的問題，俾利從事之專業。	3	Required Course	資訊工程學系	SDG4、SDG9、SDG10、SDG11
2021	Undergraduate	1	D	程式設計	Introduction to Programming	This course provides an introduction to computer science using the C programming language. It is a programming course.	這門課將學習到如何以C程式語言撰寫電腦程式。	3	Required Course	資訊工程學系	SDG4、SDG10
2021	Undergraduate	2	A	電腦網路	Computer Network	This is a fundamental course for Computer Network-related courses. With this course, you will learn Basic computer network concept and principle	這是一門計算機網絡相關的基礎課程。通過本課程，將學會 基本的計算機網絡概念和原理。	3	Required Course	資訊工程學系	SDG4、SDG8、SDG9
2021	Undergraduate	3	A	人工智慧	Artificial Intelligence	Introduce theoretical and applied principles of AI such as data structures used in knowledge representation, the algorithms needed to apply the knowledge, and the programming language and programming techniques used in implementation.	介紹人工智慧理論與應用原理包含知識表示法，演算法，程式語言與程式技巧。	3	Elective Course	資訊工程學系	SDG9
2021	Undergraduate	3	B	人工智慧	Artificial Intelligence	Introduce theoretical and applied principles of AI such as data structures used in knowledge representation, the algorithms needed to apply the knowledge, and the programming language and programming techniques used in implementation.	介紹人工智慧理論與應用原理包含知識表示法，演算法，程式語言與程式技巧。	3	Elective Course	資訊工程學系	SDG9
2021	Undergraduate	3	I	28-資工系專題(一)	Computer Projects (I)	The goal is to let students (1) develop service-oriented software projects by following software engineering processes; or (2) learn computational biology by doing it.	本課程讓學生學習如何運用服務導向運算架構與技術，並讓學生學習如何遵循軟體工程流程進行服務導向軟體之研發；以及讓學生認識計算生物學。藉著學而做，做中學，體驗計算生物學的奧妙。	3	Elective Course	資訊工程學系	SDG17
2021	Undergraduate	3	F	28-資工系專題(一)	Computer Projects (I)	This course is designed to provide important topics in bioinformatics and medical informatics. Students are able to learn about problems involved in the big data analysis of biological/medical data such as genomic sequences, protein structures, medical imaging, and National Health Insurance Research Database. The course is intended to provide good understanding of the commonly used algorithms in the analysis of genomic and medical data, and hands-on experiences with accessing and using relevant big datasets.	本專題課程提供學生學習生技及醫藥資訊系統相關主題之研究及資料視覺化之系統開發，希望藉由學習基因體/轉錄體組裝及功能分析、醫學影像資料分析、健保資料庫之巨量資料分析、及數據統計與資料視覺化之相關應用，讓學生可以實際參與目前最熱門的巨量資料世代及了解精準醫療產業之相關應用及資料視覺化的技術開發應用。	3	Elective Course	資訊工程學系	SDG3

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	A	Android行動裝置軟體設計	Android Mobile Device Programming	Be familiar with the development of mobile apps for Android platform	使同學對Android行動裝置軟體設計有清晰觀念並實際熟悉Android設計環境並具體完成Android APP作品爲未來進入業界	3	Elective Course	資訊工程學系	SDG9
2021	Undergraduate	3	A	物聯網技術與應用	Technologies and applications of IoT	Introduce the key technologies and applications of IoT	讓同學瞭解物聯網的定義、架構、原理以及設計方法，並進一步培養同學分析設計物聯網應用之能力。	3	Elective Course	資訊工程學系	SDG4、SDG8、SDG9
2021	Undergraduate	3	A	巨量資料運算導論	Introduction to Big Data Computing	1. Understand the fundamental theory of Big Data Computing. 2. Implement the application project of Big Data Computing.	1. 瞭解巨量資料運算的基礎理論 2. 設計實作巨量資料運算應用專題	3	Elective Course	資訊工程學系	SDG4
2021	Undergraduate	3	B	資料庫系統	Database Management System	This course introduces the basic concepts of database system. It also explains the theoretical basis of relational database, query language, and design method.	介紹資料庫系統的基本概念。並詳加說明關連式資料庫的理論基礎，查詢語言，及設計方式。	3	Elective Course	資訊工程學系	SDG9
2021	Undergraduate	4	F	29-資工系專題(二)	Computer Projects (Ⅱ)	This course is designed to provide important topics in bioinformatics and medical informatics. Students are able to learn about problems involved in the big data analysis of biological/medical data such as genomic sequences, protein structures, medical imaging, and National Health Insurance Research Database. The course is intended to provide good understanding of the commonly used algorithms in the analysis of genomic and medical data, and hands-on experiences with accessing and using relevant big datasets.	本專題課程提供學生學習生技及醫藥資訊系統相關主題之研究及資料視覺化之系統開發，希望藉由學習基因體/轉錄體組裝及功能分析、醫學影像資料分析、健保資料庫之巨量資料分析、及數據統計與資料視覺化之相關應用，讓學生可以實際參與目前最熱門的巨量資料世代及了解精準醫療產業之相關應用及資料視覺化的技術開發應用。	3	Elective Course	資訊工程學系	SDG4
2021	Undergraduate	4	I	29-資工系專題(二)	Computer Projects (Ⅱ)	The goal is to let students (1) develop service-oriented software projects by following software engineering processes; or (2) learn computational biology by doing it.	本課程讓學生學習如何運用服務導向運算架構與技術，並讓學生學習如何遵循軟體工程流程進行服務導向軟體之研發；以及讓學生認識計算生物學。藉著學而做，做中學，體驗計算生物學的奧妙。	3	Elective Course	資訊工程學系	SDG4
2021	Undergraduate	1	B	運輸物流產業導論	Introduction to Industry of Transportation and Logistic	After entering the department, the new students will be able to have a general understanding of the department's professional fields and development directions, so that they can develop their professional interests and plan their professional studies as early as possible, so that they will be able to specialize and grow in their studies after graduation.	使本系新生於進入本系就讀後，能夠概略了解本系的專業領域及發展方向，期能及早引發專業興趣和規劃專業學習，以利未來畢業能術有專精、學有所長。	2	Elective Course	運輸科學系	SDG8
2021	Undergraduate	1	A	交通工程	Traffic Engineering	This course includes the necessary knowledge in planning, management and engineering of traffic. All students are expected to understand the related issues involved in traffic engineering, and can apply the knowledge to solve the problems.	本課程目的在於介紹有關從事交通工程規劃、管理、與工程等工作所必須具備之相關知識，期許修課學生能掌握交通工程本質，並能應用所學知識解決相關問題。	3	Required Course	運輸科學系	SDG11、SDG16
2021	Undergraduate	1	A	運輸學	Transportation	This course teaches the fundamental knowledge of transportation and each basic characteristic of transportation system.	本課程講授運輸之基本概念及各運輸工具之基本特性，使學生具有各運輸系統之基本知識。	3	Required Course	運輸科學系	SDG11
2021	Undergraduate	1	B	運輸學	Transportation	This course teaches the fundamental knowledge of transportation and each basic characteristic of transportation system.	本課程講授運輸之基本概念及各運輸工具之基本特性，使學生具有各運輸系統之基本知識。	3	Required Course	運輸科學系	SDG11
2021	Undergraduate	1	A	服務學習_愛校服務(I)	Service-Learning Program-Campus Service(I)	1. Students who participate in labor service will develop the concept and habit of service. 2. To provide a neat and clean environment for teachers and students in classrooms and public spaces.	1.參與勞動服務之同學均能養成服務的觀念與習慣。 2.提供老師及學生上課教室及公共空間整齊清潔的環境。	0	Service-Learning Program	運輸科學系	SDG11
2021	Undergraduate	1	B	服務學習_愛校服務(I)	Service-Learning Program-Campus Service(I)	1. Students who participate in labor service will develop the concept and habit of service. 2. To provide a neat and clean environment for teachers and students in classrooms and public spaces.	(1) 參與勞動服務之同學均能養成服務的觀念與習慣。 (2) 提供老師及學生上課教室及公共空間整齊清潔的環境。	0	Service-Learning Program	運輸科學系	SDG3、SDG4、SDG6、SDG12
2021	Undergraduate	1	B	服務學習_愛校服務(Ⅱ)	Service-Learning Program-Campus Service(Ⅱ)	1. Students who participate in labor service will develop the concept and habit of service. 2. To provide a neat and clean environment for teachers and students in classrooms and public spaces.	參與勞動服務之同學均能養成服務的觀念與習慣。 提供老師及學生上課教室及公共空間整齊清潔的環境。	0	Service-Learning Program	運輸科學系	SDG11
2021	Undergraduate	2	A	商業自動化與自動化辨識	Commerce Automation and Automated Identification	This is a course that explores the important development, application trends, and related practical issues of business automation and automation identification, and helps students to obtain the international barcode manager certification. 270 students have passed the international barcode manager certification since the course started in FY103, and only 4 students have not passed it, which can effectively strengthen students' future career advantages. In addition, the Internet of Things (IoT) engineer certification has been added since FY108, and 49 students have obtained the IoT engineer certification so far.	這是一門探討商業自動化與自動化辨識的重要發展、應用趨勢及相關實務課題的課程，並協助修課同學取得國際條碼管理師之證照認證，103年度開課以來，共計270位同學通過取得國際條碼管理師之證照認證，僅有4位沒有通過，確可有效強化同學未來職場優勢。另外108年度開始還增加物聯網工程師之證照認證，截至目前共有49位同學取得物聯網工程師認證。	3	Elective Course	運輸科學系	SDG9
2021	Undergraduate	2	B	先進資通訊科技在智慧運輸應用	Advanced Information and Communications Technology in Smart Transportation	Safety and efficiency are two main goals of intelligent transportation systems (ITS) development for all countries in the world. With fully support to ITS from government, Taiwan has great achievement to introducing ITS into freeway and urban traffic management systems, and also in public transportation services. With mobile services, traffic information is available to the public to meet their “transport” needs. In recent year, ITS has dramatically changed by introducing “Internet of Things”. “Vehicle” are connected together using dedicated short range communication (DSRC) and autonomous vehicles are aggressively developed. This course tends to introduce the concept of smart city and smart transport, and current ITS development and its future plan will be discussed. New technologies, such as connected vehicle, advanced drivers assistance system (ADAS), autonomous vehicle, and their impact to urban transport will also be discussed. Finally, new business models, such as “sharing” and “	「安全」與「效率」一向為各國推動智慧運輸(ITS)之重要目標，兩者間互為影響。我國ITS發展在政府大力投入下，已在高快速公路與都會區之交通管理以及公共運輸上有者長足進步，透過智慧型行動裝置的多元下的交通資訊服務，提供更貼近民眾「行」的交通資訊需求。近年來，國際在智慧型運輸系統發展已朝向物聯網(Internet of Things)概念之協同式智慧型運輸系統或車聯網(Cooperative ITS或Connected vehicle)發展，以及積極發展自動駕駛車輛。 因此本課程將說明智慧城市及其智慧運輸內涵、我國智慧型運輸系統發展現況與後續發展、車聯網/先進駕駛輔助系統/自動駕駛及其對交通運輸之衝擊、雲端運算與大數據在交通運輸應用，最後介紹創新模式對都市交通的影響。	3	Elective Course	運輸科學系	SDG11
2021	Undergraduate	2	A	運輸通訊原理	Principles of Transport and Communications	This course is designed to introduce the basic communication technology, concepts and applications of mobile communication systems in intelligent transportation systems. In addition to the basic communication concepts, students will also be able to operate relevant satellite and radio communication systems and communication testing systems. In addition, we use satellite orbit and communication software as a platform to introduce the future needs of the mobile communication and transportation industry and the development of related high-tech applications in conjunction with radio communication technology. We also provide opportunities for international satellite certification!	本課程旨在介紹移動通訊系統在智慧型交通運輸系統的基本通訊技術、概念與通信系統應用，本課程探討類比與數位通訊系統理論與實作的重要性，使得修習本課程的同學，除了能夠獲得基本的通訊概念之外，還能夠親自操作相關衛星及無線電通訊系統及通訊檢測系統，學期中安排一至二次校外通訊電子公司、太空中心、海空港電子通訊設備及電信業者參觀，立方衛星飛行體實作，以求理論與實務之結合。並以為衛星軌道與通訊軟體作為操演平台結合無線電通訊技術介紹移動通訊再運輸業的未來需求與相關高科技之應用發展。並提供國際衛星證書認證資格之機會!	3	Elective Course	運輸科學系	SDG9、SDG11
2021	Undergraduate	2	A	自發性地理資訊創意	Originality of Volunteer Geographic Information	Geographic Information System (GIS) is a rapidly developing technology in recent years. It uses computer tools to integrate various sources of spatial data to help users manage the Earth's environment and assist decision makers in making the best spatial decisions so that we can fully and sustainably utilize the Earth's resources. Through the lectures on the development, functions and practical applications of GIS, students will understand the theoretical basis and application direction of GIS, and then take practical problems as the core to inspire students' creativity through spontaneous geographical information.	地理資訊系統是近年快速發展的科技，它運用電腦工具來整合各種不同來源的空間資料，幫助使用者經營管理地球環境，協助決策者擬訂最佳的空間決策，以使我們能充分且永續的利用地球資源。經由地理資訊系統之發展、功能及實際應用的講授，使學生了解地理資訊系統的理論基礎及應用方向，再以實務問題為核心，透過自發性地理資訊啟發學生創意，實機操作使同學能熟悉地理資訊系統工具的操作，達到理論與實務充分配合。	3	Elective Course	運輸科學系	SDG12
2021	Undergraduate	2	A	運輸管理	Transportation Management	1. Understand the integration of management theories in the operation and management of the transportation industry so as to develop practical analysis skills. 2. Understand the application of theories of transportation marketing and financial analysis to the operation and management of the transportation industry. 3. Understand transportation safety management, risk management, and other emerging transportation technologies.	1.通晚結合管理理論於運輸業之經營與管理，俾能培養實務分析能力。 2.理解運輸行銷與財務分析等理論應用於運輸業經營與管理。 3.理解運輸安全管理、風險管理及其他新興運輸技術。	3	Required Course	運輸科學系	SDG3
2021	Undergraduate	3	A	大眾運輸經營與管理	Mass Transportation Operation and Management	1. Understanding mass transportation policy and the external environmental effects of transportation business operation. 2. Understanding the characteristics of mass transportation organization and changes. 3. Understanding mass transportation theory of marketing and financial analysis and practical application in transportation business operation. 4. Understanding mass transportation on safety management and crisis management and other emerging	1.理解大眾運輸政策與外部環境對其事業經營之影響。 2.理解大眾運輸組織的特性與變革。 3.理解運輸行銷與財務分析等理論應用於大眾運輸經營。 4.理解大眾運輸的安全管理、危機管理及其他新興運輸技術。 5.期對有心報考高普考或鐵路特考等國家考試之同學有所助益。	3	Elective Course	運輸科學系	SDG11
2021	Undergraduate	3	A	物流管理與軟體應用	Logistics Management and Software Applications	This is a senior course on logistics management and software applications. The purpose of this course is to provide the proper process logistics management and applications of software analysis. Analytic models for the problem and advanced algorithms for the logistics problem. The course is designed for one semester. Topics covered include the basic concepts and complex models on logistics management problems. For the students who have completed another senior logistics courses, a certification provides by SOLE-The International Society of Logistics.	本課程擬開設在三年級，主要可以配合課程引導同學學習物流軟體(LOGWARE)應用物流、運輸、供應鏈的相關課題，配合課程進行，會協助已同時修畢另一門三年級以上物流相關課程之修課同學，即可取得美國國際物流協會(SOLE-The International Society of Logistics)提供的國際物流師專業認證，取得方式主要依據「SOLE高等教育體系免試認證實施作業要點」，提供大學本科學生在原修習物流、運輸、供應鏈專業科目學分並認定具備足夠的專業程度後，取得SOLE國際物流專業認證的管道，以提升大學畢業學子接觸新興行業並順利進入職場就業的機會。	3	Elective Course	運輸科學系	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	B	生產與作業管理	Production and Operations Management	Operations management is the core activity in a company, including forecasting, capacity planning, facility layout, quality management, scheduling, etc. This course provides students the basic knowledge about these issues and enables them to develop preliminary skills of applications.	生產/作業為企業的核心活動，其包含有預測、產能規劃、設施佈置、品質管理、工作排程等基本內容。本課程目標為使學生對這些內容具備基礎知識，進而發展初步的應用能力。	3	Required Course	運輸科學系	SDG3、SDG9、SDG12
2021	Undergraduate	3	A	生產與作業管理	Production and Operations Management	Operations management is the core activity in a company, including forecasting, capacity planning, facility layout, quality management, scheduling, etc. This course provides students the basic knowledge about these issues and enables them to develop preliminary skills of applications.	生產/作業為企業的核心活動，其包含有預測、產能規劃、設施佈置、品質管理、工作排程等基本內容。本課程目標為使學生對這些內容具備基礎知識，進而發展初步的應用能力。	3	Required Course	運輸科學系	SDG3、SDG9、SDG12
2021	Undergraduate	3	B	移動式地理資訊系統	Mobile Geographic Information System	This course introduces the concept of mobile communication system combined with Geographic Information System (GIS) and the practical operation of software and firmware writing. In addition to gaining a basic understanding of Intelligent Transportation Systems (ITS) concepts, students will also be able to fully understand the actual operation of intelligent mobile GIS, in order to integrate theory and practice, and develop the ability to manage systems for future work in port and harbor companies or transportation companies.	介紹移動式通訊系統結合地理資訊系統(GIS)的概念與軟體實務操作與韌體程式撰寫，在本課程中強調移動式通訊系統(包含衛星、無線電及5G通訊系統)結合GIS與陸海空運輸、物流及供應鏈上之實體規劃與實作的重要性，使得修習本課程的同學，除了能夠獲得基本的智慧型運輸系統(ITS)概念之外，還能夠充分瞭解智慧型移動地理資訊系統的實際運作，以求理論與實務的結合，培養日後進入航港及港灣公司或運輸公司工作	3	Elective Course	運輸科學系	SDG9
2021	Undergraduate	3	A	物聯網概論	Introduction to Internet of Things	This course is intended to (1) introduce the basic operating principle of IoT and Industrial 4.0, their hardware/software architecture and latest development (2) teach students the practical use of IoT through demonstration of operation of IoT systems and case studies. On completion of this course, students should be able to understand application of IoT technologies in logistics and supply chain.	本課程將介紹物聯網（Internet of Things-IoT）與工業4.0之架構與運作原理，IoT各種軟硬體架構，與最新工業4.0的發展。並且，透過教學示範與案例分析讓學生瞭解物聯網在實務的運用。在完成本課程後，學生應該能夠理解物聯網與相關軟硬體技術在工業4.0(製造物流與供應鏈等)之實務應用。	3	Elective Course	運輸科學系	SDG9
2021	Undergraduate	3	B	航運經營管理	Shipping Management	Students will learn about the basic elements of marine transportation, shipping practices, shipping industry, scheduled and unscheduled shipping, and develop the ability to collect and analyze information to produce professional reports and briefings.	讓學生瞭解海洋運輸之基本要素、航運實務、航運產業、定期航運與不定期航運等，培養蒐集分析資料製作專業報告與簡報能力。	3	Required Course	運輸科學系	SDG1、SDG3、SDG4、SDG9、SDG12、SDG14
2021	Undergraduate	3	B	物流設施規劃	Material flow Facility Layout	This course introduces the concepts, principles, methods and steps of facility planning and rationalization, and the reasons, importance, methods and steps of rationalization of old planning. Selection of facility transportation systems and locations, their considerations and decision methods	介紹設施規劃，合理化的觀念、原理、方法步驟，舊規劃合理化的理由、重要性、方法及步驟。設施搬運系統及位置的遴選、及其考慮因素及決定方法	3	Elective Course	運輸科學系	SDG9
2021	Undergraduate	3	B	海洋智慧型運輸系統	Marine Intelligent Transportation Systems	This course introduces the concept and practice of Intelligent Transportation Systems (ITS), emphasizing the importance of planning and implementation in this course, so that students taking this course can not only gain a basic understanding of the concept of Intelligent Transportation Society (ITS), but also fully understand the actual operation of intelligent transportation systems. These three networks have been introduced and practical applications in the workplace, including communication capabilities to manage economic activities, energy management to obtain information to provide transportation capabilities, and logistics planning to provide value chains to drive economic activities, in order to integrate theory and practice. The aim is to integrate theory and practice and to develop the ability and wisdom to work in air, land and sea port companies in the future.	本課程介紹智慧型運輸系統的概念與實務，在本課程中強調規劃與實作的重要性，使得修習本課程的同學，除了能夠獲得基本的智慧型運輸社會（ＩＴＳ）概念之外，還能夠充分瞭解智慧型運輸系統的實際運作，合作是物聯網新價值鍊物聯網，是由通信網路，能源網路和物流網路組成這些網路共同在單一作業系統中，合作持續尋找各種方法來提升支援整編生產及配送商品和服務，以及廢棄物回收等過程中的熱力效率和生產力，這三種網路之介紹與舉出職場實例應用，包括通訊能力推動管理經濟活動，能源管理取得資訊提供運輸能力，物流規劃提供價值鏈推動經濟活動，以求理論與實務的結合，培養日後進入空陸運輸及海洋港灣公司工作的能力與智慧。	3	Required Course	運輸科學系	SDG1、SDG4、SDG8
2021	Undergraduate	3	A	海洋智慧型運輸系統	Marine Intelligent Transportation Systems	This course introduces the concept and practice of Intelligent Transportation Systems (ITS), emphasizing the importance of planning and implementation in this course, so that students taking this course can not only gain a basic understanding of the concept of Intelligent Transportation Society (ITS), but also fully understand the actual operation of intelligent transportation systems. These three networks have been introduced and practical applications in the workplace, including communication capabilities to manage economic activities, energy management to obtain information to provide transportation capabilities, and logistics planning to provide value chains to drive economic activities, in order to integrate theory and practice. The aim is to integrate theory and practice and to develop the ability and wisdom to work in air, land and sea port companies in the future.	介紹智慧型運輸系統的概念與實務，在本課程中強調規劃與實作的重要性，使得修習本課程的同學，除了能夠獲得基本的智慧型運輸社會（ＩＴＳ）概念之外，還能夠充分瞭解智慧型運輸系統的實際運作合作是物聯網新價值鍊物聯網是由通信網路能源網路和物流網路組成這些網路共同在單一作業系統中合作持續尋找各種方法來提升支援整編生產及配送商品和服務以及廢棄物回收等過程中的熱力效率和生產力 這三種網路相輔相成 缺一不可 若缺乏通訊能力就無法管理經濟活動 缺乏能源就無法取得資訊或提供運輸能力 缺乏物流就無法沿著價值鏈來推動經濟活動唯有這三種運作系統完整結合在一起這個新經濟組織才能夠完全擁有完整的生理機能 永續運作，以求理論與實務的結合，培養日後進入海洋港灣公司或空陸運輸公司工作的能力。	3	Required Course	運輸科學系	SDG1、SDG4、SDG8
2021	Undergraduate	3	B	運輸安全	Transportation Safety	Introduction to the content and analysis methods in the field of transportation security	介紹運輸安全領域所探討之內容與分析方法	3	Elective Course	運輸科學系	SDG3、SDG9、SDG11
2021	Undergraduate	3	B	運輸規劃	Transportation Planning	Through the exploration of transportation planning procedures and the operation of transportation evaluation methods, students will enhance their understanding of transportation systems and build their capacity for transportation planning and plan evaluation.	透過運輸規劃程序的探討,結合運輸評估方法的操作,加強學生對於運輸系統之了解，並建立運輸規劃與方案評估之能力。	3	Required Course	運輸科學系	SDG4、SDG5、SDG10、SDG11
2021	Undergraduate	3	A	運輸規劃	Transportation Planning	Through the exploration of transportation planning procedures and the operation of transportation evaluation methods, students will enhance their understanding of transportation systems and build their capacity for transportation planning and plan evaluation.	透過運輸規劃程序的探討,結合運輸評估方法的操作,加強學生對於運輸系統之了解，並建立運輸規劃與方案評估之能力。	3	Required Course	運輸科學系	SDG4、SDG5、SDG10、SDG11
2021	Undergraduate	4	B	運輸與觀光實務	The Practice of Transportation and Tourism	The main objectives of this course are to provide students with an understanding of issues related to transportation and tourism activities, to explore various types of tourism and recreational resources, to examine the use of tourism resources, and to introduce transportation means such as railroads, automobiles, and bicycles that serve both transportation and tourism functions, so that students can gain a more preliminary understanding of the role that transportation plays in tourism and sightseeing activities.	本課程之主要目標在於使學生瞭解運輸與觀光活動之相關議題，探討各種觀光遊憩資源，針對觀光資源運用加以研析，另針對兼具運輸與觀光旅遊功能之運輸工具，例如鐵路、汽車、自行車等加以介紹，使學生對於交通運輸行為在旅遊觀光活動中所扮演之角色有更初步之瞭解。	3	Elective Course	運輸科學系	SDG8、SDG11
2021	Undergraduate	4	B	運輸政策與規劃實務	The practice of transportation policy and planning	1. Understanding the system of international transportation, intercity transportation and urban transportation and the basic policy of various transportation systems. 2. Evaluating current practical issues of important transportation policies and construction plans. 3.Applying travel demand forecast model to transportation planning practice. 4.Studying the practical application of various alternatives evaluating and choosing. 5.Taking benefit for the students of wanting to attend national examination.	1.瞭解我國有關國際運輸、城際運輸、都市運輸等各種系統之基本交通政策。 2.評析我國當前重要交通政策與建設計畫等實務執行議題。 3.探討旅運需求模式分析應用於運輸規劃實務。 4.探究各種運輸系統方案評估與決策之實務應用。 5.期對有心報考國家考試之同學有所助益。	3	Elective Course	運輸科學系	SDG11
2021	Undergraduate	4	A	交通控制	Traffic Control	This course aims to introduce the theory and necessary knowledge of traffic control. All students are expected to apply traffic control method to improve traffic efficiency and safety.	本課程目的在於介紹交通控制方法的理論，進而培養學生利用交通控制方法進行交通管理與改善交通問題之實務能力。	3	Elective Course	運輸科學系	SDG11
2021	Undergraduate	4	A	財務管理	Financial Management	This course provides students with an understanding of financial management theories, methodologies, and the content of financial activities in actual company operations, and develops students' ability to apply financial management methods to personal and company financial management.	讓同學瞭解財務管理之理論、方法與實際公司營運中的財務活動內容，並培養學生應用財務管理方法於個人與公司理財的能力。	3	Elective Course	運輸科學系	SDG1、SDG2、SDG3、SDG4、SDG5、SDG9、SDG12、SDG17
2021	Undergraduate	1	A	經濟學	Economics	Students will gain an understanding of the relationship between economic activity, economic policy and financial markets, as well as a basic ability to analyze overall economic issues.	使學生瞭解經濟活動,經濟政策和金融市場的關係,並具備分析整體經濟問題的基礎能力。	3	Required Course	運輸科學系	SDG3、SDG8、SDG9、SDG11、SDG12、SDG16
2021	Undergraduate	1	B	經濟學	Economics	Students will gain an understanding of the relationship between economic activity, economic policy and financial markets, as well as a basic ability to analyze overall economic issues.	使學生瞭解經濟活動,經濟政策和金融市場的關係,並具備分析整體經濟問題的基礎能力。	3	Required Course	運輸科學系	SDG3、SDG8、SDG9、SDG11、SDG12、SDG16
2021	Undergraduate	1	A	人員安全與社會責任	Personnel Safety and Social Responsibility	The objective of this course is to establish students' concept and capability to ensure their own personal safety and responsibility to the society when working as a marine engineer.	本課程內容係遵照IMO 之Model course 7.04之規定編排而成者,期使學生能夠熟悉船上作業之種類、特性、作業程序、安全作業守則和緊急應變措施。	1	Elective Course	輪機工程學系能源應用組	SDG12
2021	Undergraduate	1	A	工程材料學	Engineering Materials	The aims of this course are to learn the bonding and crystal structures of materials, to understand phase transformation of metals during melting/solidification, then to familiarize with metallic iron-carbon phase diagrams and mechanical properties of a variety of alloys. On the other hand, learners will catch the knowledge of processing of engineering ceramics and the structural characteristics in various applications. Therefore, students will fully understand the importance of material structures in engineering.	本課程希望學習到材料基本鍵結與結晶構造，了解金屬熔融固化流程之相變化，進而認知熟練金屬鐵-碳相圖與各種合金之機械性質。另外學習工程陶瓷之製程與結構特性及其應用。以使修習本課程後之學生了解材料結構特性在工程應用之重要性及在未來材料與能源領域進階學習之基礎。 此課程符合STCW 公約表A-III/1 有關輪機工程操作級能力之強制要求的知識、瞭解及熟練(This course aims to meet the mandatory minimum requirements for knowledge, understanding and proficiency in Table A-III/1 of STCW for the Competence Marine	3	Required Course	輪機工程學系能源應用組	SDG7、SDG9、SDG11、SDG12、SDG13、SDG14、SDG15
2021	Undergraduate	1	A	基礎急救	Elementary First Aid	Successful completion of this course will enable any seafarer on a sea-going merchant ship to provide immediate basic medical care at the scene of an accident or other medical emergency until the arrival of a person with first aid skills or the person in charge of medical care aboard.	本課程遵照國際海事組織(IMO)Model Course 7.03-3.5 Apply Medical First Aid on Board Ship 應用船上醫療急救之規範(參考 Model Course 1.14 及 STCW VI/4第1-3節)，兼顧相關必要知識或技能之傳授， 編排以下授課內容： 1.熟悉及就之原理、 技巧與執行方法 2.認識各種及正及其處理方法	1	Elective Course	輪機工程學系能源應用組	SDG3

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	保全職責	Security Duty	This Course is based on the“International Shipping and Port Facility Security Code (ISPS Code)” in XI-2 Special measures to enhance maritime security in the International Convention for the Safety of Life at Sea (SOLAS)and STCW A- VI/5. enabling students to know The ISPS CODE and duty.	本課程係依據STCW公約規則VI/5、STCW章程A- VI/5、1974年海上人命安全國際公約(SOLAS)及其修正案第XI-2強制性求、國際船舶和港口設施保全章程(ISPS Code)第A篇(強制性)和第B篇(建議性)規定，作為課程內容。	1	Elective Course	輪機工程學系能源應用組	SDG9
2021	Undergraduate	1	A	微積分(一)	Calculus I	The main objective of Calculus is for students to learn the basics of the calculus of functions of single and multi-variable. They will study transcendental functions, limits, differentiation and an introduction to the Riemann integral, culminating with the Fundamental Theorem of Calculus. They will also apply these ideas to a wide range of problems that include the equations of motion, related rates, curve sketching and optimization. The students should be able to interpret the concepts of Calculus algeb	本課程遵照國際海事組織(IMO) Model Course 7.03 Supporting Knowledge Outline-Mathematics之規範，兼顧相關必要知識或技能之傳授，目標為讓學生瞭解何謂微積分,學習基本的微分和積分的運算並讓學生知道微積分在工程上之運用。	3	Required Course	輪機工程學系能源應用組	SDG1、SDG4、SDG9、SDG10
2021	Undergraduate	1	A	服務學習_愛校服務(Ⅱ)	Service-Learning Program-Campus Service(Ⅱ)	Students will be able to experience the concept of "helping others is the essence of happiness" and serve people and give back to the society.	目的：提昇同學服務人群，回饋社會的觀念，並親身體驗「助人為快樂之本」。	0	Service-Learning Program	輪機工程學系能源應用組	SDG4
2021	Undergraduate	1	A	靜力學	Statics	(1)Let students know the basic calculations of Statics. (2)Let students know the applications of Statics.	(1)讓學生瞭解靜力學的範疇 (2)讓學生知道靜力學工程上之運用	3	Required Course	輪機工程學系能源應用組	SDG4、SDG7、SDG8、SDG9、SDG10、SDG11、SDG12
2021	Undergraduate	2	A	工程數學(二)	Engineering Mathematics(Ⅱ)	This course provides a comprehensive, thorough, and up-to-date treatment of engineering mathematics. It is intended to introduce students of engineering, physics, mathematics, computer science, and related fields to those areas of applied mathematics that are most relevant for solving practical problems. A course in elementary calculus is the sole prerequisite.	本課程提供學生瞭解工程數學範疇，包括於物理、數學、電腦科學及相關領域在工程上之運用，並且教授相關解決問題之能力。	3	Required Course	輪機工程學系能源應用組	SDG1、SDG4、SDG9、SDG10
2021	Undergraduate	2	A	工程數學(二)	Engineering Mathematics(Ⅱ)	This course provides a comprehensive, thorough, and up-to-date treatment of engineering mathematics. It is intended to introduce students of engineering, physics, mathematics, computer science, and related fields to those areas of applied mathematics that are most relevant for solving practical problems. A course in elementary calculus is the sole prerequisite.	本課程提供學生瞭解工程數學範疇，包括於物理、數學、電腦科學及相關領域在工程上之運用，並且教授相關解決問題之能力。	3	Elective Course	輪機工程學系能源應用組	SDG1、SDG4、SDG9、SDG10
2021	Undergraduate	2	A	工程數學(一)	Engineering Mathematics (I)	This course provides a comprehensive, thorough, and up-to-date treatment of engineering mathematics. It is intended to introduce students of engineering, physics, mathematics, computer science, and related fields to those areas of applied mathematics that are most relevant for solving practical problems. A course in elementary calculus is the sole prerequisite.	本課程遵照國際海事組織(IMO) Model Course 7.03 Supporting Knowledge Outline-Mathematics之規範，兼顧相關必要知識或技能之傳授，提供學生瞭解工程數學範疇，包括於物理、數學、電腦科學及相關領域在工程上之運用，並且教授相關解決問題之能力。	3	Required Course	輪機工程學系能源應用組	SDG1、SDG4、SDG9、SDG10
2021	Undergraduate	2	A	專題研究(一）	Research in Special Topics (I)	This course is based on the premise of training and realizing innovative ideas of university students. The basic theories are supplemented by practical methods to realize the innovative ideas step by step.	本課程主要以訓練大學部學生創新想法並付諸實現為前提;以基礎學理根據輔以相關實際方法將創新想法一步一步的實現,期可將學理與實作搭配,培養大學部學生具有創新的	1	Elective Course	輪機工程學系能源應用組	SDG7、SDG9
2021	Undergraduate	2	A	專題研究(二）	Research in Special Topics (Ⅱ)	This course will let the students be trained with nanotechnology, electromagnetic new energy techniques for connecting theories and operations.	期望修習本專題學生能在奈米技術、電磁波新能源技術上的理論與實務相互配合印證獲得成長。	1	Elective Course	輪機工程學系能源應用組	SDG7、SDG9、SDG11、SDG12
2021	Undergraduate	2	A	熱力學	Thermodynamics	Thermodynamics is an engineering cours based on applied physics and particularly interested in relationships between energy, work and heat. Thermodynamic concepts are essential for analyzing almost all Mechanical Engineering problems, hence, the objective of this course is to educate engineering students so they are able to effectively utilize thermodynamics for practical problem solving.	熱力學為以應用物理為基礎之學科，討論關於能量、功與熱之相互關係。熱力學觀念為分析所有機械工程問題之基礎，因此，本課程之目標為教授學生對於實際問題能有效利用熱力學知識分析之。	3	Required Course	輪機工程學系能源應用組	SDG7、SDG13
2021	Undergraduate	2	A	能源材料	Energy Materials	Introduce the basic properties of materials including various mechanical, optical, electrical magnetic and thermal properties, the main aim is to teach students in understanding that the materials properties play key role in energy system. The students will learn about the importance of energy materials in a variety of energy industries.	介紹材料基本結構特性與機光電磁及熱性質，並教導學生了解材料特性在能源系統之關鍵角色，進而使修習本課程學生認知材料應用在能源產業之重要性。	3	Elective Course	輪機工程學系能源應用組	SDG7、SDG9
2021	Undergraduate	3	A	再生能源	Renewable Energy	Learn about the possibilities of using appropriate renewable energy as a solution to current and future energy and environmental challenges at the same time.	了解目前及未來在同時面對能源與環境挑戰時，運用適當再生能源作為解決方案的可能性。	3	Elective Course	輪機工程學系能源應用組	SDG7、SDG9
2021	Undergraduate	3	A	應用能源實驗	Appled Energy Experiment	This course consists of 11 experiments, each of which is designed by the Department's laboratories (Energy Lab, Energy Management Lab, and Scientific Computing Lab).	能源實驗課程主要是讓學生能將所學的能源知識應用於日常生活，讓學生從簡單的實驗操作，就能達到學以致用的目的，本課程計有11項實驗，每個實驗皆由本系各實驗室(能源實驗室、能源管理實驗室、科學計算實驗室)所設計。	1	Required Course	輪機工程學系能源應用組	SDG7、SDG9
2021	Undergraduate	3	A	內燃機學	Internal Combustion Engine	This course provides updated and comprehensive coverage of the applied thermodynamics operating principles of the internal combustion engine for students. The scope of this course includes all IC engines from largest stationary and ship engines down to the smallest engines used on tools and toys, with emphasis on reciprocating engines used in automobiles and similar applications. The course covers the fundamentals of fuels, combustion, heat transfer, lubrication, and fluid mechanics as applied in the oper	本課程目標主要為提供學生最新且全面知識瞭解內燃機之基本應用熱力運轉理論。課程範圍包含所有大型如固定式與船舶用引擎及小型如玩具使用之引擎，主要著重於汽車及相關應用之往復式引擎為主。課程涵蓋內燃機之燃料使用、燃燒、熱傳、潤滑及流體力學等之基本理論、循環、吸氣、汽缸內流動、燃燒、排氣、引擎污染排放與空氣污染等主題。 此課程符合STCW 公約表A-III/1 有關輪機工程操作級能力之強制要求的知識、瞭解及熟練(This course aims to meet the mandatory minimum requirements for knowledge,	3	Required Course	輪機工程學系能源應用組	SDG7、SDG13
2021	Undergraduate	4	A	專題研究(一）	Research in Special Topics (I)	This course is based on the premise of training and realizing innovative ideas of university students. The basic theories are supplemented by practical methods to realize the innovative ideas step by step.	本課程主要以訓練大學部學生創新想法並付諸實現為前提;以基礎學理根據輔以相關實際方法將創新想法一步一步的實現,期可將學理與實作搭配,培養大學部學生具有創新的	1	Elective Course	輪機工程學系能源應用組	SDG17
2021	Undergraduate	3	A	救生艇筏與救難艇筏操縱	Proficiency in Survival Craft and Rescue Boat	This course is based on the International Maritime Organization (IMO) Model Course 7.03-3.4 Operate Life-Saving Appliances, with reference to Model Course 1.23 Proficiency in Survival Craft and Rescue Boats This course is designed to teach students to understand and operate lifeboats, rescue boats, life rafts, life jackets, diving suits, and life preservers. In addition, students will be familiar with the use of life-saving equipment such as survival communication equipment, distress signals, first aid treatment, helicopter hoisting equipment and rescue methods, maintenance and inspection of lifeboats and rescue boats, and raft maneuvering under adverse weather conditions. The purpose of self-help and rescue.	本課程主要為依照國際海事組織(IMO) Model Course 7.03-3.4 Operate Life-Saving Appliances之規範，並參考Model Course 1.23 Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats及1978年STCW國際公約2010修正案規則VI/2、SOLAS國際公約和LSA章程等最新修正的相關內容，兼顧相關必要知識或技能之傳授，教導同學認識且能正確操作使用救生艇、救難艇、救生筏、救生衣、浸水衣、救生圈等救生裝備，同時熟悉各項求生通訊設備使用、遇險信號發送、傷患急救處置、直昇機吊掛裝備與救援方式、救生艇和救難艇的保養檢查，及惡劣天候下之艇筏操縱等專業知識與技能，進而掌握和控制在船舶異常狀況下個人與全船旅客如何有效避免危難之發生，並應付危難中的各種困境，以達自救與救人之目的。	2	Elective Course	輪機工程學系能源應用組	SDG9
2021	Undergraduate	3	A	專題研究(四)	Research in Special Topics (Ⅳ)	This course will let the students be trained with nanotechnology and electro-optic trnasfer techniques for connecting theories and operations.	期望修習本專題學生能在奈米技術與光電轉換技術上的理論與實務相互配合印證獲得成長。	1	Elective Course	輪機工程學系能源應用組	SDG7、SDG9、SDG11、SDG12
2021	Undergraduate	3	B	專題研究(三）	Research in Special Topics (Ⅲ)	The application of computational fluid dynamics (CFD) to engineering problems, rather than grid-building techniques, discretization methods, CFD algorithms, or numerical stability.	計算流體力學（CFD）在工程問題上的應用，而不是網格建立技術、離散化的方法、CFD運算法或數值穩定性。	1	Elective Course	輪機工程學系能源應用組	SDG7、SDG14
2021	Undergraduate	3	A	離岸風電產業講座	OFF-Shore Wind Generating Industry	The current development and future prospects of technology and management issues of off-shore wind energy industry will be introduced. The students can thus grasp the cutting-edge science and technology of off-shore wind energy. The students can also acquaint with professional careers of the relevant fields and can devote into related wind energy industry to make significant contribution.	介紹離岸風電產業於政策技術研發經營等各相關面向的發展現況及未來趨勢，讓學生能夠掌握最新離岸風電科技，並熟悉離岸風電產業的職場，畢業後即能快速投入相關產業作出積極的貢獻。	2	Elective Course	輪機工程學系能源應用組	SDG17
2021	Undergraduate	3	A	材料性質學	Materials Properties	The aims of this course are to learn the fundamentals of electron theory of materials. Let the learners understand the origin and applications about various electronic properties, optical properties, magnetic properties and thermal properties of materials. After the fundamental learning, the students can apply materials properties in materials processing.	期望修習本課程學生學習材料基本電子理論，進而了解材料電子性質、光學性質、磁性與熱性質之起源與應用。並進而實用在材料製程之應用。	3	Required Course	輪機工程學系能源應用組	SDG7、SDG9、SDG11、SDG12、SDG13
2021	Undergraduate	3	A	電子學	Electronics	1. To enable students to understand the basic operating principles of semiconductor electronic components, and have the ability to analyze analog or integrated electronic circuits. 2. Let students understand the application and development trend of the latest semiconductor electronic components in the industry, and have the ability to design and apply electronic circuits in practice.	1.使學生瞭解半導體電子元件的基本操作原理，並具有分析類比或積體電子電路之能力。 2.讓學生瞭解最新半導體電子元件於產業界之應用與發展趨勢，並具備電子電路設計與應用於實務之能力。	3	Required Course	輪機工程學系能源應用組	SDG9
2021	Undergraduate	3	A	輪機自動控制	Automatic Control of Marine Engine & Auxiliary	Facing the increasing degree of wheel automation, to be able to use the relevant equipment correctly and efficiently, the cultivation of knowledge of wheel automation has become a matter of urgency. The ability to properly operate, adjust, and maintain related equipment is an important responsibility of a wheelman. This course is intended to introduce the basics of automatic engine control, control system composition, common auxiliary engine control system, diesel engine control system, generator control system, monitoring and alarm system, etc.	面對輪機自動化的程度越來越高，要能夠正確而有效率的使用相關設備，輪機自動控制知識的養成變得刻不容緩，各種甲種輪機員的考試中，輪機自動控制也是必要的內容。能夠適當的操作、調整以及維護相關設備已是輪機員重要的職責。本課程擬介紹輪機自動控制的入門基礎、控制系統組成、常用的輔機控制系統、柴油主機控制系統、發電機控制系統、監視與警報系統等。	3	Elective Course	輪機工程學系能源應用組	SDG7

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	輪機當值	Engineering Watch Keeping	The content of the subject curriculum are according with the IMO Model course 7.04 modules 29： Training objective to obtain professional skills and certification, training and leadership of senior marine engineer enable to play a heavy duty jobs	本課程內容符合IMO 典範課程29(IMO Model course 7.04 modules 29)：培育國際化之航海人員，符合國際海事組織（IMO）認可之教育規範，課目為遵循現行國際法規。 課程核心能力：船舶航行於世界港口間，船舶航行安全及防止船舶污染，為國際間所重視，近幾年來，國際組織，已針對船員訓練、發證、船體設備、標準、公司船舶安全管理、港口保全、防止船舶污染，並透由港口國管制持續監管，身為航輪從業人員，對於相關之國際公約及規定，須嚴慎努力了解，以維公司船舶正常營運。	2	Elective Course	輪機工程學系能源應用組	SDG4
2021	Undergraduate	4	A	專題研究(六)	Research in Special Topics (Ⅵ)	This course will let the students be trained with nanotechnology, fuel cell new energy and electrochemical techniques for connecting theories and operations.	期望修習本專題學生能在奈米技術、燃料電池新能源技術上的理論與實務相互配合印證獲得成長。	1	Elective Course	輪機工程學系能源應用組	SDG7、SDG9、SDG11、SDG12
2021	Undergraduate	3	B	專題研究(五）	Research in Special Topics (Ⅴ)	Students will develop the ability to organize, apply, integrate, and innovate in research and development by applying their past knowledge of basic subjects.	培養學生運用過去基礎科目知識，進行組織、應用、統整、創新之研發能力。	1	Elective Course	輪機工程學系能源應用組	SDG17
2021	Undergraduate	4	C	專題研究(五）	Research in Special Topics (Ⅴ)	The application of computational fluid dynamics (CFD) to engineering problems, rather than grid-building techniques, discretization methods, CFD algorithms, or numerical stability.	計算流體力學（CFD）在工程問題上的應用，而不是網格建立技術、離散化的方法、CFD運算法或數值穩定性。	1	Elective Course	輪機工程學系能源應用組	SDG7、SDG13、SDG14
2021	Undergraduate	4	A	專題研究(五）	Research in Special Topics (Ⅴ)	This course will let the students be trained with nanotechnology, fuel cell new energy and electrochemical techniques for connecting theories and operations.	期望修習本專題學生能在奈米技術、燃料電池新能源技術上的理論與實務相互配合印證獲得成長。	1	Elective Course	輪機工程學系能源應用組	SDG7、SDG9
2021	Undergraduate	1	A	通訊.導航與控制概論	Introduction to Communications, Navigation	Introduce basic concepts of communications, navigation and control engineering.	介紹通訊.導航與控制之基本概論與產業概況,工程倫理	1	Required Course	通訊與導航工程學系	SDG9
2021	Undergraduate	2	A	訊息導論	Introduction to Information and Entropy	Learn how to measure message capacity; how far information can be compressed; how to effectively communicate on imperfect channels	學習如何測量訊息容量; 資訊可以被壓縮到什麼程度; 如何有效的在不完美的通道上有效的通訊	3	Elective Course	通訊與導航工程學系	SDG4、SDG8、SDG9
2021	Undergraduate	2	A	工程數學(1)	Engineering Mathematics	Provide students with the mathematical knowledge and skills and support their concurrent and subsequent engineering studies.	旨在引導學生在修完微積分課程後能更明瞭一般工程問題的數學模式並為日後工程研究方法建立基礎。	3	Required Course	通訊與導航工程學系	SDG4、SDG9
2021	Undergraduate	2	A	計算機組織	Computer Organization	Students will gain an understanding of the internal organization and control methods of existing computers and become familiar with the operation of each system unit structure.	令學生瞭解現有計算機內部組織架構及控制方法並熟悉系統各單元架構運作情形。	3	Elective Course	通訊與導航工程學系	SDG4、SDG9
2021	Undergraduate	2	A	電子學(1)	Electronics (I)	Introduce students to the basic principles of electronics and electronic circuits For example, cell phones, computers, digital cameras, and other electronic products that have become part of our daily lives are all made up of electronic circuits at their core. In addition to being practical, many concepts in electronics are the theoretical basis for other courses in the field of electrical engineering. These important concepts include linearization, gain and transfer functions, frequency response, and teach-back, which contribute to the understanding of control systems, communication principles, and advanced courses in electromagnetic waves.	讓學生了解電子學及電子電路之基本原理 近幾十年來，電子電路對人類的生活帶來了重大的改變，例如手機、電腦、數位相機以及其他幾乎已經成為日常生活一部分的電子產品，其核心部分都是由電子電路所構成。除了實用性之外，電子學之中的許多觀念，也是電機工程領域其他課程的理論基礎。這些重要的觀念包括：線性化、增益及轉移函數、頻率響應以及回授等，有助於理解控制系統、通訊原理以及電磁波等進階的課程。	3	Required Course	通訊與導航工程學系	SDG9
2021	Undergraduate	3	A	通訊原理	Communication Theory	This course provides the fundamental communication techniques, including signal processes, noise and interference analysis, analog/digital modulations, transmission theory, coding, system modeling and BER analyses. Particular emphasis in background requirement and entrance level is the must for the undergraduate student. Finally, students will be asked to demonstrate their captured knowledge based on a project assignment.	本課程提供基本的通信技術，包括信號過程、噪聲和干擾分析、模擬/數字調製、傳輸理論、編碼、系統建模和誤碼率分析。特別強調背景要求和入學水平是學生的必修課。 最後，學生將被要求在項目任務的基礎上展示他們掌握的知識。	3	Required Course	通訊與導航工程學系	SDG9
2021	Undergraduate	3	A	通訊實習	Communications Systems Laboratory	By practical communications module experiments to understand communication technologies.	從通訊系統之理論中，藉由模組之操作，瞭解實際信號之觀察與量測，學習有關類比與數位信號調變、解調變技術與其收發機設計，以及超外差接收機原裡、鎖相迴路等其他相關技術。	2	Required Course	通訊與導航工程學系	SDG9
2021	Undergraduate	3	A	自動控制	Automatic Control Systems	Introduction to basic control theory and applications of automatic control systems.	介紹基礎控制理論及自動控制系統之應用.	3	Required Course	通訊與導航工程學系	SDG9
2021	Undergraduate	3	A	控制實習	Control Systems Laboratory	To understand the basic control theory and the application of automatic control system through experiments.	經由實驗瞭解基礎控制理論及自動控制系統之應用.	2	Required Course	通訊與導航工程學系	SDG9
2021	Undergraduate	3	A	通訊電子學	Electronic Communications	Give students the RF microelectronics background and system concept they need to design state-of-the-art consumer electronics and communications devices and systems.	講授設計有線及無線通訊元件與系統所需的背景知識。	3	Elective Course	通訊與導航工程學系	SDG9
2021	Undergraduate	3	A	通訊網路	Communication Network	The course is to provide the basic understanding of the physical, data link, network and application layer of the wired and wireless communication systems.	使同學瞭解熟悉包含有線及無線通訊系統中，實體層、鏈結層、網路層及應用層等，相互運作原理及實際系統架構。	3	Elective Course	通訊與導航工程學系	SDG9
2021	Undergraduate	4	A	產業接軌企業講座	Practice Lecture on Current Industry	This course is designed to introduce the latest ICT (Intelligent Communication Technology) technologies and their related applications in the communications industry, which will enable students to fully understand the direction of industry development and practical operation. Lectures by industry representatives will be arranged according to different topics to facilitate students' thinking about future development and career direction.	本課程以介紹通訊業界最新ICT (Intelligent Communication Technology) 技術及其相關應用服務為主，可使學生充份了解產業發展方向與實務運作情形。課程內容將依不同主題安排業界代表進行演講，以利學生構思未來發展及就業方向。	2	Elective Course	通訊與導航工程學系	SDG8、SDG9
2021	Undergraduate	4	A	電磁學	Electromagnetics	Electromagnetics Fundamentals for Engineering Applications	建立電磁理論之工程應用基礎 著重於通訊相關領域應有之電磁學基礎	3	Required Course	通訊與導航工程學系	SDG9
2021	Undergraduate	1	A	人員安全與社會責任	Personnel Safety and Social Responsibility	Public safety, industrial safety, and emergency response systems became hot topics in the late 20th century. Unfortunately, after many painful lessons and tests, most of these issues are still in the discussion and wait-and-see stage and not fully implemented. As a member of a ship's crew, not only is the nature of the work environment forcing the safety of oneself to be tested at all times, but one also has a responsibility to maintain the safety of life and property of the public and the quality of the environment. This course is based on the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended in 1995, and is a 16-hour course. In addition to meeting the requirements of the Convention, the course is designed to develop students' skills and concepts of personal safety and social responsibility in the workplace.	公共安全、工業安全、以及應急體系等在二十世紀末期成為熱門課題。不幸的是經過多次慘痛教訓與考驗，這些課題多半仍停留在討論與觀望階段而未能充分落實。身為輪機人員，不僅工作環境與性質迫使自身安全隨時面對考驗，對於大眾生命財產的安全及環境品質的維護亦有其應盡之責。 本課程依一九七八年航海人員訓練、發證及當值標準(STCW)國際公約一九九五年修正案要求開設，總期程十六小時。除為符合公約要求，並期能藉此課程養成同學對於維護個人安全與在工作崗位上善盡社會責任，所需具備的職能與觀念。	1	Elective Course	輪機工程學系動力工程組	SDG12
2021	Undergraduate	1	A	工程材料學	Engineering Materials	The aims of this course are to learn the bonding and crystal structures of materials, to understand phase transformation of metals during melting/solidification, then to familiarize with metallic iron-carbon phase diagrams and mechanical properties of a variety of alloys. On the other hand, learners will catch the knowledge of processing of engineering ceramics and the structural characteristics in various applications. Therefore, students will fully understand the importance of material structures in engineering. This course aims to meet the mandatory minimum requirements for knowledge, understanding and proficiency in Table A-III/1 of STCW for the Competence Marine Engineering at the Operational Level.	本課程希望學習到材料基本鍵結與結晶構造，了解金屬熔融固化流程之相變化，進而認知熟練金屬鐵-碳相圖與各種合金之機械性質。另外學習工程陶瓷之製程與結構特性及其應用。以使修習本課程後之學生了解材料結構特性在工程應用之重要性及在未來材料與能源領域進階學習之基礎。 此課程符合STCW 公約表A-III/1 有關輪機工程操作級能力之強制要求的知識、瞭解及熟練	3	Required Course	輪機工程學系動力工程組	SDG7、SDG9、SDG11、SDG12、SDG13、SDG14、SDG15
2021	Undergraduate	1	A	基礎急救	Elementary First Aid	"Objective Successful completion of this course will enable any seafarer on a sea-going merchant ship to provide immediate basic medical care at the scene of an accident or other medical emergency until the arrival of a person with first aid skills or the person in charge of medical care aboard.	本課程遵照國際海事組織(IMO)Model Course 7.03-3.5 Apply Medical First Aid on Board Ship 應用船上醫療急救之規範(參考 Model Course 1.14 及 STCW VI/4第1-3節)，兼顧相關必要知識或技能之傳授， 編排以下授課內容： 1.熟悉及就之原理、 技巧與執行方法 2.認識各種及正及其處理方法	1	Elective Course	輪機工程學系動力工程組	SDG3
2021	Undergraduate	1	A	輪機概論	Introduction to Marine Engines	Let students understand the various systems of marine engines, which mainly cover technical management issues such as marine main/auxiliary equipment, main engine propulsion systems, deck machinery, ship supervision and inspection, fuel oil and lubricants. In addition, practical issues such as ship maintenance, safety management and emergency measures, ship energy saving and waste heat recovery, and ship operation management are used as the introductory basis for subsequent engineering-related professional courses.	讓學生了解船舶輪機各系統，主要涵蓋船舶主/輔機裝備、主機推進系統、甲板機械、船舶監造與檢驗、燃料油與潤滑油等技術管理問題。另將船舶維修、安全管理與應急措施、船舶節能與廢熱回收以及船舶營運管理等實務問題等，做為後續輪機相關專業課程之入門基礎。	3	Required Course	輪機工程學系動力工程組	SDG7、SDG12
2021	Undergraduate	1	A	微積分(一)	Calculus I	The main objective of Calculus is for students to learn the basics of the calculus of functions of single and multi-variable. They will study transcendental functions, limits, differentiation and an introduction to the Riemann integral, culminating with the Fundamental Theorem of Calculus. They will also apply these ideas to a wide range of problems that include the equations of motion, related rates, curve sketching and optimization. The students should be able to interpret the concepts of Calculus algeb	本課程遵照國際海事組織(IMO) Model Course 7.03 Supporting Knowledge Outline-Mathematics之規範，兼顧相關必要知識或技能之傳授，目標為讓學生瞭解何謂微積分,學習基本的微分和積分的運算並讓學生知道微積分在工程上之運用。	3	Required Course	輪機工程學系動力工程組	SDG1、SDG4、SDG9、SDG10
2021	Undergraduate	1	A	服務學習_愛校服務(I)	Service-Learning Program-Campus Service(I)	1. To cultivate students' sense of identity and centripetal force towards the school. 2. To allow students to learn self-growth and social care through service. 3. To allow students to bring their talents, optimism and empathy to make a difference in the world.	1.培養學生對學校的認同感與向心力。 2.讓學生從服務中學習自我成長與社會關懷。 3.讓學生帶著他們才華、樂觀和同理心去改變世界。	0	Service-Learning Program	輪機工程學系動力工程組	SDG3、SDG4、SDG5、SDG6、SDG10、SDG12

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	靜力學	Statics	(1). Let students know the basic calculations of Statics. (2). Let students know the applications of Statics.	(1).讓學生瞭解靜力學的範疇 (2).讓學生知道靜力學工程上之運用	3	Required Course	輪機工程學系動力工程組	SDG1、SDG3、SDG4、SDG7、SDG8、SDG9、SDG10、SDG12、SDG16
2021	Undergraduate	1	A	能源與動力工程概論	An Introduction to Energy and Power	Understanding the relationship of energy and power in life, further learning the corresponding knowledge are the objectives of the course. Furthermore, new developed power technologies are also introduced.	使學生了解能源與動力在生活上面的所扮演的角色、能源與動力相關知識、及目前所發展之工程技術。	3	Elective Course	輪機工程學系動力工程組	SDG7、SDG9
2021	Undergraduate	2	A	工程數學(二)	Engineering Mathematics (II)	Teach applied engineering mathematics to solve the engineering problem	藉由課程導引讓同學學習工程分析與應用所需的相關數學定義, 觀念, 運算法,與工程應用例	3	Required Course	輪機工程學系動力工程組	SDG6
2021	Undergraduate	2	A	保全職責	Security Duty	This Course is based on the"International Shipping and Port Facility Security Code (ISPS Code)" in XI-2 Special measures to enhance maritime security in the International Convention for the Safety of Life at Sea (SOLAS)and STCW A- VI/5. enabling students to know The ISPS CODE and duty.	本課程係依據STCW公約規則VI/5、STCW章程A-VI/5、1974年海上人命安全國際公約(SOLAS)及其修正案第XI-2強制性求、國際船舶和港口設施保全章程(ISPS Code)第A篇(強制性)和第B篇(建議性)規定，作為課程內容。	2	Elective Course	輪機工程學系動力工程組	SDG9
2021	Undergraduate	2	A	電機機械	Electric Machines	This curriculum fits with table A-III/2, STCW 95 management ability in demand of marine engineering. The contents are fundamental principle, structure, category, configuration, characteristics and application of electric machines to reach the responsibility of duty automation and controllability of vessel.	此課程符合STCW 95表A-III/2 有關輪機工程管理級能力之強制要求的知識、瞭解及熟練。此課程提供電機機械基本原理、構造、種類、特性與船舶應用，並達成船上使用船上電機技術、電子與電機設備及自動化、使用儀器與控制系統之基本原理來完成管理階段之典型的工作等任務、職責與責任之知識與練習。	3	Required Course	輪機工程學系動力工程組	SDG9
2021	Undergraduate	2	A	輪機當值	Engineering Watch Keeping	The content of the subject curriculum are according with the IMO Model course 7.04 modules 29： Training objective to obtain professional skills and certification, training and leadership of senior marine engineer enable to play a heavy duty jobs	本課程內容符合IMO 典範課程29(IMO Model course 7.04 modules 29)：培育國際化之航海人員，符合國際海事組織（IMO）認可之教育規範，課目為遵循現行國際法規。 課程核心能力：船舶航行於世界港口間，船舶航行安全及防止船舶污染，為國際間所重視，近幾年來，國際組織，已針對船員訓練、發證、船體設備、標準、公司船舶安全管理、港口保全、防止船舶污染，並透由港口國管制持續監管，身為航輪從業人員，對於相關之國際公約及規定，須嚴慎努力了解，以維公司船舶正常營運。	2	Elective Course	輪機工程學系動力工程組	SDG4
2021	Undergraduate	3	A	應用電學實驗	Appiled Eletrical Experiments	This course will design a number of small experiments on electrical applications and plan the final project so that students can explore problems and think creatively, and at the same time give full play to their creative projects and teamwork so that they can solve problems independently and think logically.	應用電學實驗課程主要是讓學生能將所學的電學知識應用於日常生活，讓學生從簡單的實驗操作，就能達到學以致用的目的，本課程將設計多項有關電學應用的小實驗，進而規劃期末專題，期能引發學生發掘問題及創造思考，同時發揮同學創意專題製作及團隊合作學習，使得學生具有獨立解決問題及邏輯思考的能力。	1	Required Course	輪機工程學系動力工程組	SDG9
2021	Undergraduate	3	A	熱傳學	Heat Transfer	BASIC CONCEPTS OF THERMODYNAMICS AND HEAT TRANSFER HEAT CONDUCTION EQUATION STEADY HEAT CONDUCTION TRANSIENT HEAT CONDUCTION FORCED CONVECTION NATURAL CONVECTION BOILING AND CONDENSATION HEAT TRANSFER RADIATION HEAT TRANSFER	本課程旨在介紹，三種熱傳模式，即傳導、對流、輻射之基本原理及相關工程應用，包括散熱鰭片、熱交換器等。吾人期使同學在修完本門課程可具備下列能力： 1.說明熱傳三種模式及描述此三種模式的定律與基礎方程式。 2.了解熱阻的定義與應用，並能以熱阻方式分析穩態一維熱傳導問題。 3.了解散熱鰭片的功能，並能分析簡單之散熱片問題。 4.具備分析多維穩態熱傳問題。 5.具備分析暫態熱傳導問題。 6.具備運用經驗公式分析熱對流問題能力。 7.具備差分法分析簡單二維穩態熱傳導問題。	3	Elective Course	輪機工程學系動力工程組	SDG7、SDG13
2021	Undergraduate	3	A	應用能源實驗	Applied Energy Experiment	This course consists of 11 experiments, each of which is designed by the Department's laboratories (Energy Lab, Energy Management Lab, and Scientific Computing Lab).	能源實驗課程主要是讓學生能將所學的能源知識應用於日常生活，讓學生從簡單的實驗操作，就能達到學以致用的目的，本課程計有11項實驗，每個實驗皆由本系各實驗室(能源實驗室、能源管理實驗室、科學計算實驗室)所設計。	1	Required Course	輪機工程學系動力工程組	SDG7、SDG9
2021	Undergraduate	3	A	醫療急救	First Aid and Medicine Knowledge	Objective Successful completion of this course will enable any seafarer on a sea-going merchant ship to provide immediate basic medical care at the scene of an accident or other medical emergency until the arrival of a person with first aid skills or the person in charge of medical care aboard.	本課程遵照國際海事組織(IMO)Model Course 7.03-3.5 Apply Medical First Aid on Board Ship 應用船上醫療急救之規範(參考 Model Course 1.14 及 STCW VI/4第1-3節)，兼顧相關必要知識或技能之傳授， 編排以下授課內容： 1.熟悉及救原理、技巧與方法 2.認識各種急症及其處理方法 3.認識各種常見健康問題及其處理方法	2	Elective Course	輪機工程學系動力工程組	SDG3
2021	Undergraduate	3	A	醫療急救	First Aid and Medicine Knowledge	Objective Successful completion of this course will enable any seafarer on a sea-going merchant ship to provide immediate basic medical care at the scene of an accident or other medical emergency until the arrival of a person with first aid skills or the person in charge of medical care aboard.	本課程遵照國際海事組織(IMO)Model Course 7.03-3.5 Apply Medical First Aid on Board Ship 應用船上醫療急救之規範(參考 Model Course 1.14 及 STCW VI/4第1-3節)，兼顧相關必要知識或技能之傳授， 編排以下授課內容： 1.熟悉及救原理、技巧與方法 2.認識各種急症及其處理方法 3.認識各種常見健康問題及其處理方法	2	Elective Course	輪機工程學系動力工程組	SDG3
2021	Undergraduate	4	A	渦輪機	Turbine	This course provides the background knowledge and practical work to support： 1.operation and theoritical evaluation of turbine engine performance and capacity 2.maintaining safety of engine equipment, system and services. 3.basic ability for managing and planning the steam turbine power plant.	本課程宗旨與目的,是使得學生,在本課程學習中,對船舶原動力廠,有基礎知識與認識.其中包括有,穩定流能量方程式,熱力學第一與第二定律,蒸氣,氣體行徑,熱效率,蒸汽動力廠類型,噴嘴,引擎測試數據,齒輪裝置,齒輪系統裝置等...基本機構裝置.	3	Elective Course	輪機工程學系動力工程組	SDG7、SDG13
2021	Undergraduate	4	A	領導統御與機艙資源管理	Leadership and Engineroom Resource Management	1.Comply with STCW international regulations and obtain training certificate 2.Knowledge of safe ship operation 3.Understand ship's leadership and communication and coordination	1.符合STCW國際規章,取得訓練證書 2.了解船舶安全操作的知識 3.了解船舶領導統御要領及溝通協調	3	Elective Course	輪機工程學系動力工程組	SDG8
2021	Undergraduate	4	A	領導統御與機艙資源管理	Leadership and Engineroom Resource Management	To upgrade the skill level of senior crew members so that those assigned to above-board duties meet the minimum fitness standards required by STCW CODE A-III/1: "Maintaining safe engine duty". The minimum fitness standard for "Maintaining Safe Rotor Duty" is to have knowledge of leadership and cabin resource management, such as resource allocation, distribution and prioritization, communication, decision making and leadership, crisis management, leadership and workload. The course is designed to provide a detailed knowledge and capability of leadership and resource management, such as resource allocation, distribution and prioritization, communication, decision making and leadership, crisis management, leadership and workload management, in order to maintain the safety of our merchant marine. This course uses an engine simulator to teach students about the cabin environment and systems, basic cabin operations, and what resources are available and managed in the cabin. The course will teach students how to evaluate the operational efficiency and system health. Since human resources are part of the cabin resources, this course also includes leadership and team management to make the best use of human resources in the cabin.	提昇高級船員技術水準，使被指派於船上擔任輪機以上職務之輪機員達到輪機人員訓練發證及當值標準國際公約章程(STCW CODE)A-III/1 規則要求：「保持安全之輪機當值」之最低適任標準，使具備領導統御與機艙資源管理之知識，諸如資源的配置、分配與優先順序、通信、決斷與領導、危機管理、領導和工作負載管理等詳盡的知識及能力，以維持我國商船航行安全。 本課程使用輪機模擬機，以教導同學認識機艙環境與系統，機艙基本操作，並瞭解機艙有那些資源可以運用與管理。課程當中將教導同學如何評估運轉效率與系統健康狀況。由於人力資源也是機艙資源的一部份，本課程內容並包含領導統御與團隊管理以善用機艙的人力資源。	3	Elective Course	輪機工程學系動力工程組	SDG8
2021	Undergraduate	4	A	輪機初階陸上實習	Primary Marine Engineering Land Internship	This course is designed to give students the opportunity to apply what they have learned in the classroom to the workplace, or to bring workplace issues back to the classroom to share with their classmates. Students who take this course should first discuss the location of the internship with the instructor.	本課程主要使同學除了課堂上的學習，也深入真實職場歷練，並將課堂上的學問應用於職場，或將職場的問題帶回課堂與同學分享。選修本課程同學請先與授課老師討論實習地點。	1	Elective Course	輪機工程學系動力工程組	SDG1
2021	Undergraduate	4	A	輪機初階陸上實習	Primary Marine Engineering Land Internship	In addition to classroom learning, this course allows students to participate in internships at companies recognized by the department and to experience the real workplace, applying what they learn in the classroom to the workplace or bringing back problems from the workplace to share with the classroom.	本課程主要使同學除了課堂上的學習，前往由系上認可之公司進行實習，也深入真實職場歷練，並將課堂上的學問應用於職場，或將職場的問題帶回課堂與同學分享。	1	Elective Course	輪機工程學系動力工程組	SDG1

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	4	A	輪機中階陸上實習	Itermediate Marine Engineering Land Internship	In addition to classroom learning, this course allows students to participate in internships at companies recognized by the department and to experience the real workplace, applying what they learn in the classroom to the workplace or bringing back problems from the workplace to share with the classroom.	本課程主要使同學除了課堂上的學習，前往由系上認可之公司進行實習，也深入真實職場歷練，並將課堂上的學問應用於職場，或將職場的問題帶回課堂與同學分享。	2	Elective Course	輪機工程學系動力工程組	SDG1、SDG8、SDG9、SDG11、SDG14
2021	Undergraduate	4	A	輪機中階陸上實習	Itermediate Marine Engineering Land Internship	This course is designed to give students the opportunity to apply what they have learned in the classroom to the workplace, or to bring workplace issues back to the classroom to share with their classmates. Students who take this course should first discuss the location of the internship with the instructor.	本課程主要使同學除了課堂上的學習，也深入真實職場歷練，並將課堂上的學問應用於職場，或將職場的問題帶回課堂與同學分享。	2	Elective Course	輪機工程學系動力工程組	SDG1、SDG8、SDG9、SDG11、SDG14
2021	Undergraduate	4	A	輪機高階陸上實習	Advanced Marine Engineering Land Internship	This course is designed to give students the opportunity to apply what they have learned in the classroom to the workplace, or to bring workplace issues back to the classroom to share with their classmates. Students who take this course should first discuss the location of the internship with the instructor.	本課程主要使同學除了課堂上的學習，也深入真實職場歷練，並將課堂上的學問應用於職場，或將職場的問題帶回課堂與同學分享。	3	Elective Course	輪機工程學系動力工程組	SDG1、SDG8、SDG9、SDG10、SDG13
2021	Undergraduate	4	A	輪機高階陸上實習	Advanced Marine Engineering Land Internship	In addition to classroom learning, this course allows students to participate in internships at companies recognized by the department and to experience the real workplace, applying what they learn in the classroom to the workplace or bringing back problems from the workplace to share with the classroom.	本課程主要使同學除了課堂上的學習，前往由系上認可之公司進行實習，也深入真實職場歷練，並將課堂上的學問應用於職場，或將職場的問題帶回課堂與同學分享。	3	Elective Course	輪機工程學系動力工程組	SDG1、SDG8、SDG9、SDG10、SDG13
2021	Undergraduate	5	A	海上進階實習	Advance Practice at Sea	Practical experience on the main and auxiliary engines and ship operation and maintenance in a merchant vessel	到商船實際體驗實習船上主機與副機及船操作保養與維修	9	Elective Course	輪機工程學系動力工程組	SDG1、SDG4、SDG5、SDG8、SDG9、SDG14
2021	Undergraduate	1	B	人員安全及社會責任	Personnel Safety and Social Responsibility	This course is designed in accordance with IMO Model course 6.03, Model course 7.03-competence 1.21 1.4.1 3.5 3.6.1 and 1978 STCW Code Section A-VI/1 to familiarize students with the types, characteristics, operating procedures, safety practices and emergency measures for shipboard operations. It is intended to familiarize students with the types, characteristics, operating procedures, safety practices and emergency response measures of shipboard operations.	本課程內容係遵照IMO 之Model course 6.03, Model course 7.03-competence 1.21 1.4.1 3.5 3.6.1和1978 STCW Code Section A-VI/1之規定編排而成者,期使學生能夠熟悉船上作業之種類、特性、作業程序、安全作業守則和緊急應變措施。	1	Required Course	商船學系	SDG12
2021	Undergraduate	1	A	人員安全及社會責任	Personnel Safety and Social Responsibility	This course is designed in accordance with IMO Model course 6.03, Model course 7.03-competence 1.21 1.4.1 3.5 3.6.1 and 1978 STCW Code Section A-VI/2 to familiarize students with the types, characteristics, operating procedures, safety practices and emergency measures for shipboard operations. It is intended to familiarize students with the types, characteristics, operating procedures, safety practices and emergency response measures of shipboard operations.	本課程內容係遵照IMO 之Model course 6.03, Model course 7.03-competence 1.21 1.4.1 3.5 3.6.1和1978 STCW Code Section A-VI/1之規定編排而成者,期使學生能夠熟悉船上作業之種類、特性、作業程序、安全作業守則和緊急應變措施。	1	Required Course	商船學系	SDG12
2021	Undergraduate	1	B	保全職責	Security duties for seafarers	To provide students with the appropriate professional competence to perform ship security matters and appropriate expertise in ship and port operations and to successfully complete ship security responsibilities as described in the ship security plan	使學生具有執行船舶保全事項之適當專業能力及船舶與港口作業之適當專業知識，並順利完成船上保全計畫所述之船上保全責任	1	Required Course	商船學系	SDG4、SDG8、SDG13、SDG14、SDG16、SDG17
2021	Undergraduate	1	A	保全職責	Security duties for seafarers	To provide students with the appropriate professional competence to perform ship security matters and appropriate expertise in ship and port operations and to successfully complete ship security responsibilities as described in the ship security plan	使學生具有執行船舶保全事項之適當專業能力及船舶與港口作業之適當專業知識，並順利完成船上保全計畫所述之船上保全責任	1	Required Course	商船學系	SDG4、SDG8、SDG13、SDG14、SDG16、SDG17
2021	Undergraduate	1	A	基本滅火	Fire Prevention and Fire Fighting	To meet the madatory minimum requirement in Section A-VI/1 of STCW 1995 and the content of IMO Model Course 7.03 3.3	本課程內容係遵照IMO Model Course 7.03 3.3和1978 STCW Code Section A-VI/1之規定編排而成者,期使學生能夠學習"助理級"船員所應具備的防火、滅火和安全等方面之基礎知識和技能。	1	Required Course	商船學系	SDG3、SDG4、SDG7、SDG14、SDG17
2021	Undergraduate	1	B	基本滅火	Fire Prevention and Fire Fighting	This course is organized in accordance with IMO Model Course 1.20, Model Course 7.03-competence 3.3 and 1978 STCW Code Section A-VI/1, and is designed to enable students to acquire the basic knowledge and skills of fire prevention, firefighting and safety required of an "assistant class" of ship's crew. It is designed to enable students to acquire the basic knowledge and skills in fire prevention, firefighting and safety required of an "assistant class" crew	本課程內容係遵照IMO 之Model Course 1.20,Model Course 7.03-competence 3.3 和1978 STCW Code Section A-VI/1之規定編排而成者,期使學生能夠學習"助理級"船員所應具備的防火、滅火和安全等方面之基礎知識和技能。	1	Required Course	商船學系	SDG3、SDG4、SDG7、SDG14、SDG17
2021	Undergraduate	1	B	基本急救與醫護急救	Basic First Aid and Medical Emergency- First Aid	Objective Successful completion of this course will enable any seafarer on a sea-going merchant ship to provide immediate basic medical care at the scene of an accident or other medical emergency until the arrival of a person with first aid skills or the person in charge of medical care aboard.	本課程遵照國際海事組織(IMO)Model Course 7.03-3.5 Apply Medical First Aid on Board Ship 應用船上醫療急救之規範(參考 Model Course 1.14 及 STCW VI/4第1-3節)，兼顧相關必要知識或技能之傳授， 編排以下授課內容： 1.熟悉及救原理、技巧與方法 2.認識各種急症及其處理方法	1	Required Course	商船學系	SDG3
2021	Undergraduate	1	A	基本急救與醫護急救	Basic First Aid and Medical Emergency- First Aid	Objective Successful completion of this course will enable any seafarer on a sea-going merchant ship to provide immediate basic medical care at the scene of an accident or other medical emergency until the arrival of a person with first aid skills or the person in charge of medical care aboard.	本課程遵照國際海事組織(IMO)Model Course 7.03-3.5 Apply Medical First Aid on Board Ship 應用船上醫療急救之規範(參考 Model Course 1.14 及 STCW VI/4第1-3節)，兼顧相關必要知識或技能之傳授， 編排以下授課內容： 1.熟悉及救原理、技巧與方法 2.認識各種急症及其處理方法	1	Required Course	商船學系	SDG3
2021	Undergraduate	1	A	第一階段船上集體實習	The First Stage Team Training on Ship	Through the Model Couse 7.03-1.1.2 and the offshore practice, the theory and practice will be confirmed to achieve the teaching effect.	藉由Model Couse 7.03-1.1.2與海上實習,印證理論與實務,期達教學效果。	0	Elective Course	商船學系	SDG4、SDG5、SDG17
2021	Undergraduate	1	B	運輸學	Transportation	1. To encourage students to understand the characteristics of transport, and various modes of transport. 2. To stimulate students in learning how to explore transport management strategy, in order to achieve the combination of theory and practice.	1.讓學生瞭解交通運輸之意義、行政組織、特性及各種運輸方式及其系統內涵。 2.激發學生在學習過程中探討運輸經營之策略，藉以達到理論與實務相結合。	2	Required Course	商船學系	SDG11
2021	Undergraduate	1	A	運輸學	Transportation	1. To encourage students to understand the characteristics of transport, and various modes of transport. 2. To stimulate students in learning how to explore transport management strategy, in order to achieve the combination of theory and practice.	1.讓學生瞭解交通運輸之意義、行政組織、特性及各種運輸方式及其系統內涵。 2.激發學生在學習過程中探討運輸經營之策略，藉以達到理論與實務相結合。	2	Required Course	商船學系	SDG11
2021	Undergraduate	1	B	服務學習_愛校服務(Ⅰ)	Service-Learning Program-Campus Service(I)	To cultivate in students the spirit of maintaining the cleanliness of the school campus and the spirit of service to the teachers and students of the school, which in turn extends to the spirit of service to the society and the nation.	培養學生對學校校園清潔之維護以及對學校師生之服務情操及胸懷,進而擴大至社會及國家服務之情操	0	Service-Learning Program	商船學系	SDG3、SDG4、SDG5、SDG6、SDG16、SDG17
2021	Undergraduate	1	A	服務學習_愛校服務(Ⅱ)	Service-Learning Program-Campus Service(II)	To strengthen the students by the class leader to organize each group to complete the weekly service work	加強學生由班長組織各小組完成每週服務工作	0	Service-Learning Program	商船學系	SDG4、SDG5、SDG6、SDG11
2021	Undergraduate	2	A	港口保安政策與評估	Port Security Policy and Assessment	After the 9/11 terrorist attacks on the United States, the United Nations Security Council adopted Resolution 1373 (2001) on September 28, 2001, which requires countries to take measures to prevent and suppress acts of terrorism, including calling on countries to fully implement the various anti-terrorism conventions. In 2002, the IMO convened the Diplomatic Conference on Maritime Security and adopted the 2002 amendments to the SOLAS Convention and added Chapter XI-2 to the International Ship and Port Facility Security Code (ISPS CODE), which requires international ports of all Contracting States to implement port facility security programs in conjunction with international ships as of July 1, 2004. This course follows the ISPS Code and the IMO Model Course 3.21 PORT FACILITY SECURITY OFFICER; 3.24 SECURITY AWARENESS TRAINING FOR PORT FACILITY PERSONNEL WITH 3.24 SECURITY AWARENESS TRAINING FOR PORT FACILITY PERSONNEL WITH DESIGNATED SECURITY DUTIES; 3.25 SECURITY AWARENESS TRAINING FOR ALL PORT FACILITY PERSONNEL is designed to enable students to understand the ISPS Code related to PFSO and to have the knowledge and planning of port facility preservation	美國遭受911恐怖攻擊後聯合國安全理事會於2001年9月28日通過第1373(2001)號決議，要求各國採取措施防範和鎮壓恐怖主義行為，包括呼籲各國充分實施各項反恐公約，國際海事組織（IMO）隨即思索如何強化海事保安與避免航港設施及船舶遭受攻擊，因此於2002年召開海事保全外交會議，採納SOLAS公約2002年修正案並增訂XI-2章國際船舶和港口設施保全章程（ISPS CODE），規定各締約國國際港口，須自2004年7月1日配合國際船舶同時實施港口設施保全計畫。 本課程遵照ISPS Code 與國際海事組織(IMO) Model Course 3.21 PORT FACILITY SECURITY OFFICER; 3.24 SECURITY AWARENESS TRAINING FOR PORT FACILITY PERSONNEL WITH DESIGNATED SECURITY DUTIES; 3.25 SECURITY AWARENESS TRAINING FOR ALL PORT FACILITY PERSONNEL之規範，期使學生明瞭ISPS Code 中PFSO之相關事務及具備港埠設施保全的認知與規劃。	2	Elective Course	商船學系	SDG9

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	B	港口保安政策與評估	Port Security Policy and Assessment	After the 9/11 terrorist attacks on the United States, the United Nations Security Council adopted Resolution 1373 (2001) on September 28, 2001, which requires countries to take measures to prevent and suppress acts of terrorism, including calling on countries to fully implement the various anti-terrorism conventions. In 2002, the IMO convened the Diplomatic Conference on Maritime Security and adopted the 2002 amendments to the SOLAS Convention and added Chapter XI-2 to the International Ship and Port Facility Security Code (ISPS CODE), which requires international ports of all Contracting States to implement port facility security programs in conjunction with international ships as of July 1, 2004. This course follows the ISPS Code and the IMO Model Course 3.21 PORT FACILITY SECURITY OFFICER; 3.24 SECURITY AWARENESS TRAINING FOR PORT FACILITY PERSONNEL WITH 3.24 SECURITY AWARENESS TRAINING FOR PORT FACILITY PERSONNEL WITH DESIGNATED SECURITY DUTIES; 3.25 SECURITY AWARENESS TRAINING FOR ALL PORT FACILITY PERSONNEL is designed to enable students to understand the ISPS Code related to PFSO and to have the knowledge and planning of port facility preservation.	美國遭受911恐怖攻擊後聯合國安全理事會於2001年9月28日通過第1373(2001)號決議，要求各國採取措施防範和鎮壓恐怖主義行為，包括呼籲各國充分實施各項反恐公約，國際海事組織（IMO）隨即思索如何強化海事保安與避免航港設施及船舶遭受攻擊，因此於2002年召開海事保全外交會議，採納SOLAS公約2002年修正案並增訂XI-2章國際船舶和港口設施保全章程（ISPS CODE），規定各締約國國際港口，須自2004年7月1日配合國際船舶同時實施港口設施保全計畫。 本課程遵照ISPS Code 與國際海事組織(IMO) Model Course 3.21 PORT FACILITY SECURITY OFFICER; 3.24 SECURITY AWARENESS TRAINING FOR PORT FACILITY PERSONNEL WITH DESIGNATED SECURITY DUTIES; 3.25 SECURITY AWARENESS TRAINING FOR ALL PORT FACILITY PERSONNEL之規範，期使學生明瞭ISPS Code 中PFSO之相關事務及具備港埠設施保全的認知與規劃。	2	Elective Course	商船學系	SDG9
2021	Undergraduate	2	B	貨櫃碼頭作業系統模擬	Simulation on Container Terminal Operation System	The advancement of technology has led to rapid changes in port and harbor facilities. In order to enable students graduating from this department to have a deeper understanding and appreciation of the use and operation of modern port facilities nowadays. However, the complexity of port facilities However, the complexity of port and harbor facilities often makes the teaching lack of appropriate teaching aids, so the students can only rely on their imagination and With the help of this port simulation system, the complete operation process of the complex actual port system can be understood at a glance.	科技之進步，使得港埠設施之改變，日新月異，為使本學系畢業之學生，對於現今港埠現代化設施之使用與操作，有更深層之認識與瞭解。然而，港埠設施具有其複雜性，使得教學上常缺乏適當之輔助教具，只能空憑想像與意會而無法具體呈現其成效，藉由此港埠模擬系統的助益，可一目了然複雜實際港埠系統之完整運作流程。	2	Elective Course	商船學系	SDG9
2021	Undergraduate	2	A	貨櫃碼頭作業系統模擬	Simulation on Container Terminal Operation System	The advancement of technology has led to rapid changes in port and harbor facilities. In order to enable students graduating from this department to have a deeper understanding and appreciation of the use and operation of modern port facilities nowadays. However, the complexity of port facilities However, the complexity of port and harbor facilities often makes the teaching lack of appropriate teaching aids, so the students can only rely on their imagination and With the help of this port simulation system, the complete operation process of the complex actual port system can be understood at a glance.	科技之進步，使得港埠設施之改變，日新月異，為使本學系畢業之學生，對於現今港埠現代化設施之使用與操作，有更深層之認識與瞭解。然而，港埠設施具有其複雜性，使得教學上常缺乏適當之輔助教具，只能空憑想像與意會而無法具體呈現其成效，藉由此港埠模擬系統的助益，可一目了然複雜實際港埠系統之完整運作流程。	2	Elective Course	商船學系	SDG4、SDG9、SDG11、SDG12、SDG13、SDG14
2021	Undergraduate	2	A	海事應用統計學	Marine Statistics	An introduction to statistical method for any concerned with the operation of ships. It is intended for those who have to understand information presented in statistical form and for those who wish to use statistical methods to help in analysing problems they are faced with.	1.介紹與船舶作業相關的統計方法， 2.提供資訊給必須使用統計型式呈現資料的海員與希望使用統計方法解決問題的海員。	2	Elective Course	商船學系	SDG4、SDG17
2021	Undergraduate	2	A	貨櫃運輸作業	Container Transportation Operations	This subject provides students with a full understanding of current developments in the liner shipping, and to enable them to understand the application of quantitative techniques in container transport management decision making.	從講解傳統海洋運輸導入，進入貨櫃運輸。輔以船舶、貨櫃圖片及作業流程圖等，讓同學了解實務運作的情況。讓同學了解國際貨櫃運輸實務現況，加強同學對國際貨櫃運輸實務的認識，並提高日後進入國際海洋運輸的興趣。	2	Elective Course	商船學系	SDG8、SDG9、SDG17
2021	Undergraduate	2	A	地理資訊系統概論	Introduction of Geographic Information System	Geographic information system (GIS) is a kind of science and technology or service developed rapidly in recent years. It uses computer tools to integrate with the spatial data from various resources and material, and to assist decision makers in developing the most suitable spatial decisions. This course is an introduction of GIS comprised basic GIS concepts, terms, spatial analysis theories and practical applications. Students will learn the basic concepts and theories of GIS and could use the GIS software to solve actual problems by lecturing on the current development of GIS technologies and various spatial analysis functions of software, as well as illustrating and drilling on some hands-on exercises.	地理資訊系統是近年快速發展的科技，它運用電腦工具來整合各種不同來源的空間資料，協助決策者擬訂最佳的空間決策。經由地理資訊系統之發展、功能及實際應用的講授，使同學了解地理資訊系統的理論基礎及應用方向，透過實機操作使同學能熟悉地理資訊系統工具的操作，達到理論與實務充分配合。	2	Elective Course	商船學系	SDG9、SDG11、SDG14、SDG15、SDG16
2021	Undergraduate	2	B	氣象學	Meteorology	This course follows the IMO MODEL COURSE 1.1.7 METEOROLOGY Meteorological Inclusions: 1.1.7.1.SHIPBORNE METEOROLOGICAL INSTRUMENTS; 1.1.7.2 THE ATMOSPHERE, ITS COMPOSITION AND PHYSICAL PROPERTIES; 1.1.7.3 ATMOSPHERIC PRESSURE; 1.1 .7.4 WIND; 1.1.7.5 CLOUD AND PRECIPITATION; 1.1.7.6 - 1.1.7.12 WEATHER FORECASTING, etc. Students will learn about weather analysis and forecasting, tropical cyclone characteristics and navigation avoidance, important meteorological organizations, climate change and catastrophic weather, etc., in order to achieve the goal of using meteorological information and ship navigation to improve ship navigation safety.	本課程遵照國際海事組織(IMO)MODEL COURSE 1.1.7 METEOROLOGY 氣象學包含: 1.1.7.1.SHIPBORNE METEOROLOGICAL INSTRUMENTS; 1.1.7.2 THE ATMOSPHERE, ITS COMPOSITION AND PHYSICAL PROPERTIES ; 1.1.7.3 ATMOSPHERIC PRESSURE; 1.1.7.4 WIND;1.1.7.5 CLOUD AND PRECIPITATION; 1.1.7.6 - 1.1.7.12 WEATHER FORECASTING 等。 學習氣象理論，瞭解天氣分析與預報、熱帶氣旋特徵與避航、重要氣象組織及氣候變遷及災變天氣等，以達到利用氣象資訊與船舶導航以增進船舶航行安全為目標。	2	Required Course	商船學系	SDG13
2021	Undergraduate	2	A	氣象學	Meteorology	This course follows the IMO MODEL COURSE 1.1.7 METEOROLOGY Meteorological Inclusions: 1.1.7.1.SHIPBORNE METEOROLOGICAL INSTRUMENTS; 1.1.7.2 THE ATMOSPHERE, ITS COMPOSITION AND PHYSICAL PROPERTIES; 1.1.7.3 ATMOSPHERIC PRESSURE; 1.1 .7.4 WIND; 1.1.7.5 CLOUD AND PRECIPITATION; 1.1.7.6 - 1.1.7.12 WEATHER FORECASTING, etc. Students will learn about weather analysis and forecasting, tropical cyclone characteristics and navigation avoidance, important meteorological organizations, climate change and catastrophic weather, etc., in order to achieve the goal of using meteorological information and ship navigation to improve ship navigation safety.	本課程遵照國際海事組織(IMO)MODEL COURSE 1.1.7 METEOROLOGY 氣象學包含: 1.1.7.1.SHIPBORNE METEOROLOGICAL INSTRUMENTS; 1.1.7.2 THE ATMOSPHERE, ITS COMPOSITION AND PHYSICAL PROPERTIES ; 1.1.7.3 ATMOSPHERIC PRESSURE; 1.1.7.4 WIND;1.1.7.5 CLOUD AND PRECIPITATION; 1.1.7.6 - 1.1.7.12 WEATHER FORECASTING 等。 學習氣象理論，瞭解天氣分析與預報、熱帶氣旋特徵與避航、重要氣象組織及氣候變遷及災變天氣等，以達到利用氣象資訊與船舶導航以增進船舶航行安全為目標。	2	Required Course	商船學系	SDG13
2021	Undergraduate	2	A	海商法	Maritime Law	The Purpose of Maritime Law to Assist Maritime Training Institutes	達到高級航海人員對海商法具備之知識要求。	2	Elective Course	商船學系	SDG1、SDG2、SDG3、SDG4、SDG5、SDG6、SDG7、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG14、SDG16、SDG17
2021	Undergraduate	2	A	船舶管理與安全	Ship Management and Safety	This course follows the International Maritime Organization (IMO) Model Course 7.03-3.1 ENSURE COMPLIANCE WITH POLLUTION-PREVENTION REQUIREMENTS, and takes into account the necessary knowledge or skills to teach the content of the course. The purpose of shipping is to deliver people, ships, and cargo to their ports of destination safely, quickly, and economically. This course focuses on the development of basic competencies in ship safety, cargo characteristics and safety, crew and fleet management, in order to provide students with the knowledge and skills to understand modern ship management and safety for employment or research needs.	本課程遵照國際海事組織(IMO) Model Course 7.03-3.1 ENSURE COMPLIANCE WITH POLLUTION-PREVENTION REQUIREMENTS之規範，兼顧相關必要知識或技能之傳授，編排授課內容，航運的目的，是將人、船、貨安全，迅速而經濟的送達目的港。 本課程乃著重培養學生對船舶安全、承運貨物特性與安全、船員及船隊管理之基本能力，以使其瞭解現代化船舶的管理與安全之知識與技能，從而具備就業或從事研究的需求。	2	Elective Course	商船學系	SDG4、SDG8、SDG13、SDG14、SDG16、SDG17
2021	Undergraduate	2	B	船舶管理與安全	Ship Management and Safety	This course follows the International Maritime Organization (IMO) Model Course 7.03-3.1 ENSURE COMPLIANCE WITH POLLUTION-PREVENTION REQUIREMENTS, and takes into account the necessary knowledge or skills to teach the content of the course. The purpose of shipping is to deliver people, ships, and cargo to their ports of destination safely, quickly, and economically. This course focuses on the development of basic competencies in ship safety, cargo characteristics and safety, crew and fleet management, in order to provide students with the knowledge and skills to understand modern ship management and safety for employment or research needs.	本課程遵照國際海事組織(IMO) Model Course 7.03-3.1 ENSURE COMPLIANCE WITH POLLUTION-PREVENTION REQUIREMENTS之規範，兼顧相關必要知識或技能之傳授，編排授課內容，航運的目地，是將人、船、貨安全，迅速而經濟的送達目的港。 本課程乃著重培養學生對船舶安全、承運貨物特性與安全、船員及船隊管理之基本能力，以使其瞭解現代化船舶的管理與安全之知識與技能，從而具備就業或從事研究的需求。	2	Elective Course	商船學系	SDG4、SDG8、SDG13、SDG14、SDG16、SDG17
2021	Undergraduate	3	B	操作級雷達及ARPA	Radar Navigation, Radar Plotting and Use of ARPA	Use of Radar and ARPA to Maintain Safety of Navigation.	本課程遵照國際海事組織(IMO)Model Course 7.03-1.3(Use of Radar and ARPA to Maintain Safety of Navigation)及Model Course 1.07之規範，兼顧相關必要知識或技能之傳授，期使達到以下教學目標： 使學生瞭解雷達及ARPA之使用，以維持船舶之航行安全。	2	Required Course	商船學系	SDG4、SDG14、SDG16、SDG17
2021	Undergraduate	3	A	操作級雷達及ARPA	Radar Navigation, Radar Plotting and Use of ARPA	Use of Radar and ARPA to Maintain Safety of Navigation.	本課程遵照國際海事組織(IMO)Model Course 7.03-1.3(Use of Radar and ARPA to Maintain Safety of Navigation)及Model Course 1.07之規範，兼顧相關必要知識或技能之傳授，期使達到以下教學目標： 使學生瞭解雷達及ARPA之使用，以維持船舶之航行安全。	2	Required Course	商船學系	SDG4、SDG14、SDG15、SDG16、SDG17
2021	Undergraduate	3	A	人命安全與防止海洋污染	SOLAS and MARPOL	1. Make students aware of the content of the Convention on the Safety of Life at Sea and related regulations. 2. Make students aware of the content of the Convention on the Prevention of Marine Pollution.	1. 使學生瞭解海上人命安全公約與相關章程之內容。 2. 使學生瞭解防止海洋污染公約之內容。	2	Required Course	商船學系	SDG3、SDG6、SDG7、SDG13、SDG14、SDG15、SDG17
2021	Undergraduate	3	B	人命安全與防止海洋污染	SOLAS and MARPOL	1. Make students aware of the content of the Convention on the Safety of Life at Sea and related regulations. 2. Make students aware of the content of the Convention on the Prevention of Marine Pollution.	1. 使學生瞭解海上人命安全公約與相關章程之內容。 2. 使學生瞭解防止海洋污染公約之內容。	2	Required Course	商船學系	SDG3、SDG6、SDG7、SDG13、SDG14、SDG15、SDG17
2021	Undergraduate	3	A	海上人命安全	Safety of Life at Sea	Introduce the history of the International Convention on the Safety of Life at Sea and the content of related regulations	使學生瞭解國際海上人命安全公約相關章程之規定	2	Elective Course	商船學系	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	A	船舶通訊與GMDSS	Marine Communication and GMDSS	In comply with the STCW convention, this course follows IMO Model Course 1.25 (General Operator's Certificate for the GMDSS) lecturing the relevant knowledge of maritime communication, including the theory of GMDSS, to ensure that the trainees are capable of managing those equipments onboard ship with necessary skills.	本課程內容係依據STCW章程第II章第II/1節表A-II/1及第II/2節表A-II/2之規定，並遵照國際海事組織(IMO) Model Course 7.03-1.6 (RESPOND TO A DISTRESS SIGNAL AT SEA)、Model Course 7.03-1.8(TRANSMIT AND RECEIVE INFORMATION BY VISUAL SIGNALLING) 及Model Course 1.25–GMDSS通用級值機員發證(General Operator"s Certificate for the GMDSS)之規範。兼顧相關必要知識或技能之傳授來規劃課程，使學生瞭解此項設備之必要資訊及具備操縱該系統之基本知識。	3	Required Course	商船學系	SDG4、SDG14
2021	Undergraduate	3	B	船舶通訊與GMDSS	Marine Communication and GMDSS	In comply with the STCW convention, this course follows IMO Model Course 1.25 (General Operator's Certificate for the GMDSS) lecturing the relevant knowledge of maritime communication, including the theory of GMDSS, to ensure that the trainees are capable of managing those equipments onboard ship with necessary skills.	本課程內容係依據STCW章程第II章第II/1節表A-II/1及第II/2節表A-II/2之規定，並遵照國際海事組織(IMO) Model Course 7.03-1.6 (RESPOND TO A DISTRESS SIGNAL AT SEA)、Model Course 7.03-1.8(TRANSMIT AND RECEIVE INFORMATION BY VISUAL SIGNALLING) 及Model Course 1.25–GMDSS通用級值機員發證(General Operator"s Certificate for the GMDSS)之規範。兼顧相關必要知識或技能之傳授來規劃課程，使學生瞭解此項設備之必要資訊及具備操縱該系統之基本知識。	3	Required Course	商船學系	SDG9
2021	Undergraduate	3	A	電子海圖與資料顯示系統	Electronic Chart Display and Information System	This course is based on the STCW Code, Chapter II, Section II/1, Table A-II/1 and Section II/2, Table A-II/2, and is in accordance with IMO Model Course 7.03-1.4 (Use of ECDIS to maintain safety of navigation) and Model Course 1.27 - Operational Use of ECDIS. Course 1.27 - Operational Use of ECDIS (Operational Use of Electronic Chart Display and Information System). The course is designed to provide students with the necessary knowledge and skills to not only understand the IMO/IHO requirements for this system, but also to have the basic knowledge and skills to operate the system.	本課程內容係依據STCW章程第II章第II/1節表A-II/1及第II/2節表A-II/2之規定，並遵照國際海事組織(IMO) Model Course 7.03-1.4 (Use of ECDIS to maintain safety of navigation)，以及Model Course 1.27 –操作級電子海圖顯示與資訊系統之操作使用(Operational Use of ECDIS)之規範。兼顧相關必要知識與技能之傳授來規劃課程，使學生不僅能瞭解IMO/IHO對於此項系統之各項規定，而且還具備操縱該系統之基本知識及必要的技能。	2	Required Course	商船學系	SDG4、SDG14
2021	Undergraduate	3	A	電子海圖與資料顯示系統	Electronic Chart Display and Information System	This course is based on the STCW Code, Chapter II, Section II/1, Table A-II/1 and Section II/2, Table A-II/2, and is in accordance with IMO Model Course 7.03-1.4 (Use of ECDIS to maintain safety of navigation) and Model Course 1.27 - Operational Use of ECDIS. Course 1.27 - Operational Use of ECDIS (Operational Use of Electronic Chart Display and Information System). The course is designed to provide students with the necessary knowledge and skills to not only understand the IMO/IHO requirements for this system, but also to have the basic knowledge and skills to operate the system.	本課程內容係依據STCW章程第II章第II/1節表A-II/1及第II/2節表A-II/2之規定，並遵照國際海事組織(IMO) Model Course 7.03-1.4 (Use of ECDIS to maintain safety of navigation)，以及Model Course 1.27 –操作級電子海圖顯示與資訊系統之操作使用(Operational Use of ECDIS)之規範。兼顧相關必要知識與技能之傳授來規劃課程，使學生不僅能瞭解IMO/IHO對於此項系統之各項規定，而且還具備操縱該系統之基本知識及必要的技能。	2	Required Course	商船學系	SDG4、SDG14
2021	Undergraduate	3	A	領導統御與駕駛臺資源管理	Leadership and Bridge Resource Management	1. To satisfy the STCW2010 required minimum standard of competence for officers in charge of a navigational watch at the operational level on ships of 500 gross tonnage or more. 2. To have the knowledge of bridge resource management principles, including: (1) allocation, assignment, and prioritization of resources, (2) effective communication, (3) assertiveness and leadership, (4) obtaining and maintaining situational awareness.	1. 符合STCW2010關於在500總噸(含)以上商船擔任操作級航行當值船副適任標準。 2. 具備駕駛臺資源管理的知識原理，包含資源配置與指派的優先順序、有效的溝通、領導統御與瞭解並進入狀況。	2	Required Course	商船學系	SDG3、SDG4、SDG5、SDG8、SDG10、SDG12、SDG16、SDG17
2021	Undergraduate	3	A	領導統御與駕駛臺資源管理	Leadership and Bridge Resource Management	1. To satisfy the STCW2010 required minimum standard of competence for officers in charge of a navigational watch at the operational level on ships of 500 gross tonnage or more. 2. To have the knowledge of bridge resource management principles, including: (1) allocation, assignment, and prioritization of resources, (2) effective communication, (3) assertiveness and leadership, (4) obtaining and maintaining situational awareness.	1. 符合STCW2010關於在500總噸(含)以上商船擔任操作級航行當值船副適任標準。 2. 具備駕駛臺資源管理的知識原理，包含資源配置與指派的優先順序、有效的溝通、領導統御與瞭解並進入狀況。	2	Required Course	商船學系	SDG3、SDG4、SDG5、SDG8、SDG10、SDG12、SDG16、SDG17
2021	Undergraduate	3	A	國際海事公約	International Maritime Convention	This course will analyze various international maritime conventions on their content, nature, and categories. It will also cover the signing, implementation, and enforcement of these conventions. It will emphasize the importance of these conventions to the shipping industry, and introduce the International Maritime Organizations, International Association of Classification Societies, and top 12 classification society in the world. Several topics related to Port State Control will also be covered, regarding construction of merchant ship, certification, safety of navigation, fire protection and extinction, salvage, oil pollution from ship, dangerous cargo, dumping, and air pollution.	讓同學了解國際海事公約之意義、性質與類別，簽署、批准及接受。其生效要件，闡述國際航運社會之重要國際海事公約，介紹國際海事組織、國際船級協會及世界上12大船級社、港口國管制檢查。對從事國際港口之商船之建造、檢驗及發證，及航行安全、防火滅火，保全、救難及船舶油污染、危險品載運、垃圾及空氣污染之海事公約，介紹海上交通規則、壓艙水公約等。	2	Elective Course	商船學系	SDG11
2021	Undergraduate	3	B	海事法規	Maritime Administrative Law	This course follows the IMO Model Course 7.03-3.1 Ensure Compliance with pollution of the Marine Environment & 3.6.1 Basic working Knowledge of the Relevant IMO Conventions concerning SOLAS and MARPOL. This course is designed to familiarize students with the field of maritime law and regulations from a mariner's perspective.	本課程遵照國際海事組織(IMO) Model Course 7.03-3.1 Ensure Compliance with pollution of the Marine Environment & 3.6.1 Basic working Knowledge of the Relevant IMO Conventions concerning SOLAS and MARPOL之規範,兼顧相關必要知識或技能之傳授,編排以下授課內容，期使學生熟悉海事法規領域，教學內容著重以航海人員之角度認識	2	Required Course	商船學系	SDG3、SDG4、SDG8、SDG14、SDG15、SDG17
2021	Undergraduate	3	A	海事法規	Maritime Administrative Law	This course follows the IMO Model Course 7.03-3.1 Ensure Compliance with pollution of the Marine Environment & 3.6.1 Basic working Knowledge of the Relevant IMO Conventions concerning SOLAS and MARPOL. This course is designed to familiarize students with the field of maritime law and regulations from a mariner's perspective.	本課程遵照國際海事組織(IMO) Model Course 7.03-3.1 Ensure Compliance with pollution of the Marine Environment & 3.6.1 Basic working Knowledge of the Relevant IMO Conventions concerning SOLAS and MARPOL之規範,兼顧相關必要知識或技能之傳授,編排以下授課內容，期使學生熟悉海事法規領域，教學內容著重以航海人員之角度認識國內與航運相關之海事法規。	2	Required Course	商船學系	SDG3、SDG4、SDG8、SDG14、SDG15、SDG17
2021	Undergraduate	3	A	海事行政法	Maritime Administration Law	In this module, there will be explanations on the basic rules of maritime administrative law and its authorities, applications, and amendments from the aspect of administrative law, including the relationship between national law and international conventions. It will also cover laws and regulations related to topics below: Inspections on ocean pollution and marine casualty. Salvage and towage. Inspections on foreign ships. Traffic inside port waters and aids to navigation. Management of pilot. Coast guards. Structure of maritime administrative departments in Taiwan.	以行政法學闡述行政機關在適用海事行政時，行政機關對海事行政法之一般基本原則，法源、適用及修正，國內法與國際公約適用關係，對船舶、海洋污染及遇難船舶事故之調查及打撈拖救之處理、對外國船舶檢查、港口交通、航路標識、引水人管理、海巡法規及我國重要海事行政組織結構等法規	2	Elective Course	商船學系	SDG11
2021	Undergraduate	3	A	專題研究(一)	Research in Special Topics(I)	Instructs teachers and students to conduct in-depth research on a particular topic. Students will be trained to 1. the ability to identify, describe, analyze, and deal with problems. 2. to develop the ability to cooperate, communicate, and coordinate. 3. to keep abreast of new trends in the theory and practice of maritime affairs, its human, environmental, social and global implications. 4. to understand professional ethics and social responsibility, and to help students to determine the direction of their future studies and career. 5. to produce research and publish papers on special topics	指導老師與學生針對某一主題進行深度研究。培養學生 1. 發掘問題、敘述、分析問題及處理問題的能力。 2. 培養合作、溝通及協調的能力。 3. 掌握海事事務在理論與實務新趨勢，對人類、環境、社會及全球的影響。 4. 理解專業倫理及社會責任，協助學生為來進修及就業方向之確立。 5. 製作專題研究成果及發表論文	2	Elective Course	商船學系	SDG12
2021	Undergraduate	3	B	船舶操縱	Ship Handling	This course follows the International Maritime Organization (IMO) Model Course 7.03-1.8.1 Ship maneouvring and Handling; the content includes: 1.8.1.1 Turning circles and stopping distance, 1.8.1.2 Effect of wind and current on ship handling. 1.8.1.3 Maneouving for rescue of person overboard. 1.8.1.4 Squat, shallow water and similar effects. 1.8.1.5 Proper procedures for anchoring and mooring. Proper procedures for anchoring and mooring . 1.8.1.5 Proper procedures for anchoring and mooring . Students will be able to understand the basic attributes, maneuvering equipment, and maneuvering characteristics of a ship, and the necessary observation, analysis, judgment, command, and implementation of safe navigation by using the ship's own equipment, characteristics, or other means to maintain or change the ship's motion under the prevailing external environmental conditions.	本課程遵照國際海事組織(IMO)Model Course 7.03-1.8.1 Ship maneouvring and Handling 船舶操縱之規範; 內容包括:1.8.1.1 Turning circles and stopping distance, 1.8.1.2 Effect of wind and current on ship handling. 1.8.1.3 Maneouving for rescue of person overboard. 1.8.1.4 Squat, shallow water and similar effects. 1.8.1.5 Proper procedures for anchoring and mooring .兼顧相關必要知識或技能之傳授，編排以下授課內容。 使學生瞭解船舶的基本屬具、操縱設備和操縱特性，使操船者在當時的外界環境條件下，利用船舶本身設備、特性或其他手段，以保持或改變船舶運動狀態為目的而進行安全航行的必要觀察、分析、判斷、指揮、實施等.	2	Required Course	商船學系	SDG4、SDG8、SDG13、SDG14、SDG17
2021	Undergraduate	3	A	船舶操縱	Ship Handling	This course follows the International Maritime Organization (IMO) Model Course 7.03-1.8.1 Ship maneouvring and Handling; the content includes: 1.8.1.1 Turning circles and stopping distance, 1.8.1.2 Effect of wind and current on ship handling. 1.8.1.3 Maneouving for rescue of person overboard. 1.8.1.4 Squat, shallow water and similar effects. 1.8.1.5 Proper procedures for anchoring and mooring . 1.8.1.5 Proper procedures for anchoring and mooring . Students will be able to understand the basic attributes, maneuvering equipment, and maneuvering characteristics of a ship, and the necessary observation, analysis, judgment, command, and implementation of safe navigation by using the ship's own equipment, characteristics, or other means to maintain or change the ship's motion under the prevailing external environmental conditions.	本課程遵照國際海事組織(IMO)Model Course 7.03-1.8.1 Ship maneouvring and Handling 船舶操縱之規範;包括: 1.8.1.1 Turning circles and stopping distance. 1.8.1.2 Effect of wind and current on ship handling. 1.8.1.3 Maneouvres for rescue of person overboard. 1.8.1.4 Squat, shallow water and similar effects. 1.8.1.5 Proper procedures for anchoring and mooring.兼顧相關必要知識或技能之傳授，編排以下授課內容。 使學生瞭解船舶的基本屬具和操縱設備，使操船者在當時外界環境條件下，利用船舶本身設備、特性或其他手段，以保持或改變船舶運動狀態為目的而進行安全航行的必要觀察、分析、判斷、指揮、實施等。	2	Required Course	商船學系	SDG4、SDG8、SDG13、SDG14、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	A	救生艇筏與救難艇操縱	Proficiency in Survival Craft and Rescue Boat	This course is based on the International Maritime Organization (IMO) Model Course 7.03-3.4 Operate Life-Saving Appliances, with reference to Model Course 1.23 Proficiency in Survival Craft and Rescue Boats This course is designed to teach students to understand and be able to operate lifeboats, rescue boats, life rafts, life jackets, diving suits, life preservers and other life-saving equipment, and to be familiar with the latest amendments to the STCW International Convention of 1978, Rule VI/2, SOLAS International Convention and LSA regulations. Students will also be familiar with the use of various survival communication equipment, distress signal transmission, first aid disposal, helicopter hoisting equipment and rescue methods, maintenance and inspection of lifeboats and rescue boats, and raft maneuvering under adverse weather conditions, and other professional knowledge and skills. The purpose of self-help and rescue.	本課程係依照國際海事組織(IMO) Model Course 7.03-3.4 Operate Life-Saving Appliances之規範，並參考Model Course 1.23 Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats及1978年STCW國際公約2010修正案規則VI/2、SOLAS國際公約和LSA章程等最新修正的相關內容，兼顧相關必要知識或技能之傳授，教導同學認識且能正確操作使用救生艇、救難艇、救生筏、救生衣、浸水衣、救生圈等救生裝備，同時熟悉各項求生通訊設備使用、遇險信號發送、傷患急救處置、直昇機吊掛裝備與救援方式、救生艇和救難艇的保養檢查，及惡劣天候下之艇筏操縱等專業知識與技能，進而掌握和控制在船舶異常狀況下個人與全船旅客如何有效避免危難之發生，並應付危難中的各種困境，以達自救與救人之目的。	2	Elective Course	商船學系	SDG4、SDG5、SDG17
2021	Undergraduate	3	A	醫療急救	Medical First Aid	Objective Successful completion of this course will enable any seafarer on a sea-going merchant ship to provide immediate basic medical care at the scene of an accident or other medical emergency until the arrival of a person with first aid skills or the person in charge of medical care aboard.	本課程遵照國際海事組織(IMO)Model Course 7.03-3.5 Apply Medical First Aid on Board Ship 應用船上醫療急救之規範(參考 Model Course 1.14 及 STCW VI/4第1-3節)，兼顧相關必要知識或技能之傳授， 編排以下授課內容： 1.熟悉及救原理、技巧與方法 2.認識各種急症及其處理方法 3.認識各種常見健康問題及其處理方法	2	Elective Course	商船學系	SDG3
2021	Undergraduate	3	B	醫療急救	Medical First Aid	Objective Successful completion of this course will enable any seafarer on a sea-going merchant ship to provide immediate basic medical care at the scene of an accident or other medical emergency until the arrival of a person with first aid skills or the person in charge of medical care aboard.	本課程遵照國際海事組織(IMO)Model Course 7.03-3.5 Apply Medical First Aid on Board Ship 應用船上醫療急救之規範(參考 Model Course 1.14 及 STCW VI/4第1-3節)，兼顧相關必要知識或技能之傳授， 編排以下授課內容： 1.熟悉及救原理、技巧與方法 2.認識各種急症及其處理方法 3.認識各種常見健康問題及其處理方法	2	Elective Course	商船學系	SDG3
2021	Undergraduate	4	A	操船模擬	Ship Handling and Simulation	This course follows IMO Model Course 7.03-1.3 Use of Radar and ARPA to Maintain Safety of Navigation Radar and Automatic Mapping Radar for the Safety of Navigation; and (IMO Model Course No. 1.07 and STCW 1995 Regulation 1/12), and 1.2.1 Knowledge of the Collision Regulation. 1.2.1.1 Content, application and intent of COLREG 1972; 1.2.2 Principles in Keeping a Navigational Watch 1.2.1.1 Content, application and intent of COLREG 1972; 1.2.2 Principles in Keeping a Navigational Watch Cabin Surface Equivalent; 1.1.3 Electronic Systems of Position Fixing and Navigation Students will learn the following through the operation of ARPA simulators and ship-handling simulators. 1. familiarize with the various equipment and functions of the cockpit 2. operation of various equipment 3. familiarization with rudder commands and clock application 4. observing ship movements 5. practicing ship avoidance	本課程遵照國際海事組織(IMO)Model Course 7.03-1.3 Use of Radar and ARPA to Maintain Safety of Navigation 雷達及自動測繪雷達之使用以維持航行安全; 及(IMO Model Course No.1.07 and STCW 1995 Regulation 1/12), 及1.2.1 Knowledge of the Collision Regulation 避碰規則知識。1.2.1.1 Content, application and intent of COLREG 1972; 1.2.2 Principles in Keeping a Navigational Watch 艙面當值; 1.1.3 Electronic Systems of Position Fixing and Navigation 電子定位及導航系統等之規範;兼顧相關必要知識或技能之傳授，編排以下授課內容。 學生利用ARPA模擬機及操船模擬機之操作能學習下列事項： 1. 熟悉駕駛台之各項設備及功能 2. 操作各項設備 3. 舵令、俥鐘的熟悉與應用 4. 觀測船舶間之動態	2	Elective Course	商船學系	SDG4、SDG8、SDG9、SDG11、SDG12、SDG13、SDG14
2021	Undergraduate	4	A	操船模擬	Ship Handling and Simulation	This course follows IMO Model Course 7.03-1.3 Use of Radar and ARPA to Maintain Safety of Navigation Radar and Automatic Mapping Radar for the Safety of Navigation; and (IMO Model Course No. 1.07 and STCW 1995 Regulation 1/12), and 1.2.1 Knowledge of the Collision Regulation. 1.2.1.1 Content, application and intent of COLREG 1972; 1.2.2 Principles in Keeping a Navigational Watch 1.2.1.1 Content, application and intent of COLREG 1972; 1.2.2 Principles in Keeping a Navigational Watch Cabin Surface Equivalent; 1.1.3 Electronic Systems of Position Fixing and Navigation Students will learn the following through the operation of ARPA simulators and ship-handling simulators. 1. familiarize with the various equipment and functions of the cockpit 2. operation of various equipment 3. familiarization with rudder commands and clock application 4. observing ship movements 5. practicing ship avoidance	本課程遵照國際海事組織(IMO)Model Course 7.03-1.3 Use of Radar and ARPA to Maintain Safety of Navigation 雷達及自動測繪雷達之使用以維持航行安全; 及(IMO Model Course No.1.07 and STCW 1995 Regulation 1/12), 及1.2.1 Knowledge of the Collision Regulation 避碰規則知識。1.2.1.1 Content, application and intent of COLREG 1972; 1.2.2 Principles in Keeping a Navigational Watch 艙面當值; 1.1.3 Electronic Systems of Position Fixing and Navigation 電子定位及導航系統等之規範;兼顧相關必要知識或技能之傳授，編排以下授課內容。 學生利用ARPA模擬機及操船模擬機之操作能學習下列事項： 1. 熟悉駕駛台之各項設備及功能 2. 操作各項設備 3. 舵令、俥鐘的熟悉與應用 4. 觀測船舶間之動態 5. 練習船舶避讓	2	Elective Course	商船學系	SDG4、SDG8、SDG9、SDG11、SDG12、SDG13、SDG14
2021	Undergraduate	4	B	海上進階實習	Advance Practice at Sea	Merchant marine education is a discipline that emphasizes the integration of theory and practice. Accordingly, the International Convention for the Training, Certification and Duty of Mariners requires one year of at-sea experience before becoming a full ship's mate. In order to make effective use of the school's practical resources and to shorten the time required for the students to obtain their sea experience after graduation, this course is designed to follow on from the last semester's advanced practical training at sea. The focus of the course is to increase the number of days of shipboard practice to one year. It is hoped that students who take this course will not only have a broad knowledge of navigation, but also shorten the time required to develop as a ship's mate.	商船教育是著重理論與實務結合的學門，據此，航海人員訓練、發證及當值國際公約規定，必須有一年的海上資歷，方可成為正式船副。為使學校實習資源有效使用及縮短本學系學生畢業後尚需的海上資歷，特接續上學期海上進階實習開設本課程。課程的重點為使學生上船實習天數可增為一年。期望選修本課程的學生們，不僅能擁有寬廣的航行知識，亦能縮短船副養成的時間。	0	Elective Course	商船學系	SDG4
2021	Undergraduate	4	A	電子航儀與整合航海系統	Navigational Instruments & Integrated Navigation	The course will be planned in accordance with IMO Model Course 1.32 - Operational Use of Integrated Bridge Systems (IBS) so that students will understand the necessary information and have The course will provide students with the necessary information and basic knowledge and skills to operate the system.	將依據國際海事組織典範課程(IMO Model Course) 1.32 – 整合駕駛台系統之操作使用(Operational Use of Integrated Bridge Systems, IBS)之要求來規劃課程，使學生瞭解此項規範之必要資訊及具備操縱該系統之基本知識及技巧。	2	Elective Course	商船學系	SDG4、SDG14
2021	Undergraduate	4	A	海上進階實習	Advance Practice at Sea	Merchant marine education is a discipline that emphasizes the integration of theory and practice. Accordingly, the International Convention for the Training, Certification and Duty of Mariners requires one year of sea experience before becoming a full ship's mate. This course is designed to make effective use of the school's practical resources and to shorten the number of years of sea experience required by our students after graduation. In order to control the quality of the course, the nine faculty members of the department have jointly compiled the "Advanced Sea Cadetship Assignment" as the basis for grading. It is expected that students who take this course will not only have a broad knowledge of navigation, but also enhance their willingness to go on board.	商船教育是著重理論與實務結合的學門，據此，航海人員訓練、發證及當值國際公約規定，必須有一年的海上資歷，方可成為正式船副。為使學校實習資源有效使用及縮短本學系學生畢業後尚需的海上資歷，特開設本課程。課程的基本要求，即上船實習天數至少為180天，另為掌控課程品質，本學系九位教師合編「海上進階實習作業」，以為評分之依據。祈望選修本課程的學生們，不僅能擁有寬廣的航行知識，亦能增強其上船意願。	9	Elective Course	商船學系	SDG4
2021	Undergraduate	4	A	海上進階實習	Advance Practice at Sea	Merchant marine education is a discipline that emphasizes the integration of theory and practice. Accordingly, the International Convention for the Training, Certification and Duty of Mariners requires one year of sea experience before becoming a full ship's mate. In order to make effective use of the school's internship resources and to shorten the time required for the students of this department to graduate from the school, this course has been developed. In order to control the quality of the course, nine faculty members of the department have jointly compiled the "Advanced Sea Cadetship Assignment" as the basis for grading. It is expected that students taking this course will not only have a broad knowledge of navigation, but also enhance their willingness to go on board.	商船教育是著重理論與實務結合的學門，據此，航海人員訓練、發證及當值國際公約規定，必須有一年的海上資歷，方可成為正式船副。為使學校實習資源有效使用及縮短本學系學生畢業後尚需的海上資歷，特開設本課程。另為掌控課程品質，本學系九位教師合編「海上進階實習作業」，以為評分之依據。期望選修本課程的學生們，不僅能擁有寬廣的航行知識，亦能增強其上船意願。	9	Elective Course	商船學系	SDG4
2021	Undergraduate	5	A	海上進階實習	Advance Practice at Sea	Merchant marine education is a discipline that emphasizes the integration of theory and practice. Accordingly, the International Convention for the Training, Certification and Duty of Mariners requires one year of sea experience before becoming a full ship's mate. This course is designed to make effective use of the school's practical resources and to shorten the number of years of sea experience required by our students after graduation. In order to control the quality of the course, the nine faculty members of the department have jointly compiled the "Advanced Sea Cadetship Assignment" as the basis for grading. It is expected that students who take this course will not only have a broad knowledge of navigation, but also enhance their willingness to go on board.	商船教育是著重理論與實務結合的學門，據此，航海人員訓練、發證及當值國際公約規定，必須有一年的海上資歷，方可成為正式船副。為使學校實習資源有效使用及縮短本學系學生畢業後尚需的海上資歷，特開設本課程。課程的基本要求，即上船實習天數至少為180天，另為掌控課程品質，本學系九位教師合編「海上進階實習作業」，以為評分之依據。期望選修本課程的學生們，不僅能擁有寬廣的航行知識，亦能增強其上船意願。	0	Elective Course	商船學系	SDG4
2021	Undergraduate	2	A	民法概要	Introduction to Civil Law	Introducing the law of life and bringing the law to life.	介紹生活的法律，並使法律生活化。	2	Elective Course	商船學系	SDG1、SDG2、SDG3、SDG4、SDG5、SDG6、SDG7、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG14、SDG15、SDG16、SDG17
2021	Undergraduate	2	A	地文航海	Geo-Navigation	Enable students to learn the "Operational" and "Managerial" levels of seafarers that meet the "1995 Amendment to the International Convention on Standards of Training, Certification and Competence for Seafarers, 1978" in relation to geomatics.	使學生能學得符合「1978年航海人員訓練、發證及當值標準國際公約1995年修正案」航海專長適任標準中,有關地文航海的「操作級」及「管理級」海員。	2	Required Course	商船學系	SDG4、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	地文航海	Geo-Navigation	Based on the International Maritime Organization (IMO) Model Course 7.03-1.1.2 Terrestrial and Coastal Navigation and 1.2.4 The Use of Routing, this course takes the necessary knowledge and skills into account to teach students learning about the Geo-Navigation and being a recognized seafarer for Operational and Management levels. It is complying with the maritime professional competence standard of navigation on the "International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 2010".	本課程係依照國際海事組織(IMO) Model Course 7.03-1.1.2 Terrestrial and Coastal Navigation以及1.2.4 The Use of Routing之規範，兼顧相關必要知識或技能之傳授，使學生能學得符合「1978年航海人員訓練、發證及當值標準國際公約2010年修正案」航海專長適任標準中，有關地文航海的「操作級」及「管理級」海員。	2	Required Course	商船學系	SDG4、SDG8、SDG17
2021	Undergraduate	1	B	地文航海	Geo-Navigation	Based on the International Maritime Organization (IMO) Model Course 7.03-1.1.2 Terrestrial and Coastal Navigation and 1.2.4 The Use of Routing, this course takes the necessary knowledge and skills into account to teach students learning about the Geo-Navigation and being a recognized seafarer for Operational and Management levels. It is complying with the maritime professional competence standard of navigation on the "International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 2010".	本課程係依照國際海事組織(IMO) Model Course 7.03-1.1.2 Terrestrial and Coastal Navigation以及1.2.4 The Use of Routing之規範，兼顧相關必要知識或技能之傳授，使學生能學得符合「1978年航海人員訓練、發證及當值標準國際公約2010年修正案」航海專長適任標準中，有關地文航海的「操作級」及「管理級」海員。	2	Required Course	商船學系	SDG4、SDG8、SDG17
2021	Undergraduate	1	A	工程經濟學	Engineering Economics	Calculate and write engineering economic reports and learn engineering economic methods. Engineering economics is a method of rational economic decision making that assists in the financial and economic feasibility analysis of engineering development projects. Students can learn and apply economic analysis and financial planning techniques to evaluate the economic factors of engineering solutions such as costs and benefits, under the principle of optimal allocation and application of limited resources to optimize profits, and to evaluate various options for the implementation of engineering projects as a tool to reduce risks and improve decision-making efficiency. It is a tool to reduce risk and improve the efficiency of decision making. It will help students in the engineering field in their future employment. The project evaluation is one of the tools to reduce the risk and improve the efficiency of decision making. It will be helpful for engineering students in their future career.	計算與撰寫工程經濟報告、學習工程經濟方法 工程經濟學為協助工程開發計畫之財務與經濟可行性分析，為理性經濟決策之方法。讓同學可以學習與應用經濟分析與財務規劃技術，將工程方案之經濟因素如成本與收益，在使有限資源得到最佳分配與應用使利潤達到最佳化為原則下，對執行工程各種方案評比以為方案抉擇，做為降低風險，提高決策效率之工具之一。在工程界的同學未來就業時將有所幫助。 案評比以為方案抉擇，做為降低風險，提高決策效率之工具之一。在工程界的同學未來就業時將有所幫助。	2	Elective Course	機械與機電工程學系	SDG1、SDG4、SDG8、SDG9、SDG11、SDG12、SDG13
2021	Undergraduate	1	A	普通化學(一)	General Chemistry(I)	This course emphasizes the fundamental theories and definitions in the field of chemistry, and it is designed to teach and learn together, recognizing the logical concepts of the life sciences through chemical knowledge and building students' ability to read and study technical English. For more information, please refer to: www.chem.ntou.edu.tw	本課程強調化學領域的基礎理論和定義，配合教與學合一的理念，共同體認以化學知識闡述生命科學的邏輯概念，並建立學生研讀科技英語的能力。詳參： www.chem.ntou.edu.tw	2	Required Course	機械與機電工程學系	SDG4
2021	Undergraduate	3	A	人工智慧導論	Introduction to Artificial Intelligence	This course introduces theoretical and applied principles of AI such as machine learning, supervised learning, deep learning, unsupervised learning, and the programming techniques used in the implementation.	介紹人工智慧之基本概念，包括機器學習、監督式學習、深度學習、非監督式學習等基本原理及應用。	3	Elective Course	機械與機電工程學系	SDG9
2021	Undergraduate	3	A	粉末冶金	Powder Metallurgy	Many of the precision mechanical components and aerospace industry parts are made by powder metallurgy process, and its technology is changing rapidly, and it is a kind of industry that is on par with precision casting and precision forging.	精密機械原件及航太工業零件，許多是仰賴粉末冶金製程所完成，其技術日新月異，是一種和精密鑄造、精密鍛造鼎足而立的工業，為符合台灣亞太製造中心成立，此課程有助於人力培訓。	3	Elective Course	機械與機電工程學系	SDG8
2021	Undergraduate	3	B	機械設計	Machine Design	This course introduces the basics of mechanical design, including design processes, engineering mechanics and materials, failure prediction and prevention under static and dynamic loads, and various characteristics of major mechanical components such as shaft, beams, etc.	本課程主要介紹機械設計之基礎，這其中包括設計過程、工程力學與材料、在靜態與動態負載下之失效防止，以及主要機械元件的種種特性。透過提供與真實世界中應用相關之廣泛題材的實務練習，修課的學生將在這門課中結合設計與分析，希望在學期結束之後，修課的學生能培養出以下的能力： 1.能體會工程師的本份，並信守工程倫理。 2.能用自己的辭彙定義什麼是設計，甚麼是機械設計。 3.能熟悉材料力學的基礎概念，並能說明材料力學與機械設計的重要關聯。 4.能用自己的話定義失效的基本意義，包括屬於靜態之破斷與屬於動態之疲勞。 5.能使用適當的參考資料輔助設計程序	3	Required Course	機械與機電工程學系	SDG7、SDG9、SDG12
2021	Undergraduate	3	A	機器人學	Fundamentals of Robotics	Robotics is a comprehensive discipline that includes different fields such as mechanics, kinematics, dynamics, automatic control, microprocessors, programming languages, sensors, machine vision, image processing, etc. Each independent branch has become an important pillar of industrial automation. This course introduces the fundamentals of industrial robotics, including the introduction of various industrial robot architecture and its applications, basic theories (kinematics, spatial coordinate conversion, trajectory planning, dynamics, and automatic control), offline simulation software, and project work, so that students can gain an overview of the main knowledge and key technologies required to develop robots. 1. types and applications of robots 2. spatial coordinates conversion 3. position and speed analysis 4. trajectory planning 5. force analysis 6. self-propelled vehicle 7. Robotic motion simulation	機器人學為一門綜合學科，包括機構學、運動學、動力學、自動控制、微處理器、程式語言、傳感器、機器視覺、影像處理等不同領域，每一獨立分支都成為工業自動化的重要支柱。本課程主要介紹工業機器人之基礎知識，包括簡介各種工業機器人架構與其應用、基本理論（運動學、空間座標轉換、軌跡規劃、動力學、自動控制）、離線模擬軟體、與專題實作，使學生對研發機器人所需之主要知識與關鍵技術獲得概括認識。 1. 機器人種類與應用 2. 空間座標轉換 3. 位置、速度分析 4. 軌跡規劃 5. 力量分析 6. 自走車 7. 機器人運動模擬	3	Elective Course	機械與機電工程學系	SDG17
2021	Undergraduate	2	B	企業管理	Business Management	This course introduces the basic knowledge of business management in order to establish a correct understanding of business management and to develop the ability to work as a junior manager. To establish a general concept of business management as a basis for taking other management-related courses.	介紹企業經營相關的基本知識，以建立同學對企業經營的正確認識，培養擔任基層管理者工作的能力。 建立對企業經營的整體觀念，作為修習其他管理相關課程的基礎。	3	Required Course	航運管理學系	SDG8、SDG12
2021	Undergraduate	2	B	國際貿易實務	Practices of International Trade	This course is designed to introduce international trade procedures and practical training techniques to assist in the development of shipping management personnel.	本課程旨在介紹國際貿易作業程序及訓練實務技術,協助完成航運管理人才之培養	3	Required Course	航運管理學系	SDG1、SDG8、SDG12
2021	Undergraduate	3	A	國際航空貨運實務	Practice of International Air Cargo Service	To provide students with a practical understanding of international air cargo operations	讓同學了解國際航空貨運實務運作	3	Elective Course	航運管理學系	SDG4、SDG7、SDG9、SDG14、SDG17
2021	Undergraduate	3	A	郵輪碼頭經營管理與實務	Cruise Terminal Operation Management and Practice	Cruise market is increasing dramatically in Asia. More and more cruise lines sent the biggest and newest ships operating in Asia ports. Cruise terminal operations have become a critical issue while providing efficient service. This course focuses on how to design an modern cruise terminal, how to improve the efficiency, how to management cruise terminals, etc. The onsite training courses will also include in the class.	亞洲郵輪市場快速的成長，吸引郵輪航商積極佈局，港口面臨郵輪船舶的增加及大型化，郵輪碼頭面臨經營管理的問題。本課程針對郵輪碼頭如何有效經營管理，如何有效運作，如何規劃設計營造運輸安全，如何規劃便捷與舒適環境及如何維護航道安全等面向，進行介紹與分析。本課程除理論內容外，提供學生於郵輪碼頭實務操作的機會，預期可達到學用合一的效果。	3	Elective Course	航運管理學系	SDG3
2021	Undergraduate	3	A	藝術品物流概論與操作實務	Art Logistics Concept and Operation Practice	content. This course is mainly aimed at the outline description of art logistics and the operation of the practical contents and skills of the service. Students are expected to learn the art logistics service concept, core competence, operational content projects, and then learn and operate the professional skills of art packaging, transportation safety, unpacking and hanging, for future employment reference.	物流企業的服務對象和產業發展越來越趨向專業化的服務內容，本課程主要是針對「藝術品」物流概要說明及其服務的實務內容、技巧的說明與操作。 期望學生從認識藝術物流服務概念、核心能力及操作內容項目，進而能建立對藝術品的包裝、運輸安全、拆封及吊掛等專業技巧的學習與操作，作未來就業參考。	2	Elective Course	航運管理學系	SDG3
2021	Undergraduate	3	A	交通行政與法規	Law of Administration of Communication	The aim of the course is to provide students with a basic understanding of the fundamentals of transportation administration and regulations in Taiwan. It focuses on discussing the reasons to have the regulations and proposing the amended laws and regulations.	本課程主要目的使學生瞭解台灣地區交通行政與相關法規，著重交通行政法規之深入探討及其未來修正案建議。	2	Elective Course	航運管理學系	SDG11
2021	Undergraduate	3	A	企業策略與物流管理	Business Strategy and Logistic Management	Provide students with a thorough grounding in contemporary logistics management and the practice of business strategy.	提供學生當代企業策略與物流管理完整的基礎，採以企業策略物流模擬軟體，使學生學習在既有的企業內部條件以及變動的外部環境下，以經營者的角度，動態的採取適合的經營策略，為公司創造永續的競爭優勢。	3	Elective Course	航運管理學系	SDG12
2021	Undergraduate	3	A	國際運銷學	Global Logistics Management	The aim of the course is to provide students with a basic understanding of the international logistics management and its future development.	本課程主要目的是讓學生深入瞭解國際物流管理基本知識及其未來發展。	2	Required Course	航運管理學系	SDG12
2021	Undergraduate	3	A	供應鏈管理	Supply Chain Management	This course not only provides students with a broad understanding of the basic concepts and evolution of the supply chain, but also introduces the main operations of the supply chain and the application of related information technology and equipment, and establishes a basic supply chain management framework, concepts and basic operational management skills through the definition of the scope, understanding of supply chain management systems, and case studies and implementation of supply chain management applications.	在供應鏈整合程度日異擴大與觀念演進快速的今日，本課程除在廣度上讓學生知曉供應鏈的基礎概念與演進外，並介紹供應鏈各項主要作業與相關資訊技術與設備應用，藉由範圍的界定、供應鏈管理系統的了解、供應鏈管理應用的案例與執行，以建立起基礎的供應鏈管理架構、觀念以及基礎運作管理能力。	3	Elective Course	航運管理學系	SDG1、SDG9、SDG11、SDG12、SDG13

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	B	港埠經營與管理	Port Administration and Management	The content of this course includes concept of port, port development and growth, port competition, port tariff, port operation and management, port case study. Students should be able to know how to evaluate the port development projects and to be familiar with the daily operation/management issues in a modern port.	課程內容包括港埠概念、港埠發展與成長、港埠競爭、港埠費率、港埠作業與管理、港埠案例分析。學生應能夠知道如何做港口的規劃開發評估、港灣及棧埠日常營運管理。	2	Required Course	航運管理學系	SDG9
2021	Undergraduate	3	A	廣告學	Advertising	This course is designed to teach the basic concepts and theories of advertising; it uses real-life materials to match practice with theory. The course systematically explores the theories and applications of different aspects of advertising, such as environmental, management, strategic, and creative aspects of advertising.	本課程主要是教授廣告學之基本概念與理論；利用實際生活取材，使實務與理論相契合。本課程系統性地探討廣告環境面、管理面、策略面、創意面等不同面向的理論與應用，利用國內外廣告案例與生活所聞來解釋與應用廣告及行銷之學理，藉以提升同學對廣告及行銷相關議題的興趣，並培養同學分析、企劃與解決廣告行銷問題的能	2	Elective Course	航運管理學系	SDG4
2021	Undergraduate	4	A	人力資源管理	Human Resources Management	This course is designed to introduce students to the design concepts, important concepts, and practical implementation issues of HRM system, and will help them understand how HRM system is established and the role and function of HR department in the group.	本課程主要目的在介紹學生人力資源管理系統的設計理念,重要觀念,以及實務執行層面上的議題,研修本課程將有助於瞭解人力資源管理系統如何建立,以及人事部門在組之中的角色與所扮演的功能.	3	Elective Course	航運管理學系	SDG4、SDG8
2021	Undergraduate	4	A	兩岸保稅制度與貨物流通管理	Across-Strait Customs Bonded System and Physical Distribution Management	This course aims to explore the issues of cross-strait bonded cargo clearance process, bonded logistics supply chain management and cross-strait free trade port operation from the perspective of cross-strait trade practices. In view of the close economic and trade exchanges across the Taiwan Strait, both the promotion of cross-strait trade and the establishment of cross-strait international logistics model require an understanding of the various customs clearance practices of both sides before they can be implemented in concrete terms. In this context, we will discuss the feasibility of the cross-strait bonding system and the operation mode of the cross-strait free trade port area, the cross-strait bonded goods and the free port area, and the transfer of goods to mail. The design of this course can be broadly summarized to three major points: explaining the bonded system, introducing the customs clearance practices of bonded goods across the Taiwan Strait, introducing the construction of the bonded logistics model and the actual operation of customs clearance across the Taiwan Strait from the viewpoint of logistics management, and the impact on Taiwan after the value-added logistics and the conversion of goods to postal services in the free trade kanban area. It is hoped that through the implementation of this course, students will be able to understand the cross-strait bonding system and physical logistics for comparison, and also understand the various bonded trade models across the Taiwan Strait, including: the bonded port areas, bonded logistics parks and processing and export areas in China, and the bonded system in Taiwan, the bonded warehouses, logistics centers, duty-free stores, bonded factories, processing and export areas, scientific industrial parks, agricultural and technological parks, and free trade ports. The procedures of customs clearance and international logistics of goods in the bonded areas, such as the free trade port and the export zone.	本課程希望從兩岸貿易實務的角度，探討兩岸保稅貨物通關流程、保稅物流供應鏈管理及兩岸自由貿易港區營運之議題。鑒於兩岸經貿交流密切，不論在兩岸貿易的推動，或是兩岸國際物流模式的建立，都需要對雙方的各項通關實務有所瞭解，才能夠具體落實。 在此一背景下，針對兩岸保稅制度與兩岸自由貿易港區營運模式之探討、兩岸保稅貨物、自由港區，貨轉郵對接之可行性分析討論。 本課程的設計大致上可以歸納為三大重點：講解保稅制度、介紹兩岸的保稅貨物通關貿易實務，從物流管理的觀點，介紹兩岸保稅物流模式的建構與通關實際運作情形，以及自由貿易積區物流加值與貨轉郵後，對台灣的影響。 希望透過本課程的實施，讓學生瞭解兩岸保稅制度與實體物流作比較，也了解兩岸多種保稅貿易模式，包括：大陸之保稅港區、保稅物流園區及加工出口區，以及我國的保稅制度，保稅區內營運之保稅倉庫、物流中心、免稅商店、保稅工廠、加工出口區、科學工業園區農業科技園區及自由貿港易港區等貨物之通關作業程序及國際物流之態樣。	2	Elective Course	航運管理學系	SDG2
2021	Undergraduate	4	A	港埠規劃	Port Planning	1.In-depth understanding of the operation of international port facilities and their relationship with trade and logistics. 2. The latest trends in the development of modern port container ships and maritime response.	1.深入瞭解國際港埠設施運作及與經貿物流關係. 2.現代化港埠貨櫃船及海運世界最新發展趨勢及我國因應之道.	2	Elective Course	航運管理學系	SDG9
2021	Undergraduate	1	A	海洋文化概論	Introduction to Ocean Culture	The course is designed to cultivate students' "maritime culture awareness" and "maritime culture promotion" abilities, so that students can build up their maritime culture literacy and ability to promote maritime culture.	以培養學生「海洋文化意識」及「海洋文化推廣」能力為主軸，讓學生建構海洋文化素養與推展海洋文化之能力，課程內容透過自編講義與PPT進行PEST分析，並輔助多媒體素材進行個案分析與討論。	3	Required Course	海洋觀光管理學士學位學程	SDG8、SDG11
2021	Undergraduate	1	A	海洋文化概論	Introduction to Ocean Culture	The course is designed to cultivate students' "maritime culture awareness" and "maritime culture promotion" abilities, so that students can build up their maritime culture literacy and ability to promote maritime culture.	以培養學生「海洋文化意識」及「海洋文化推廣」能力為主軸，讓學生建構海洋文化素養與推展海洋文化之能力，課程內容透過自編講義與PPT進行PEST分析，並輔助多媒體素材進行個案分析與討論。	3	Required Course	海洋觀光管理學士學位學程	SDG8、SDG11
2021	Undergraduate	1	A	觀光學	Tourism	This course introduces students to the basic elements of tourism management, including the definition and current development of the tourism industry. In addition, students will learn about tourism demand and tourism service suppliers. Finally, the course will teach students the impact of tourism development and its future direction.	本課程主要為介紹學生認識觀光業管理之基本內容，其中包括觀光業之定義及目前發展情形。另 外，學生也會了解觀光需求(Tourism demand)和供給(Tourism service suppliers)。最後，本課程會教導學生觀光發展的影響及未來發展方向。	3	Required Course	海洋觀光管理學士學位學程	SDG4、SDG10、SDG11
2021	Undergraduate	1	A	經濟學	Economics	After completing the course, students will have deeper understanding and capabilities of economics and their economy, help them learn about practice of different forms of knowledge and techniques in tourism industry and jobs.	本課程介紹經濟學相關理論，讓同學瞭解經濟學 (包含個體經濟學與總體經濟學)的概要。藉著本課程，讓同學把理論與實務彼此之間結合後應用於日常生活與未來工作，並可應用於觀光領域。 請見TRONCLASS最新版大綱。	3	Required Course	海洋觀光管理學士學位學程	SDG1、SDG3、SDG4、SDG8、SDG9、SDG10、SDG12、SDG13、SDG16
2021	Undergraduate	1	A	運輸學	Transportation	1.To encourage students to understand the characteristics of transport, and various modes of transport. 2.To stimulate students in learning how to explore transport management strategy, in order to achieve the combination of theory and practice.	1.讓學生瞭解交通運輸之意義、行政組織、特性及各種運輸方式及其系統內涵。 2.激發學生在學習過程中探討運輸經營之策略，藉以達到理論與實務相結合。	3	Elective Course	海洋觀光管理學士學位學程	SDG11
2021	Undergraduate	1	A	海洋觀光遊憩概論	An Introduction to Marine Tourism and Recreation	1. Cognitive component. Students will understand the connotation and practice of marine tourism theories, tourism guide theories and interpretation techniques and methods, as well as the current situation and development of local tourism in Keelung and other general theories and development of the current situation, in order to understand the interaction and competitiveness of academic and industry and governmental practice, and to establish basic knowledge of tourism theories and practices. 2. Emotional component. Through the integration of tourism theory and practice, students will be able to link their knowledge to social issues and participate in local services to develop their civic qualities and abilities and knowledge of "democracy", "ethics", and "aesthetics", so that in the future they can utilize what they have learned and influence society, and build a society with the concept of sustainable tourism in the ocean. 3. Skills. Students will be able to apply their professional knowledge of tourism navigation, planning, and practice to the tourism industry, and will have the ability to utilize regional resources, diverse cultures, and life in order to improve the quality and competitiveness of tourism and recreation in Taiwan. The course is designed to achieve interaction between industry, government, and academia, to enhance the effectiveness of teaching and learning between teachers and students, and to improve the students' ability to solve tourism problems.	1.認知部分： 使學生明瞭海洋觀光理論內涵、實務、觀光導遊理論與解說技巧和方法，以及基隆在地之觀光現況與發展等概論與發展現況，以理解學術和產官界實務之互動和競爭力關係，建立觀光理論與實務基本知能。 2.情意部分： 藉由觀光理論與實務結合之學習，使學生能夠將知識與社會問題連結，並由親身參與在地服務，養成其具有「民主」與「倫理」、「美學」之公民素養與能力與知能，期使未來將所學發揮並影響社會，建構海洋永續觀光理念之社會。 3.技能部分： 使學生能熟捻觀光導覽、規劃與實務等專業知能，達成應用於觀光產業，並具備活用區域資源、多元文化與生活之能力，進而提升我國觀光遊憩之質量水準和競爭力；透過「課程講授」、「產學講座」、「校外參訪」、「業界場域服務學習」、「旅程規劃實習」、等課程設計，達成產官學界互動、師生教學相長學習成效，增進學生處理觀光事務問題之解決能力，而達成觀光理論與實務結合目標。	3	Required Course	海洋觀光管理學士學位學程	SDG8、SDG12、SDG14、SDG16
2021	Undergraduate	1	A	消費者行為	Consumer Behaviors	The goal of the course is to let students know the analysis structure of consumer behavior, and explain how the marketing mix matches the consumer behavior theory, develop marketing strategies for goods or services, and finally through case analysis to illustrate well-known consumer behavior and marketing cases. In addition, this course will also emphasize the current status of artificial intelligence in future marketing and various industries.	課程的目標是讓學生知道消費者行為的分析架構，並說明行銷組合如何搭配消費者行為理論，研擬商品或服務的行銷策略，最後並經由個案分析說明經由著名的消費者行為與行銷案例。此外，本課程也會強調人工智慧在未來行銷與各產業的應用現況。	2	Elective Course	海洋觀光管理學士學位學程	SDG3、SDG5、SDG8、SDG9、SDG12
2021	Undergraduate	2	A	觀光旅遊韓文	Korean for Tourism and Travel	1.Learn about Korean culture and major tourist spots in Korea. 2.To learn how to write and pronounce the Korean language. 3.After learning basic Korean, students will be able to speak simple Korean travel related conversations.	1.了解韓國文化及韓國主要觀光地。 2.奠定韓語文字寫法與念法。 3.學習基礎韓語後，會講簡單的韓文旅遊有關的會話。	2	Elective Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	2	A	財務管理	Financial Management	The purpose of this course is to provide students with an overview of financial management. After the course, students would be able to have a better understanding of the following. 1.Definition of financial management fields 2.Significance of financial management for non-finance students and professionals 3.Important concepts and skills in financial management and investment.	1.為將來欲學習財務領域的學子，引導學習方向。 2.讓學生瞭解企業經營管理中，所必須涉及的財務知識。 3.教導學生進行投資理財時，所必須具備的基本技能與常識。	3	Elective Course	海洋觀光管理學士學位學程	SDG8

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	人員安全與社會責任	Personnel Safety and Social Responsibility	Public safety, industrial safety, and emergency response systems became hot topics in the late 20th century. Unfortunately, after many painful lessons and tests, most of these issues are still in the discussion and wait-and-see stage and not fully implemented. As a member of a ship's crew, not only is the nature of the work environment forcing the safety of oneself to be tested at all times, but one also has a responsibility to maintain the safety of life and property of the public and the quality of the environment.	公共安全、工業安全、以及應急體系等在二十世紀末期成為熱門課題。不幸的是經過多次慘痛教訓與考驗，這些課題多半仍停留在討論與觀望階段而未能充分落實。身為輪機人員，不僅工作環境與性質迫使自身安全隨時面對考驗，對於大眾生命財產的安全及環境品質的維護亦有其應盡之責。 本課程依一九七八年航海人員訓練、發證及當值標準(STCW)國際公約一九九五年修正案要求開設，總期程十六小時。除為符合公約要求，並期能藉此課程養成同學對於維護個人安全與在工作崗位上善盡社會責任，所需具備的職能與觀念。	2	Elective Course	海洋觀光管理學士學位學程	SDG12
2021	Undergraduate	2	A	程式語言與資料處理	Programming Language for Data Processing	This course is based on the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended in 1995, and is a 16-hour course. In addition to meeting the requirements of the Convention, the course is designed to develop students' skills and concepts of personal safety and social responsibility in the workplace.	1) 了解產產業資訊使用現狀及未來趨勢。 2) 學習網頁設計。 3) 學習App製作。 4) 能理解並撰寫程式。 5) 通過Google數位學程認證	3	Required Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	2	A	觀光旅遊日文	Tourism Japanese	1.Acquire elementary and intermediate Japanese grammar, syntax, and vocabulary for daily life and work, and use elementary and intermediate Japanese. This course is designed to help students acquire the ability to speak Japanese at the elementary and intermediate levels. 2.To acquire and apply Japanese sentence patterns at the junior high school level, to train self-expression and communication skills, and to use the vocabulary and expressions learned to express oneself. 3.To support foreigners who want to work in Japan, students will learn basic Japanese conversation conventions for hospitality services in an easy-to-understand and practical manner by job type and scene. 4. If you can absorb the contents, you will be able to work in Japan on a working holiday.	1.習得日語初，中級語法、句型、生活、工作語彙 ，運用日語初，中級文型進行日常生活會話 ，以具備日語初，中級口語會話能力。 2.完成初中級日語句型的習得與應用,訓練自我表達與溝通能力,運用所學的語彙與表現表達自己的意思。 3.大力支持想要在日本工作的外國人，可以分工種、分場面，簡潔易懂、富有實踐性地學習接待服務方面的日語會話基本慣用語。 4.若能夠吸收內容，將有能力在日本進行working holiday的工作能力。	2	Elective Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	2	A	觀光市場調查與分析	Tourism Market Research and Analysis	Course Objectives: 1.To give students an overview of fundamental knowledge of tourism marketing and related practical issues. 2.To help students understand the concept of marketing research and its significance and methods commonly used. 3.To provide students skills essential to analyze and solve the problems of tourism marketing via using the methods of marketing research.	本課程的目標: 1.幫助同學了解觀光行銷的理論知識及相關的實務議題。 2.幫助學生了解市場調查的概念、重要性及常用的研究方法。 3.培養學生應用市場調查的方法分析與解決觀光行銷問題的能力。	3	Required Course	海洋觀光管理學士學位學程	SDG1、SDG4、SDG9、SDG11、SDG12、SDG17
2021	Undergraduate	2	A	觀光旅遊英文	English for Tourism and Travel	To develop undergraduates' use of the four main skills in English (Speaking, Reading, Writing and Listening) in a Tourism context covering areas such as writing letters and e-mails, dealing with customers, telephone calls, using and understanding appropriate English vocabulary, grammar and terms in a tourism context. In speaking, students can focus on skills such as telephone calls, dealing with customers, etc. In writing, students can focus on skills such as writing e-mails, reports, etc	培養本系生在旅遊背景下使用英語的四種主要技能（說、讀、寫、聽），包括寫信和發電子郵件、與客戶打交道、打電話、在旅遊背景下使用和理解適當的英語詞彙、語法和術語。 在口語方面，學生可以重點學習諸如打電話、與客戶打交道等技能。 在寫作方面，學生可以專注於諸如寫電子郵件、報告等技能。	2	Elective Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	2	A	海洋生態	Marine Ecology	The aim of Marine Ecology introduce the basic concept of marine ecology, let student to unsturdand the sturcture of marine ecosystem.	本課程主要目的是提供一些基本知識,去幫助學生了解海洋生態系的 構造與功能。其主要內容 :1.海洋基本構造 2.食物鏈與有機物的生產 3.浮游生物與基礎生產 4.底棲生物	3	Required Course	海洋觀光管理學士學位學程	SDG14
2021	Undergraduate	2	A	海洋休閒管理	Ocean Recreation and Management	The objective of this course is to construct the concepts and principles of marine recreation management. Through understanding the theories of marine recreation management, planning principles, attraction creation and management strategies, supplemented by classroom case discussions and practical experience in marine recreation activities and outdoor teaching, the course aims to integrate the theories and practices of marine recreation planning and management with management.	本課程規劃目標為建構海洋休閒管理之概念與原則，透過瞭解海洋休閒管理、規劃原則、吸引力創造與管理策略等學理，並輔以課堂個案討論與海洋休閒活動體驗與戶外教學與的實務經驗，以達運用海洋休閒規劃管理與經營理論與實務結合。	3	Required Course	海洋觀光管理學士學位學程	SDG14
2021	Undergraduate	2	A	統計學	Statistics	This semester has been converted to a one-semester course in statistics. This course helps students learn the basic principles and concepts of statistics and provides them with practical examples to understand the application of statistics in the social sciences and other fields. For more details, please see Tronclass. For the first two weeks of the 110th semester, the course will be held remotely and is expected to be offered asynchronously, with video files uploaded before the start of class.	本學期統計學已改為一學期課程。協助學生學習統計的基本原理和觀念，並輔以實例使學生瞭解統計在社會科學等領域之應用。詳細內容請見Tronclass。 110學年度學校規定前兩週為遠距上課，預計以非同步方式，上課開始前時上傳影片檔。	3	Required Course	海洋觀光管理學士學位學程	SDG3、SDG4、SDG8、SDG12
2021	Undergraduate	2	A	管理學	Management	Organizational management is a series of decisions. It is necessary to plan the future vision, formulate performance improvement measures, adequate human resources to build an efficient team, and make full use of financial and equipment resources to improve organizational performance. This course is divided into "Management Fundamentals, Planning, Organization, Leadership, Control" and other aspects. It uses story-based on-site scanning and conveying to improve students" learning efficiency. Group discussions after class, combining management theory and practice, and the latest management topics, into case studies of management situations, to bring students a different management course.	組織的管理是一連串的決策，要規劃未來願景、制定績效改善對策、適足人力資源以構建高效團隊、充分運用財務與設備資源以提升組織績效。本課程區分為『管理基礎、規劃、組織、領導、控制』等面向，以故事化現場掃描傳達，增進學生學習效率。課後分組討論實作，結合管理理論與實務以及最新管理議題，融入管理情境個案研究，為同學帶來不一樣的管理學。	3	Required Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	2	A	觀光行銷學	Tourism Marketing	This course is designed to help students understand the theoretical foundations of marketing and the trends and practical applications of tourism marketing, to understand the relevance of marketing to other disciplines, and to stimulate an interest in marketing. (1) Understanding the market (2) Understanding tourists (3) Selecting markets (4) Development of marketing strategies	本課程主要為幫助同學了解行銷學理論基礎與觀光行銷之趨勢與實務應用，清楚行銷與其他學門之關聯性，並激發對行銷之興趣。 (一)認識市場 (二)瞭解旅客 (三)選擇市場 (四)發展行銷策略	3	Required Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	2	A	旅運經營學	Tourism and Transport Managemant	The travel industry is the most important middleman in tourism, and its main function is to arrange the sale of various tourism products according to the needs of tourists and profit considerations. The main objectives of this course are to introduce students to the scope and characteristics of the travel industry, to familiarize them with the operations of various departments of travel agencies, to analyze the product range and the current market situation of the travel industry, and to enable them to understand the future development trends of the travel industry.	旅行業是觀光旅遊的最重要的中間商，其主要功能為將各種旅遊產品依據遊客需求以及利潤考量安排銷售。本課程主要目標在於介紹學生瞭解旅行業經營的範圍與特性，熟悉旅行社各部門作業內容，分析旅行業的產品種類與市場現況，使學生了解旅行業的未來發展趨勢。	3	Required Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	3	A	綠色旅遊與永續發展	Green Tourism and Sustainable development	Cultivating the knowledge, skills, abilities and attitudes of green tourism professionals to achieve sustainable economic development and ecological environment	培育綠色觀光人才的知識、技術、能力、態度，達到經濟發展和生態環境永續的境界	2	Elective Course	海洋觀光管理學士學位學程	SDG8、SDG12
2021	Undergraduate	3	A	人力資源管理	Human Resources Management	1.Human resource management theories and development. 2.Understanding how the goals of organization be achieved by the Human Resource planning and developing.	1.人力資源管理與發展理論與實務 2.使學生瞭解組織策略目標如何藉 由人力資源之規劃與發展,得以順利 完成	3	Elective Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	3	A	政府或企業實習(一)	Intern Practice	Students will learn about the tourism and marine leisure services industry, gain practical experience, and develop professional management skills through on-campus internships.	落實校內實習教學，使學生認識觀光餐旅與海洋休閒服務業，獲得實際操作相關經驗，並培養專業管理能力。	2	Elective Course	海洋觀光管理學士學位學程	SDG11、SDG12
2021	Undergraduate	3	A	旅遊地理學	Tourism Geography	1. Guide and assist students to learn the operational definition and its concept of global tourism geography and tourism resources. 2. Guide and assist students to learn the operational definition and its concept of global cruise route and its geographical distributions. 3. Counseling students familiar with global as well as local tourism geography and tourism resources, in order to obtain a tour guide and leader license.	1. 引導幫助學生學習瞭解全球旅遊地理暨旅遊資源等之操作定義及其概念。 2. 引導幫助學生學習瞭解全球郵輪旅遊航線海域地理之操作定義及其概念。 3. 輔導學生熟習台灣暨世界觀光地理暨旅遊資源，以備考取導遊領隊證照。	3	Elective Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	3	A	領隊與導遊英文 II	English for Tour Guides II	1. Learning English in tourism, tour escort as well as tour guide, and strengthening English listening and speaking comprehension. 2. Understanding the natural and cultural tourism resources, festivals and cultures in Taiwan, and interpreting various well-known tourist attractions and cultures of Taiwan.	1. 引導幫助學生學習相關領隊與導遊暨觀光產業專業英文，同時加強學生對於觀光專業英語之聽說能力。 2. 引導幫助學生學習用英文認識台灣自然與人文景觀及特殊節慶文化，同時加強學生對於台灣各著名觀光景點以及風俗民情之英文導覽能力。	2	Elective Course	海洋觀光管理學士學位學程	SDG8

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	A	觀光目的地行銷與管理	Destination Marketing and Management	The Ministry of Transportation and Communications (MOTC) will officially launch seven tourism circles in 2021 and guide ten regional tourism industry alliances. This course focuses on the marketing of regional tourism destination marketing and management organizations through big data, making regional economies visible through dynamic surveys of each region, and discovering regional advantages through objective data analysis.	交通部於2021年正式啟動成立七個觀光圈，並且輔導十個區域觀光產業聯盟，本門課程主要在學習區域觀光旅遊目的地行銷暨管理組織的市場行銷得透過於大數據，藉由各地區的動態調查使得地域經濟能夠被具體看的見，以客觀的數據分析來發現地域的優越性。	2	Elective Course	海洋觀光管理學士學位學程	SDG11、SDG12
2021	Undergraduate	3	A	海洋觀光專題與講座	Seminar and Lecture on Ocean Tourism	1.To enlighten students about the insights and challenges on sustainable tourism development by developing a systematic concept. 2.To enhance lessons on practical experience together with a moderate amount of observation visits and discussions by integrated with updated information about itinerary planning on smart tourism and technological applications. 3.To discuss the operation and management issues on ocean tourism by applying a problem-based driven learning and to increase the collaboration between academia and industry and teaching quality.	1.培養學生系統觀念，啟發永續觀光發展之智能與挑戰 2.對智慧觀光之遊程規劃與科技應用更新教材，並充實實務經驗之傳授與適度觀摩教學拳與研討 3.以問題導向為課程方針，積極探討海洋觀光營運與管理相關課題，提昇產學合作及教學品質為目標	3	Required Course	海洋觀光管理學士學位學程	SDG8、SDG12
2021	Undergraduate	3	A	餐旅管理	Hospitality Management	In order to provide students with a basic understanding of the hospitality industry and to familiarize them with the future work of the hospitality industry, the main objective of this course is to introduce students to a basic understanding of hospitality management and practice. Through various teaching methods, the following objectives will be achieved: -Understand the relationship between the hospitality and tourism industries -Familiarity with the work and professional skills of various departments in hotels and restaurants -Knowledge of the convention and exhibition industry and special event management -Basic management and management skills in hospitality management	餐旅管理在觀光產業扮演舉足輕重的角色，為使學生對餐旅業有基礎的了解甚至熟悉未來從事餐旅業的工作內容，本課程主要目標為介紹學生餐旅管理及實務的基本認識。並經由各種教學方式下，達成下列目標： -了解餐旅事業與觀光事業的關係 -熟悉旅館飯店內各部門的工作執掌與專業技術 -認識會展產業與特殊活動管理 -具備餐旅管理的基本經營與管理技術	3	Elective Course	海洋觀光管理學士學位學程	SDG4、SDG11、SDG12
2021	Undergraduate	3	A	海洋觀光導覽實務	Practice of Marine Tourism Guiding	Students will understand the meaning of marine tourism tour guide, and build up tour guide skills and practical skills by integrating the current situation and development of tourism in Keelung. Through the practical learning of the tour, students will be able to link their knowledge with local resources and participate in local services to build the concept of sustainable marine tourism. Through local industry cooperation, students will become familiar with local tourism features and itinerary design, and build their navigation and practical skills to achieve application in the tourism industry and the ability to utilize regional resources, diverse cultures, and life, thereby enhancing the quality and competitiveness of tourism and recreation in Taiwan.	使學生明瞭海洋觀光導覽的內涵，結合基隆在地之觀光現況與發展等概論與發展現況，建立導覽技巧與實務技能。藉由導覽實務之學習，使學生能夠將知識與在地資源連結，並由親身參與在地服務，建構海洋永續觀光理念。藉由在地產業合作，使學生熟捻在地觀光特色與遊程設計，建構學生的導覽與實務技能，達成應用於觀光產業，並具備活用區域資源、多元文化與生活之能力，進而提升我國觀光遊憩之質量水準和競爭力。	3	Elective Course	海洋觀光管理學士學位學程	SDG8、SDG12、SDG14
2021	Undergraduate	3	A	航空客運與票務	Air Transport and Ticketing	1. Offer current information on airline sales, promotion, booking, pricing, and ticketing practices, and the effect of technology in the workplace. 2. Counselling students to familiarize with air ticketing related knowledge and skills in preparation for obtaining an air ticketing CRS certificate.	1. 引導幫助學生學習全球航空客運票務服務之操作性定義及產業現況趨勢。 2. 輔導學生熟習航空票務相關知識技能，以備考取航空基礎定位系統證照。	2	Elective Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	3	A	電子商務	E-Commerce	To familiarize students with the current status and trends of e-commerce development, in addition to case studies on the world's most important e-commerce companies, and to supplement the application of big data analysis and artificial intelligence in future e-commerce.	讓學生熟悉電子商務的發展現況與趨勢，除了以個案教學方式說明世界重要的電子商務公司外，並補充大數據分析與人工智慧在未來電子商務的應用	3	Elective Course	海洋觀光管理學士學位學程	SDG1、SDG4、SDG7、SDG9、SDG10、SDG12、SDG17
2021	Undergraduate	3	A	網路行銷	Internet Marketing	The goal of the course is to let students know the important elements of online marketing, and explain how traditional marketing portfolios can provide value-added services through information and communication technology, and explain the current important online marketing cases through case analysis.	課程的目標是讓學生知道網路行銷重要元素，並說明傳統的行銷組合如何經由資訊通訊技術進行加值服務，並經由個案分析說明目前重要的網路行銷個案。	3	Elective Course	海洋觀光管理學士學位學程	SDG8、SDG9
2021	Undergraduate	3	A	網路行銷	Internet Marketing	The topics include new tourism software development and application, introduction of smart hardware devices, cross-industry software and hardware integration, future trend development, and training on business development and strategy logic in relation to possible changes in human organization due to technological development, human resource cultivation methods, changes in industrial structure, consumer demand direction and satisfaction, and knowledge management strategies, in order to enhance business operations for new creation or industry upgrade.	本課程旨在提供學生目前國內外相關科技軟硬體發展之現況，並分析其對產業不論在消費者體驗，滿意度，組織規劃，人力需求改變及發展，藉由不斷進步的科技，不論是電子商務，物聯網，新科技發展及運用了解，其議題包括各項新觀光軟體開發及應用，智能硬體設備導入，跨產業軟硬體整合實例，未來趨勢發展，相對於因科技發展可能產生之人力組織的變革，人才培育之方式，產業結構之改變，消費者需求方向和滿意度，知識管理之策略等等議題進行相關經營發展及策略邏輯之訓練，藉以提升新	3	Elective Course	海洋觀光管理學士學位學程	SDG8、SDG9
2021	Undergraduate	3	A	郵輪經營管理	Cruise Operations and Management	1.The Capability of Management aboard Cruise ship 2.The Capability of Cruise Destination Management 3.The Capability of Marketing at Local Cruise Market	1.郵輪.船上管理能力 2.郵輪目的地觀光資源設計能力 3.郵輪行銷規劃能力	3	Elective Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	3	A	觀光行政與法規	Administration and Regulation of Tourism	The teaching objectives of the Tourism Administration and Regulations course are mainly to introduce and explain the evolution of my country"s tourism policies and regulations, tourism administrative organizations at all levels and tourism industry management, so that students can achieve the purpose of applying what they have learned and cultivate the correct concepts and attitudes of tourists.	觀光行政與法規課程的教學目標，主要在介紹說明我國觀光政策及法規演變、各級觀光行政組織及觀光產業管理，能讓學生達到學以致用的目的，培養觀光人員的正確觀念與態度。	3	Required Course	海洋觀光管理學士學位學程	SDG8、SDG12、SDG16
2021	Undergraduate	4	A	海洋觀光產業實習(一)	Internship in Ocean Tourism Industry I	Through the practical training, students will understand the integration of information theory and practice, and participate in the practical application and practice of the marine tourism industry, so that they can understand the marine tourism industry and enhance their adaptability and competitiveness in the future workplace.	透過學期的職場實務訓練使其理解資訊理論與實務的結合, 並讓學生參與海洋觀光產業之實務應用與實作, 使其了解海洋觀光產業以便提昇學生未來進入職場的適應力及競爭力。	9	Elective Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	4	A	海洋觀光產業實習(二)	Internship in Ocean Tourism Industry II	Through the practical training, students will understand the integration of information theory and practice, and participate in the practical application and practice of the marine tourism industry, so that they can understand the marine tourism industry and enhance their adaptability and competitiveness in the future workplace.	透過學期的職場實務訓練使其理解資訊理論與實務的結合, 並讓學生參與海洋觀光產業之實務應用與實作, 使其了解海洋觀光產業以便提昇學生未來進入職場的適應力及競爭力。	9	Elective Course	海洋觀光管理學士學位學程	SDG8
2021	Undergraduate	1	A	AI 跨域產業講座	Introduction to Artificial Intelligence	The age of Artificial Intelligence (AI) has arrived, many applications and services are developed. The aim of this course is to let students study and understand AI techniques and applications in various industries. Furthermore, experts from various fields are invited to talk about applications of AI in various industries, sharing of current experience and analysis of future trends. Students can reduce academic gaps and develop cross-domain abilities.	人工智慧(Artificial Intelligence, AI)時代已經來臨，各式各樣不同的服務已經發展並應用於各領域中，本課程主要目標為 整合並介紹相關AI應用服務，並邀請各領域專家對談AI在各產業的應用、現況經驗分享與未來趨勢分析。期望讓同學在課堂中了解相關之理論與作業實作之外，降低學用落差，透過管理的思惟模式整合不同的學理背景，進而培養跨域的能力。	1	Required Course	海洋經營管理學士學位學程	SDG9
2021	Undergraduate	1	A	管理學	Management	Inspiring students on the focus on knowing and applying the theories of management remains, while now also highlighting opportunities to develop employability skills, and whose potential entrepreneurship.	讓學生們聚焦學習管理學理論和工作職場上的管理實務與應 用，並激發與培育學生可能潛在的創業家精神。	3	Required Course	海洋經營管理學士學位學程	SDG8
2021	Undergraduate	1	A	企業概論	Introduction to Business Management	Taiwanese companies are facing the impact of globalization. Some companies have successfully transformed into large and medium-sized international companies. Some companies have been stagnated by the impact of globalization. At the same time, there are many entrepreneurial stories. In addition, the interaction between enterprises and consumers has changed from the original value-added to co-creating value. Through the study of this textbook, students will understand the importance of companies in our lives and the key role of Taiwanese companies in the global value co-creation system.	台灣企業面臨全球化的衝擊之下，有些企業成功轉型成中大型國際企業，有些企業則受到全球化的影響而停滯不前，同時也有許多創業的故事方興未艾。此外，企業與消費者的互動已經從原先的增加價值轉變成為共創價值。 希望透過本教材讓學生了解企業在我們生活中的重要性，以及台灣企業在全球價值共創體系中關鍵性角色。	3	Required Course	海洋經營管理學士學位學程	SDG8
2021	Undergraduate	2	A	人力資源管理	Human Resources Management	1. understand the managerial/analytical tools for HRM activities 2. obtain the conceptual knowledge of HRM, and apply the knowledge in real world. 3. Develop soft skills through class activities	1.理解基本的人力資源管理主題與技能 2.人力資源管理理論與實務連結 3.經由課堂活動，練習人力資源管理的相關活動	3	Required Course	海洋經營管理學士學位學程	SDG4、SDG8

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	簡報技巧與儀態(一)	Presentation Skills and Etiquette Ⅰ	The course is designed to guide students through the three major steps of presentation production, including Content, Design, and Delivery, as an extension of the basic concepts, and incorporates the elements of stage manners and Etiquette to integrate presentation skills and body manners. Students will learn to master the essence of presentation production, enhance their presentation skills through internal logical thinking and external physical appearance, and achieve the following goals: 1. To enhance the ability of presentation production and writing: Through classroom sharing, students will understand the structure and foundation of presentation content to increase the persuasive power and influence of presentations. 2. To develop communication and presentation skills: Through class discussions and submission of written reports, along with the practice of presentations, students will develop the ability to communicate and present effectively. 3. Increase stage presence and presentation power: Individual presentations and sharing will be planned in class, together with posture and grooming training (dress, gesture, standing and sitting posture...etc.) to train students' courage and stability on stage. 4. Cultivate innovation and practical skills: encourage students to be innovative and to try and verify many things, complete each presentation and accumulate successful experience and self-confidence. 5. Establishing the habit of sustainable learning: teaching students to actively seek knowledge and solutions based on practical needs, self-learning and trying out specific practices.	該課程為引導學生藉由前期構思（Content）、簡報製作（Design）及口語表達（Delivery）等簡報製作三大步驟做為基礎概念延伸，並融入台風（stage manners）與儀態（Etiquette）之元素，使簡報技巧及肢體儀態相互融合。以期許學生進行各項簡報時，不僅在口語表達部份展現出豐富的簡報內容，並能運用得體的台風與儀態，展現出學生的自信心與多元創造力，並學習掌握簡報的製作精髓，經由內在邏輯思考及外在體態提升簡報技巧能力並達成以下目標： 1.提升簡報製作撰寫能力：藉由課堂分享明瞭簡報內容結構性與基礎性，以增加簡報的說服力與影響力。 2.鍛鍊溝通與表達能力：藉由課堂討論與繳交書面報告，配合簡報的練習，養成學生有效溝通與表達之能力。 3.增加台風與儀態呈現力：於課堂上規劃以個人上台報告及分享，並搭配美姿美儀訓練（服儀、手勢、站姿及坐姿…等），以訓練學生舞台上之膽量及穩健度。 4.培育創新與實踐能力：激勵學生勇於創新並多方嘗試與驗證，完成每份簡報之呈現並累積成功經驗與自信心。 5.建立永續學習之習性：教導學生依實務需求，主動尋求知識與解決途徑，自我學習並嘗試具體實踐。	1	Elective Course	海洋經營管理學士學位學程	SDG12
2021	Undergraduate	2	A	簡報技巧與儀態(二)	Presentation Skills and Etiquette Ⅱ	The course is designed to guide students to extend the basic concepts of presentation production and integrate the elements of stage manners and Etiquette, so that presentation skills and body gestures can be integrated. Students will learn to master the essence of presentation production, enhance their presentation skills through internal logical thinking and external physical appearance, and achieve the following goals: 1. Improve interpersonal communication and verbal judgment: Through classroom sharing, students will understand the appropriateness and fundamentals of communication and interpersonal expressions to increase the persuasiveness of presentations and develop the ability to communicate and express themselves effectively through presentation practice. 2. Increase the ability to present and share on stage: Individual presentations and sharing will be planned in the classroom, together with the training of posture and gesture (dress, gesture, standing and sitting posture, etc.) to train students' courage and stability on stage. 3. Enhance students' personal etiquette and international concepts: Cultivate an international connotation of etiquette, understand the way of treating people with respect and the correct application of international etiquette related regulations. Students will learn about the international etiquette of different countries, races, and religions to achieve mutual respect and harmony, and to build a quality personal image. 4. Establishing the habit of sustainable learning: Students will be taught to actively seek knowledge and solutions according to practical needs, learn by themselves, and try out specific practices.	該課程為引導學生藉由簡報製作做為基礎概念延伸，並融入台風（stage manners）與儀態（Etiquette）之元素，使簡報技巧及肢體儀態相互融合。以期許學生進行各項簡報時，不僅在口語表達部份展現出豐富的簡報內容，並能運用得體的台風與儀態，展現出學生的自信心與多元創造力，並學習掌握簡報的製作精髓，經由內在邏輯思考及外在體態提升簡報技巧能力並達成以下目標： 1.提升人際溝通與口語表達判斷力：藉由課堂分享明瞭與人溝通及人際關係的口語表達適切性與基礎性，以增加簡報表達時說服力，並配合簡報的練習，養成學生有效溝通與表達之能力。 2.增加美姿美儀與台風能力：於課堂上規劃以個人上台報告及分享，並搭配美姿美儀訓練（服儀、手勢、站姿及坐姿…等），以訓練學生舞台上之膽量及穩健度。 3.提升學生個人禮儀及國際觀念：培養國際化之禮儀內涵，了解相敬如賓待人之道及正確運用國際禮儀相關規範。以了解不同國家、種族、宗教的國際禮儀相關事務，達到彼此尊重、和諧相處，以塑造個人之優質形象。 4.建立永續學習之習性：教導學生依實務需求，主動尋求知識與解決途徑，自我學習並嘗試具體實踐。	1	Elective Course	海洋經營管理學士學位學程	SDG3、SDG4、SDG5、SDG8
2021	Undergraduate	2	A	地方創生規劃與管理 Ⅰ	Planning and Management for Regional Revitalization Ⅰ	This course explores the planning concepts and practical management of local creation in a simple and simple way. With an emphasis on altruism as the core thinking, it will include the policies, resources and measures of the central government, as well as local creation and industrial development, and regional The basic qualities of governance, qualitative and quantitative indicators allow students to learn what is local creation. Students are familiar with the inventory of local resources and grasp the pulse of market demand, the local humanistic real estate landscape DNA, commercialization and marketing, the integration of local and central industry-government-related resources, and comprehensively sort out the local creation proposal strategy, through the local creation case Analyze, learn from the urban and rural characteristics of development blueprint planning, team management, construction of operating platforms, integrated design, activation of existing venues or commercial	本課程以深入淺出的方式探討地方創生的規劃理念及其實踐管理，在強調利他精神為核心的思惟下，將含括中央政府的政策、資源及措施，還有地方創生與產業發展、區域治理、質化及量化指標等基礎素養，讓學生學習什麼是地方創生。學生熟悉地方資源之盤點及掌握市場需求脈動、地方人文地產景DNA、商品化與行銷、地方及中央產官學相關資源之整合，綜合整理得出地方創生提案攻略，透由地方創生案例分析，學習城鄉特色發展藍圖規劃、團隊經營管理、構建經營平台、整合設計活化既有場域或商街，進行整體形象設計重塑等實踐地方創生的實力。	1	Elective Course	海洋經營管理學士學位學程	SDG1
2021	Undergraduate	2	A	組織行為	Organizational Behavior	• Describe specific theories related to perception, motivation, leadership, job design, and organizational change. • Demonstrate effective teamwork behaviors (i.e., participating in activities, attending meetings, resolving conflict, completing subtasks in a timely manner). • Understand the role of ethics and social responsibility in organizational behavior. • Describe and evaluate methods of motivating and rewarding individuals and groups. • Identify appropriate decision making tools and models for various circumstances. • Integrate individual, group, and organizational level concepts. • Identify, find, and evaluate articles on topics related	本課程幫助學生學習理基本組織行為理論，包含知覺，激勵，領導工作設計，與組織變革。包含: 1.學習有效的分組管理的相關知識，譬如參與，會議，衝突，目標管理。 理解企業道德理論與企業的社會責任。 2.學習激勵理論與應用相關的知識。 3.決策理論與決策模型。 4.結合個體，組織與分組的相關知識 5.分析評估組織行為	3	Elective Course	海洋經營管理學士學位學程	SDG12
2021	Undergraduate	3	A	創新與創業管理	Innovation Management and Entrepreneurship	1. Education of entrepreneurship development 2. Learning of start-up knowledge from creativity inspiring to trial operation. 3. Practice of start-up business plan	1.創業家精神養成教育。 2.創意啟發到創業試營運之創業知能學習。 3.創業營運計畫書實務演練。	3	Required Course	海洋經營管理學士學位學程	SDG1、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG15、SDG16、SDG17
2021	Undergraduate	3	A	生產與作業管理	Production and Operations Management	Operations management is the core activity in a company, including forecasting, capacity planning, facility layout, quality management, scheduling, etc. This course provides students the basic knowledge about these issues and enables them to develop preliminary skills of applications.	生產/作業為企業的核心活動，其包含有預測、產能規劃、設施佈置、品質管理、工作排程等基本內容。本課程目標為使學生對這些內容具備基礎知識，進而發展初步的應用能力。	3	Required Course	海洋經營管理學士學位學程	SDG9
2021	Undergraduate	3	A	管理資訊系統	Management Information Systems	Many new IT technologies, such as artificial intelligence, Internet of Things, big data, financial technology, and blockchain, have entered the business market. From the traditional industrial revolution to the integration of information in all industries, traditional industries must face the challenges of new generation technologies to transform. How to make good use of these technologies is an important issue for students. In view of this, the objectives of this course include: (1) To learn the key theories of the various schools of management information systems. (2) To learn about the development of IT applications for management information systems. (3) Learning to manage information system planning and software and hardware environments. (4) Practical analysis and design.	人工智慧、物聯網、大數據、金融科技、區塊鏈等許多新IT科技進入了商業市場，從傳統的工業革命到現在各行各業都要和資訊整合，傳統產業必須要面臨新世代技術的挑戰進行轉型。同學應如何善加利用這些技術為一重要議題。 有鑑於此，本課程之教學目標包括： (1) 學習管理資訊系統各學派之重要論述。 (2) 學習管理資訊系統應用IT之發展。 (3) 學習管理資訊系統之規劃與軟硬體環境。 (4) 實務分析與設計。	3	Required Course	海洋經營管理學士學位學程	SDG9
2021	Undergraduate	1	A	微積分	Calculus	This course is a one-year course divided into two semesters and is designed for first-year undergraduate students. This course is designed to provide students with the basic knowledge of differentiation and integration, to develop the ability to formulate, solve, and interpret problems, and to introduce the basic theory of calculus and its applications in business, economics, and social sciences.	本課程為一門一學年的課程，分成上下兩學期授課，授課對象為大學部大一學生。本課程旨在讓學生學習微分與積分的基本知識、培養列式、求解及解釋問題的應用能力，並介紹微積分的基本理論及其在商學、經濟學、社會科學的各種應用。	2	Required Course	海洋經營管理學士學位學程	SDG4
2021	Undergraduate	1	A	經濟學	Economics	The course is designed for first-year undergraduate two-semester 6-credits economics class. This is the second semester and courses will focus on the topic of Macroeconomics. The material will provide a foundation of economics on National income, unemployment, Monetary market, and international economics. Pre course: none.	本課程為兩個學期六個學分的經濟學原理第二學期總體經濟學課程；個體經濟學內容的講授主要以個別消費者及廠商的選擇決策為內容，總體經濟學則以整體經濟體系為考量，說明國民所得、失業、貨幣市場與國際金融等問題。上課的方式將以講授教材為主，本課程為基礎課程。 先修課程：無。	3	Required Course	海洋經營管理學士學位學程	SDG1、SDG3、SDG5、SDG8、SDG9、SDG10、SDG11、SDG12、SDG17
2021	Undergraduate	2	A	海洋地質和能源概論	Introduction to Marine Geology and Energy	The main objective of this course is to teach students the basic concepts of marine geology and geophysics, thus students could have a basic understanding of the geological aspects in ocean sciences.	介紹海洋地質的基本知識，瞭解海洋沉積物之組成和海洋地質作用，讓同學瞭解存在於海洋中的資源，如:石油、天然氣、錳核、天然氣水合物以及海洋溫差發電、潮汐能等，使學生對海洋科學能有較全面的認識及正確的觀念。	3	Elective Course	海洋科學與資源學院	SDG7、SDG9
2021	Undergraduate	2	A	普通地質學	Physical Geology	Students are taught basic knowledge in the field of geological sciences, including the structure of the earth, geological materials, and earth's water resources. Emphasis is also placed on training students' field observation skills. The course is complemented by two field courses to bring geological knowledge to life. In addition, this course is one of the required credits for Geology Technicians, Mining Engineering Technicians, and Mining Safety Technicians.	教導學生有關地質科學領域的基本知識，包括地球構造、地質材料和地球水資源。同時也著重訓練學生的野外觀察能力。並配合兩次野外實地教學，使地質知識更生活化。此外，此課程也是應用地質技師與採礦工程技師和礦業安全技師的必修學分之一。	3	Elective Course	海洋科學與資源學院	SDG6

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2021	Undergraduate	1	A	海洋氣象	Marine Meteorology	To introduce the basic concepts and theories of marine meteorology. This lecture will also introduce the practical observation and application of meteorology.	介紹氣象學的基本理論與觀測實務，並進而了解一般天氣與海象預報的作業。	3	Elective Course	海洋環境資訊系	SDG11、SDG13、SDG14、SDG17
2021	Undergraduate	1	A	海洋與氣候變遷	Ocean and Climate Changes	Students can understand the changing ocean and climate, and the role of ocean on climate change. After completing this course, students are able to illustrate the status of ocean cand climate change and what they affect human being.	讓學生瞭解海洋與氣候變遷的概況、科學家如何看待全球變遷、海洋在全球氣候變遷扮演的角色及海洋與氣候變遷我們生活環境的影響。修完課後的同學將可明確說明海洋氣候變遷的現況及海洋對全球氣候變遷的影響。	2	Elective Course	海洋環境資訊系	SDG13
2021	Undergraduate	2	A	環境科學	Environment Science	To introduce how nature works, how we interact with nature, and how we can live more sustainably. In this course, the students will join a sea practice cruise to understand the basic skills on marine environmental exploration.	本課程除了提供環境方面最新的知識，並且透過目前的幾個重大環境問題之探討；讓學生可以了解如何扮演好地球環境一員的角色。本課程並安排學生出海實習，藉由海上科儀實際演練，了解海洋環境探索的基本設施。	3	Required Course	海洋環境資訊系	SDG9
2021	Undergraduate	2	A	資料科學與Python	Data Science with Python	Data science is about gaining insights from data to generate decisions, actions, and intelligent applications. This course will learn data science through the Python language, which is a popular programming language for implementing data science and is currently one of the required programming languages for data scientists both domestically and internationally. Matplotlib, Scikit-Learn, etc. Learning the Python language will provide a foundation for future implementation of advanced data exploration, machine learning, deep learning and artificial intelligence, and natural language processing. The course will also introduce the application of Python to marine environmental data.	資料科學為從資料中獲得洞察進而產生決策、行動及智慧應用。本課程將藉由Python語言學習資料科學，Python是實作資料科學的熱門程式語言，也是目前國內外資料科學家必備的程式語言之一。Python程式是首選的工具是因為它擁有豐富的儲存、操作、以及洞察資料的程式庫，如Ipython、NumPy、Pandas、Matplotlib、Scikit-Learn等。學習Python語言可作為未來實作進階的資料探勘、機器學習、深度學習與人工智慧、自然語言處理等的基礎。課程亦將介紹Python應用於海洋環境資料上。	3	Elective Course	海洋環境資訊系	SDG9
2021	Undergraduate	3	A	水質分析	Water analyses	This course supplies practical information for planning, conducting, or evaluating water quality monitoring programs. It presents the latest information and methodologies for water quality policy, regulation, monitoring, field measurement, laboratory analysis, and data analysis.	本課程將提供修課學生規劃、採樣和化學分析，並且讓學生了解最新的分析實驗室技術和數據分析。	3	Elective Course	海洋環境資訊系	SDG6
2021	Undergraduate	3	A	Big Data技術導論	Introduction to Big Data	This course will learn the meaning and techniques of huge amount of data. In today's information explosion, the volume of data is so large that it cannot be captured, processed, searched, managed, and organized into information that can be interpreted by humans in a reasonable amount of time. In the case of the marine environment, the data collected by various sensors is growing continuously and massively, so it is necessary to understand this new technology. The course will introduce Hadoop Spark, web crawlers, machine learning, artificial intelligence, etc.	本課程將學習巨量資料的涵義和技術。現今資訊爆炸的年代，資料量規模巨大到無法透過人工方式，在合理時間內達到擷取、處理、搜尋、管理、並整理成為人類所能解讀的資訊。在海洋環境議題上，透過各種感測儀器收集的資料亦不斷持續且巨量地成長中，因此有必要認識此新技術。課程中將介紹Hadoop Spark、網頁爬蟲、機器學習、人工智慧等。	3	Elective Course	海洋環境資訊系	SDG9
2021	Undergraduate	3	A	IDL程式語言:遙測資料處理	IDL Programming Language: remote sensing data processing	understanding the fundamentals of the IDL（Interactive Data Language）language and programming for remote sensing data processing	IDL（Interactive Data Language）在醫學和遙測方面已是廣泛應用的互動式程式語言，其計算和繪圖功能，可協助科學家和工程師處理複雜的工作需求。本課將講解IDL的基本程式語法和設計。教學目標是讓學生在完成此課程之修習後，具備有利用IDL進行遙測資料分析與繪圖的能力。	3	Elective Course	海洋環境資訊系	SDG9、SDG17
2021	Undergraduate	3	A	Julia 程式語言設計	Julia Language Programming	Julia programming language is a new programming language in the scientific and engineering fields in recent years, similar to Matlab, but Julia programming language is open source, free to install and use, faster computational efficiency, and you can also use a web browser to learn to write Julia programs, so the new Julia programming language is introduced to teach.	Julia程式語言是近幾年科學界和工程界的新程式語言，與Matlab相似，但Julia程式語言是開放式原始碼(open source)，全免費安裝和使用，計算效率比較快，還可以使用網頁瀏覽器學習撰寫Julia程式，因此引進新的Julia程式語言授課。	3	Elective Course	海洋環境資訊系	SDG13、SDG17
2021	Undergraduate	3	A	洋流學	Ocean Current	Students can learn to understand how ocean current/circulation is formed under the effect of earth rotation.	使學生從海洋基本物理的靜態性質中，感受動態的海洋如何與之共舞，從而廣泛接觸洋流的基礎知識，但內容以敘述性為主，淺顯易懂，理論性及計算性的內容僅淺介即止。所學內容為洋流觀測、洋流學實驗、洋流資料處理及分析、洋流理論等進階課程	3	Elective Course	海洋環境資訊系	SDG4、SDG13、SDG14
2021	Undergraduate	4	A	沙塵暴專題	Special Topic on Sandstorm	Understanding the mechanism of sandstorm and the recent researches in sandstorm	瞭解沙塵暴的形成機制及影響範圍，並可完成沙塵暴相關議題的專題報告。	3	Elective Course	海洋環境資訊系	SDG3、SDG11、SDG12、SDG13、SDG15、SDG17
2021	Undergraduate	4	A	全球生地化學專題	Special Topic on Biogeochemical Cycle	This course is designed to provide students with an understanding of the global biogeochemical cycle and how various marine nutrients are cycled in the global environment.	認識全球生物地球化學循環過程,讓學生了解各種海洋營養鹽在全球環境中的循環過程是本課程的目標.	3	Elective Course	海洋環境資訊系	SDG2
2021	Undergraduate	4	A	洋流觀測分析	Ocean Current Observation and Analysis	The issue of global warming is becoming more and more common, but according to NOAA, we have only explored 5% of the oceans, and our understanding of ocean currents is even more limited, especially the "thermohaline circulation", which is hidden deep in the ocean and dominates long-term climate change on Earth. Therefore, the goal of the course is not only to provide students with the basic knowledge and analysis techniques of ocean current observation, but also to allow students to see the abstracted ocean currents through visualization, so as to enhance students' interest and curiosity in ocean current issues, and to continue to study and explore new natural science issues related to ocean currents in the future.	全球暖化的氣候議題越來越普遍化，但是，根據NOAA的說法，我們人類目前對海洋的探索僅有5%，對洋流的了解更是有限，尤其是藏在海洋深處且主宰地球長期氣候變化的“溫鹽環流”。因此課程的教學目標，除了讓學生得到洋流觀測的基本知識與分析技術外，希望能透過視覺化的方法，讓學生親眼看到抽像的洋流，提升學生對洋流議題的興趣和好奇，以便將來繼續研究並探討與洋流相關的新自然科學議題。	3	Elective Course	海洋環境資訊系	SDG13、SDG14
2021	Undergraduate	2	A	機率與統計	Probability and Statistics	Introduction to basic probability and statistical principles, and practice in statistical analysis using the computer to deepen understanding of the principles.	介紹基本機率與統計原理，並訓練用電腦作統計分析以加深對原理的瞭解。	2	Required Course	海洋環境資訊系	SDG1、SDG2、SDG3、SDG4、SDG8、SDG9、SDG17
2021	Undergraduate	2	A	機率與統計	Probability and Statistics	Introduction to basic probability and statistical principles, and training in statistical analysis using Excel to deepen understanding of the principles.	介紹基本機率與統計原理，並訓練用EXCEL作統計分析以加深對原理的瞭解。	2	Required Course	海洋環境資訊系	SDG13
2021	Undergraduate	1	A	光電科技導論	Fundamentals of Electro-optics	This course explores some basic principles and applications in the field of optics and optoelectronics in an in-depth manner. The course begins with the history of light research, followed by a discussion of the impact of light on modern technology. The course then explores the properties and principles of light from the perspectives of geometric optics, fluctuating optics, and photons, and then delves into the interactions between light and matter, including interactions without and with energy exchange. Digital cameras, solar cells, optical communication systems, and so on. We hope to provide scholars with a glimpse into the field of optics and optoelectronics and to establish a good foundation in optics and optoelectronics.	本課程以深入淺出的方式，探討光學與光電領域的一些基本原理和相關應用。內容從光的研究歷史談起，接著討論光對現代科技的影響。再來就從幾何光學、波動光學、光子等角度探究光的特性和相關原理，之後深入探討光與物質的交互作用，包括有不具能量交換和具能量交換的交互作用，然後探討運用這些原理所製作的各類光學元件、光電元件以及光電系統等等，包括有透鏡、光柵、照明光源、發光二極體、雷射、顯示器、數位相機、太陽能電池、光通訊系統等等。希望可以讓學者一窺光學與光電領域的全貌，奠立良好的光學與光電基礎。	3	Required Course	光電與材料科技學系	SDG4、SDG7、SDG9、SDG11
2021	Undergraduate	1	A	普通化學(一)	General Chemistry(I)	This course is designed to introduce and discuss the basic principles of general chemistry and its experimental methods from a wide range of perspectives during the first year of college, in order to provide college students with a foundation in chemistry across a wide range of fields.	普通化學為生命科學及其跨領域的基礎課程，本課程擬在大學一年級時將普通化學的基本原理及其實驗方法做廣泛多角度的介紹與討論，以奠定大學部學生跨領域的化學基礎。	2	Required Course	光電與材料科技學系	SDG4
2021	Undergraduate	3	K	專題研究(一)	Independent Study(I)	Students will be able to synthesize what they have learned through this project, learn independently, work in teams, and develop the ability of innovation, analysis, design, and practice.	使學生能藉由此專題研究綜合所學,自主學習,團隊合作,培養創新、分析、設計及實踐之能力	1	Required Course	光電與材料科技學系	SDG4、SDG7、SDG9、SDG14
2021	Undergraduate	3	D	專題研究(一)	Independent Study(I)	Students will be able to synthesize what they have learned through this project, learn independently, work in teams, and develop the ability of innovation, analysis, design, and practice.	使學生能藉由此專題研究綜合所學,自主學習,團隊合作,培養創新、分析、設計及實踐之能力	1	Required Course	光電與材料科技學系	SDG4
2021	Undergraduate	1	A	潛水	Diving	Diving is to enter the mysterious world of the ocean through the diving triplet, engaging in diving activities offshore, including sports, leisure, and environmental protection, with sports and protection of marine ecology as the main goal.	潛水（Diving）是藉由潛水三寶，進入神祕的海洋世界，於近海從事潛水活動，包含了運動、休閒、與環保，以運動和保護海洋生態為主要目標。	0	Required Course	體育室	SDG14
2021	Undergraduate	1	A	潛水	Diving	Diving is to enter the mysterious world of the ocean through the diving triplet, engaging in diving activities offshore, including sports, leisure, and environmental protection, with sports and protection of marine ecology as the main goal.	潛水（Diving）是藉由潛水三寶，進入神祕的海洋世界，於近海從事潛水活動，包含了運動、休閒、與環保，以運動和保護海洋生態為主要目標。	0	Required Course	體育室	SDG14
2021	Undergraduate	1	B	潛水	Diving	Diving is to enter the mysterious world of the ocean through the diving triplet, engaging in diving activities offshore, including sports, leisure, and environmental protection, with sports and protection of marine ecology as the main goal.	潛水（Diving）是藉由潛水三寶，進入神祕的海洋世界，於近海從事潛水活動，包含了運動、休閒、與環保，以運動和保護海洋生態為主要目標。	0	Required Course	體育室	SDG14
2021	Undergraduate	1	B	潛水	Diving	Diving is to enter the mysterious world of the ocean through the diving triplet, engaging in diving activities offshore, including sports, leisure, and environmental protection, with sports and protection of marine ecology as the main goal.	潛水（Diving）是藉由潛水三寶，進入神祕的海洋世界，於近海從事潛水活動，包含了運動、休閒、與環保，以運動和保護海洋生態為主要目標。	0	Required Course	體育室	SDG14
2021	Undergraduate	1	C	潛水	Diving	Diving is to enter the mysterious world of the ocean through the diving triplet, engaging in diving activities offshore, including sports, leisure, and environmental protection, with sports and protection of marine ecology as the main goal.	潛水（Diving）是藉由潛水三寶，進入神祕的海洋世界，於近海從事潛水活動，包含了運動、休閒、與環保，以運動和保護海洋生態為主要目標。	0	Required Course	體育室	SDG14
2021	Undergraduate	1	C	潛水	Diving	Diving is to enter the mysterious world of the ocean through the diving triplet, engaging in diving activities offshore, including sports, leisure, and environmental protection, with sports and protection of marine ecology as the main goal.	潛水（Diving）是藉由潛水三寶，進入神祕的海洋世界，於近海從事潛水活動，包含了運動、休閒、與環保，以運動和保護海洋生態為主要目標。	0	Required Course	體育室	SDG14
2021	Undergraduate	1	D	潛水	Diving	Diving is to enter the mysterious world of the ocean through the diving triplet, engaging in diving activities offshore, including sports, leisure, and environmental protection, with sports and protection of marine ecology as the main goal.	潛水（Diving）是藉由潛水三寶，進入神祕的海洋世界，於近海從事潛水活動，包含了運動、休閒、與環保，以運動和保護海洋生態為主要目標。	0	Required Course	體育室	SDG14
2021	Undergraduate	1	D	潛水	Diving	Diving is to enter the mysterious world of the ocean through the diving triplet, engaging in diving activities offshore, including sports, leisure, and environmental protection, with sports and protection of marine ecology as the main goal.	潛水（Diving）是藉由潛水三寶，進入神祕的海洋世界，於近海從事潛水活動，包含了運動、休閒、與環保，以運動和保護海洋生態為主要目標。	0	Required Course	體育室	SDG14

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	全民國防教育軍事訓練-國防政策	All-out Defense Education Military Training-National Defense Policies	1.To enable students to understand what "national defense policy" is. 2.To enable students to understand the objectives of national security. 3.Students will be able to understand the definition of "military strategy". 4.Students will be able to understand how the international arms race will affect the world situation. 5.To enable students to understand the status and significance of the so-called "consolidation phase" and "long-term preparedness phase" in the development of national defense strategy. 6.Students will be able to understand the meaning and status of the so-called "offensive and defensive phases" and "defensive and defensive phases" in the development of national defense strategy. 7.Students will be able to understand the status of Taiwan in the international community in terms of strategic factors. 8.Students will be able to understand the national interests pursued by the Republic of China. 9.Students will be able to discuss their personal views on the current state of national defense policy in the context of the semester's curriculum.	一、使學生能了解什麼是「國防政策」。 二、使學生能了解「國家安全」所追求的目標。 三、使學生能了解「軍事戰略」的定義。 四、使學生能了解國際間的軍備競賽，將如何影響世界局勢。 五、使學生能了解國防戰略發展中所謂「鞏固階段」及「長期備戰階段」之狀況與意義。 六、使學生能了解國防戰略發展中所謂「攻守一體階段」及「防衛固守階段」之狀況與意義。 七、使學生能了解就戰略因素而言，臺灣局勢在國際社會中的地位。 八、使學生了解我中華民國所追求的國家利益為何。 九、使學生能綜合本學期的課程針對目前國防政策之現況討論個人之看法。	2	Elective Course	軍訓室	SDG4
2021	Undergraduate	2	A	全民國防教育軍事訓練-全民國防	All-out Defense Education Military Training-Civil Defense	1.Students will understand the meaning, function, and importance of national defense. 2.Students will understand the relationship between economy, culture, psychology, and national defense. 3.Students will be able to understand the function of national defense education and recognize that modern national defense is a total defense with the participation and mobilization of all people. 4.Students will be able to raise their awareness of the problems, identify with national defense psychologically, and support national defense in their actions in order to implement the concept of national defense.	一、使學生理解全民國防的內涵、功能與重要性。 二、使學生了解經濟、文化、心理與國防的關係。 三、能從全民國防教育的功能中，體認現代國防就是全民參與、全民動員的總體防衛。 四、使學生提升憂患意識，在心理上認同全民國防，在行動上支持全民國防，以落實全民國防理念。	2	Elective Course	軍訓室	SDG3、SDG4
2021	Undergraduate	2	A	全民國防教育軍事訓練-國防科技(1)	All-out Defense Education Military Training-Defense Technology(I)	1.This course provides students with an understanding of how military thinking has changed and how it has affected the development of military weapons. 2.Students will learn about the development of military science and technology in different eras, and understand the historical process and background of the causes and contents of military innovations. 3.Students will understand the different types of warfare due to the advancement of weapons and ideas. 4.Students will understand the linkage between the development of weapons and the technological capability of the nation. 5.Students will be introduced to the development of weapons and their contents, as well as to the integration of weapons development and defense industry for those	一、使學生了解軍事思想的變化，以及說明軍事思想變化對軍事武器發展有何影響？ 二、使學生了解各時代的軍事科學發展與技術，同時了解軍事事務革新的起因、內容等因素，皆有其歷史進程與背景。 三、使學生明白因武器或思想的進步，產生那些不同的戰爭型態。 四、讓學生明白武器的發展與國家科技能力的連帶關係。 五、介紹各項武器發展與內容，同時使學生了解武器發展與國防工業的結合為那些	2	Elective Course	軍訓室	SDG4
2021	Undergraduate	2	A	全民國防教育軍事訓練-國防科技(1)	All-out Defense Education Military Training-Defense Technology(I)	1.This course provides students with an understanding of how military thinking has changed and how it has affected the development of military weapons. 2.Students will learn about the development of military science and technology in different eras, and understand the historical process and background of the causes and contents of military innovations. 3.Students will understand the different types of warfare due to the advancement of weapons and ideas. 4.Students will understand the linkage between the development of weapons and the technological capability of the nation. 5.Students will be introduced to the development of weapons and their contents, as well as to the integration of weapons development and defense industry for those	一、使學生了解軍事思想的變化，以及說明軍事思想變化對軍事武器發展有何影響？ 二、使學生了解各時代的軍事科學發展與技術，同時了解軍事事務革新的起因、內容等因素，皆有其歷史進程與背景。 三、使學生明白因武器或思想的進步，產生那些不同的戰爭型態。 四、讓學生明白武器的發展與國家科技能力的連帶關係。 五、介紹各項武器發展與內容，同時使學生了解武器發展與國防工業的結合為那些	2	Elective Course	軍訓室	SDG4
2021	Undergraduate	2	A	全民國防教育軍事訓練課程—國際情勢(軍訓)	All-Out Defense Education Military Training-International Situations	This course focuses on regional cooperation and conflict, using classroom lectures, discussions, and videos to achieve the following teaching objectives. 1. To develop students' independent thinking and analysis skills. 2. To train students' information application and oral expression skills. 3. To strengthen students' concept of rule of law and moral education. 4. To enhance students' understanding of cultural soft power, and to participate in society and love the country.	本課程主要研討區域的合作與衝突，以課堂講授、專題討論，影片收視等方式，藉以達到下列教學目標： 1.培養學生獨立思考分析能力。 2.訓練學生資訊應用及口語表達能力。 3.加強學生法治觀念及品德教育。 4.增進學生對文化軟實力的認識，進而參與社會，熱愛國家。	2	Elective Course	軍訓室	SDG2、SDG4、SDG7、SDG9、SDG10、SDG13、SDG16
2021	Undergraduate	2	A	全民國防教育軍事訓練課程—國際情勢(軍訓)	All-Out Defense Education Military Training-International Situations	This course focuses on regional cooperation and conflict, using classroom lectures, discussions, and videos to achieve the following teaching objectives. 1. To develop students' independent thinking and analysis skills. 2. To train students' information application and oral expression skills. 3. To strengthen students' concept of rule of law and moral education. 4. To enhance students' understanding of cultural soft power, and to participate in society and love the country.	本課程主要研討區域的合作與衝突，以課堂講授、專題討論，影片收視等方式，藉以達到下列教學目標： 1.培養學生獨立思考分析能力。 2.訓練學生資訊應用及口語表達能力。 3.加強學生法治觀念及品德教育。 4.增進學生對文化軟實力的認識，進而參與社會，熱愛國家。	2	Elective Course	軍訓室	SDG2、SDG4、SDG7、SDG9、SDG10、SDG13、SDG16
2021	Undergraduate	1	A	工程材料學	Engineering Materials	The aims of this course are to learn the bonding and crystal structures of materials, to understand phase transformation of metals during melting/solidification, then to familiarize with metallic iron-carbon phase diagrams and mechanical properties of a variety of alloys. On the other hand, learners will catch the knowledge of processing of engineering ceramics and the structural characteristics in various applications. Therefore, students will fully understand the importance of material structures in engineering.	本課程希望學習到材料基本鍵結與結晶構造，了解金屬熔融固化流程之相變化，進而認知熟練金屬鐵-碳相圖與各種合金之機械性質。另外學習工程陶瓷之製程與結構特性及其應用。以使修習本課程後之學生了解材料結構特性在工程應用之重要性及在未來材料與能源領域進階學習之基礎。 此課程符合STCW 公約表A-III/1 有關輪機工程操作級能力之強制要求的知識、瞭解及熟練(This course aims to meet the mandatory minimum requirements for knowledge, understanding and proficiency in Table A-III/1 of STCW for the Competence Marine	3	Summer Course	大學暑修班	SDG7、SDG9
2021	Undergraduate	1	A	流體力學	Fluid Mechanics	Principal concepts and theories of fluid mechanics will be discussed in this course. The flow phenomena and their practical applications in fuild engineering will be illustrated as well. The students are expected to build up sound knowledge and adequate backgound of fluid mechanics through the learning of this course.	使學生熟習流體力學之基本觀念和原理,並認識流體流動現象,而具備應用流體力學於相關學科之能力. 此課程符合STCW 公約表A-III/1 有關輪機工程操作級能力之強制要求的知識、瞭解及熟練(This course aims to meet the mandatory minimum requirements for knowledge, understanding and proficiency in Table A-III/1 of STCW for the Competence Marine Engineering at the Operational Level.)	3	Summer Course	大學暑修班	SDG6、SDG7、SDG10
2021	Undergraduate	1	A	船舶穩度	Ship Hydrostatics and Stability	This course is based on the International Maritime Organization (IMO) Model Course 7.03-2.1.1 The Effect of Cargo, Including Heavy Lifts on the Sea-worthiness and Stability of the Ship, 2.1.2 Safe The course is designed to provide students with the necessary knowledge or skills to enable them to acquire the knowledge and skills required to meet the requirements of the 1978 Nautical Training, Certification, and Duty Cycle. The students will acquire the knowledge and skills required to meet the operational level competencies of the International Convention on Standards of Training, Certification and Competence for Seafarers, 1978, as amended by the International Convention on Standards of Training, Certification and Competence for Seafarers, 2010 in relation to the operation of ships and the management of personnel on board.	本課程係依照國際海事組織(IMO) Model Course 7.03-2.1.1 The Effect of Cargo, Including Heavy Lifts on the Sea-worthiness and Stability of the Ship，2.1.2 Safe Handling, Stowage and Securing of Cargoes，3.2.1 Ship Stability，3.2.2 Ship Construction以及Physical Science之規範，兼顧相關必要知識或技能之傳授，使學生能學得符合「1978年航海人員訓練、發證及當值標準國際公約2010年修正案」航海專長適任標準中，有關船舶操作及船上人員管理之操作級能力所需之知識及技術。	2	Summer Course	大學暑修班	SDG4、SDG8、SDG16、SDG17
2021	Undergraduate	1	A	教育概論(教)	Introduction to Education	(1)Recognize the basic concepts of education and the foundations of educational philosophy, psychology, sociology and its historical development (2)Understanding teachers, students, and school systems in the education system and their innovations (3)Recognize the basic knowledge of curriculum, teaching, evaluation and training in the education system (4)Analysis and evaluation of educational issues using basic educational knowledge	(一)了解教育的基本概念與教育哲學、心理學、社會學基礎及其歷史發展。 (二)了解教育體系中的教師、學生、學校制度及其革新。 (三)了解教育體系中的課程、教學、評量、訓輔之基礎知識。 (四)應用教育基礎知識進行教育議題分析與評鑑。	2	Educational Programs	師資培育中心	SDG3、SDG4
2021	Undergraduate	1	A	教育心理學(教)	Educational Psychology	1. understand the learning and development of adolescents. 2. understand important theories of learning, cognition, motivation, and behavior. 3. understand the use of different teaching strategies to enhance learning.	1. 瞭解青少年的學習與發展。 2. 瞭解學習、認知、動機、行為等重要理論。 3. 瞭解使用不同的教學策略增進學習效果。	2	Educational Programs	師資培育中心	SDG3、SDG4
2021	Undergraduate	1	A	班級經營(教)	Classroom Management	1. Understand the theory and content of classroom management 2. Be familiar with class planning and implementation 3. Use the design of classroom activities 4. be familiar with the ideals and practices of parent-teacher communication 5. understand the roles and responsibilities of a competent teacher	1. 了解班級經營的理論與內涵 2.熟練班級的規劃與實施 3.運用班級活動的設計 4.熟悉親師溝通的理想與實際 5.體會稱職教師的角色與義務	2	Educational Programs	師資培育中心	SDG4、SDG5、SDG10

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	3	A	教育實習(教)	Internship	1. understanding the meaning and implications of educational internship and recognizing the duties of a teacher in a practical teaching context. 2. To acquire basic professional knowledge to prepare for teaching and to have the ability to grow professionally. 3. be able to understand the requirements for teacher certification and teacher testing, and actively prepare for the relevant tests. 4. be able to identify and reflect on relevant issues in teaching situations and gradually develop a professional attitude toward teaching.	1.能了解教育實習的意義和內涵，並從實際教學情境中體認教師的職務。 2.能獲得準備擔任教師的基本專業知能，並具有專業成長之能力。 3.能理解教師檢定及教師甄試之條件，並積極做相關應試之準備。 4.能發現和思考教學情境中的相關問題，並逐漸培養教師的專業態度。	4	Educational Programs	師資培育中心	SDG4
2021	Undergraduate	3	B	教育實習(教)	Internship	1. understanding the meaning and implications of educational internship and recognizing the duties of a teacher in a practical teaching context. 2. To acquire basic professional knowledge to prepare for teaching and to have the ability to grow professionally. 3. be able to understand the requirements for teacher certification and teacher testing, and actively prepare for the relevant tests. 4. be able to identify and reflect on relevant issues in teaching situations and gradually develop a professional attitude toward teaching.	1.能了解教育實習的意義和內涵，並從實際教學情境中體認教師的職務。 2.能獲得準備擔任教師的基本專業知能，並具有專業成長之能力。 3.能理解教師檢定及教師甄試之條件，並積極做相關應試之準備。 4.能發現和思考教學情境中的相關問題，並逐漸培養教師的專業態度。	4	Educational Programs	師資培育中心	SDG4
2021	Undergraduate	3	B	教育實習(教)	Internship	1. understanding the meaning and implications of educational internship and recognizing the duties of a teacher in a practical teaching context. 2. To acquire basic professional knowledge to prepare for teaching and to have the ability to grow professionally. 3. be able to understand the requirements for teacher certification and teacher testing, and actively prepare for the relevant tests. 4. be able to identify and reflect on relevant issues in teaching situations and gradually develop a professional attitude toward teaching.	1.能了解教育實習的意義和內涵，並從實際教學情境中體認教師的職務。 2.能獲得準備擔任教師的基本專業知能，並具有專業成長之能力。 3.能理解教師檢定及教師甄試之條件，並積極做相關應試之準備。 4.能發現和思考教學情境中的相關問題，並逐漸培養教師的專業態度。	4	Educational Programs	師資培育中心	SDG4
2021	Undergraduate	1	A	教育哲學(教)	Educational Philosophy	(1)The student will be able to understand the meaning of education and philosophy and the relationship between them. (2) To understand the basic connotations and schools of philosophy of education. (3) To be able to collect information and report on relevant topics in philosophy of education. (4) To be able to think about modern educational problems with the connotation of philosophy of education.	一、能了解教育與哲學的內涵及兩者之間的關係。 二、能認識教育哲學的基本內涵及派別。 三、能蒐集教育哲學相關議題資料及報告學習心得。 四、能常用學習所得之教育哲學內涵思考現代相關教育問題。	2	Educational Programs	師資培育中心	SDG4
2021	Undergraduate	1	A	輔導原理與實務(教)	Principle and Practice of Guidance	This course will introduce the theory and practice of counseling, supplemented by problem-based learning, and guide learners to explore and develop counseling. Students are expected to be able to understand the psychology of adolescent/children, make good use of help skills to promote students""""""""""""""""""" development.	本課程將介紹輔導的理論與實務，輔以問題本位的學習，引導學習者主動探索、發展學生輔導知能。期望學習者能領會並培養輔導者應具備的人格特質，增進心智省察，認識兒童及青少年的心理，妥善運用助人技巧，協助學生適性發展。 整體而言，本課程的教學目標如下： （一） 了解輔導的理念、原則及學校輔導的運作，省思自己在學生輔導工作上應具備的知識、技能、態度與價值觀。 （二） 了解助人的歷程與專業倫理，培養輔導者應具備的人格特質，鍛鍊心智省察力。 （三） 學習輔導的方法，以多元的觀點認識學生，具備心理位移、個案評估與初級輔導的專業素養。 （四） 透過個案研討，擴大覺察及省思，理解相關理論、技巧與資源，並能實際運	2	Educational Programs	師資培育中心	SDG3、SDG4、SDG5
2021	Undergraduate	1	A	輔導原理與實務(教)	Principle and Practice of Guidance	This course will introduce the theory and practice of counseling, supplemented by problem-based learning, and guide learners to explore and develop counseling. Students are expected to be able to understand the psychology of adolescent/children, make good use of help skills to promote students""""""""""" development.	本課程將介紹輔導的理論與實務，輔以問題本位的學習，引導學習者主動探索、發展學生輔導知能。期望學習者能領會並培養輔導者應具備的人格特質，增進心智省察，認識兒童及青少年的心理，妥善運用助人技巧，協助學生適性發展。 整體而言，本課程的教學目標如下： （一） 了解輔導的理念、原則及學校輔導的運作，省思自己在學生輔導工作上應具備的知識、技能、態度與價值觀。 （二） 了解助人的歷程與專業倫理，培養輔導者應具備的人格特質，鍛鍊心智省察力。 （三） 學習輔導的方法，以多元的觀點認識學生，具備心理位移、個案評估與初級輔導的專業素養。 （四） 透過個案研討，擴大覺察及省思，理解相關理論、技巧與資源，並能實際運	2	Educational Programs	師資培育中心	SDG3、SDG4、SDG5
2021	Undergraduate	1	A	教師專業發展	Teacher Professional Development	This course intends to create a relationship of sincere dialogue with each other , explore cases of high-quality transformation, systematically think about real dilemma issues, connect with ecology, society and the self, form the best response strategy, and cultivate "through educational practice and Reflect to develop the professionalism of communication, teamwork, problem solving and the willingness and ability of continuous professional growth".	本課程擬透過營造互為主體真誠對話的關係，探討他山之石優質轉型的案例、系統思考真實困境議題，與生態、社會和大我連結，形成最佳因應策略，培養「透過教育實踐與省思，以發展溝通、團隊合作、問題解決及持續專業成長的意願與能力」之專業素養。具體的學習目標如下： （一） 透過批判性反思與對話，形成專注投入、遵循倫理、追求卓越的積極信念 （二） 培養創新價值、調和緊張和困境，及承擔責任的轉型能力 （三） 開放思維、心靈與意志，系統思考，啟動內在深層的思維轉型 （四） 透過以專案為基礎的學習，整合能力發揮影響力	2	Educational Programs	師資培育中心	SDG4
2021	Undergraduate	1	A	教師專業發展	Teacher Professional Development	This course intends to create a relationship of sincere dialogue with each other , explore cases of high-quality transformation, systematically think about real dilemma issues, connect with ecology, society and the self, form the best response strategy, and cultivate "through educational practice and Reflect to develop the professionalism of communication, teamwork, problem solving and the willingness and ability of continuous professional growth".	本課程擬透過營造互為主體真誠對話的關係，探討他山之石優質轉型的案例、系統思考真實困境議題，與生態、社會和大我連結，形成最佳因應策略，培養「透過教育實踐與省思，以發展溝通、團隊合作、問題解決及持續專業成長的意願與能力」之專業素養。具體的學習目標如下： （一） 透過批判性反思與對話，形成專注投入、遵循倫理、追求卓越的積極信念 （二） 培養創新價值、調和緊張和困境，及承擔責任的轉型能力 （三） 開放思維、心靈與意志，系統思考，啟動內在深層的思維轉型 （四） 透過以專案為基礎的學習，整合能力發揮影響力	2	Educational Programs	師資培育中心	SDG4
2021	Undergraduate	1	A	性別教育	Gender Education	1. Students will recognize the importance and content of gender equality. 2. Students will be able to dispel gender stereotypes and myths. 3. Students will understand the true meaning of substantive equality of gender status. 4. Students will be familiar with the dignity and appropriate development of both genders. 5. Students will be able to establish educational resources and environment for gender equality.	1.學生能認知性別平等的重要性與內容。 2.學生能破除性別的刻板印象及迷思。 3.學生能了解性別地位實質平等的真義。 4.學生能熟知兩性的人格尊嚴與適性發展。 5.學生能建立性別平等的教育資源與環境。	2	Elective Course	師資培育中心	SDG4、SDG5、SDG10
2021	Undergraduate	1	A	發展心理學理論與應用	Theory and Application of Developmental Psychology	The purpose of this introductory course in Developmental Psychology is to help students to explore current theory in children`s developmental process in behaviour and cognition.	學生能熟習發展心理學的相關領域，以了解其基本原理及可能的實際研究運用。	2	Educational Programs	師資培育中心	SDG3
2021	Undergraduate	1	A	職業教育訓練與生涯規劃	Vocational education training and career development	1. Understand the concept and system of Vocational Education and Training (VET) 2. to understand the purpose and methods of career planning 3. to experience the teaching methods of different education systems 4. to have the concept and teaching ability of diversified education 5. to have the ability to apply career development and career counseling 6. to understand the international Career Development Advisor (CDA) system and its application	依教育部106年6月1日臺教師(二)字第1060076930號函規定，105學年度起師培生配合技職法修正，「職業教育與訓練」、「生涯規劃」相關課程，列為師資職前教育課程必修學分。本校師資培育中心108學年度將該2門課程合併為職業教育訓練與生涯規畫(1學分)。透過課程介紹讓師資生了解職業教育訓練以及生涯規劃在教育領域的應用，期師培生具備教育學生多元升學的能力與觀念。 二、課程目標 1.了解職業教育與訓練(VET)的概念與制度 2.了解生涯規劃的目的與方法 3.體驗不同類型教育體系的教學方式 4.具備多元升學的概念與教學能力 5.具備生涯發展與生涯諮詢應用能力 6.認識國際生涯發展諮詢師(Career Development Advisor，CDA）系統與運用	1	Educational Programs	師資培育中心	SDG4、SDG5、SDG8、SDG10

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	職業教育訓練與生涯規劃	Vocational education training and career development	1. to understand the concept of marine education. 2. understand marine education resources and the use and planning of sustainable development through field trips 3. to have the ability to design marine education curriculum. 4. to have the concept of learning circle and apply curriculum design. 5. to have marine literacy.	1. 了解海洋教育概念。 2. 透過實地踏察瞭解海洋教育資源以及永續發展之運用與規劃 3. 具備海洋教育課程設計之能力。 4. 具備學習圈概念與應用課程設計。 5. 具備海洋素養。	1	Required Course	師資培育中心	SDG4、SDG5、SDG8、SDG10
2021	Undergraduate	1	A	服務學習	Service learning	1. To understand the meaning of service and labor in life. 2. To experience the service opinions for teacher. 3. To share the experience and process of service learning.	（一）了解服務學習的發展與概念。 （二）體驗教師服務學習的人生觀。 （三）分享服務學習的經驗與歷程。	2	Educational Programs	師資培育中心	SDG4、SDG10
2021	Undergraduate	1	A	海洋教育課程規劃與實地踏查	Curriculum Design and On-the-spot Investigation of Marine Education	1. to understand the concept of marine education. 2. understand marine education resources and the use and planning of sustainable development through field trips 3. to have the ability to design marine education curriculum. 4. to have the concept of learning circle and apply curriculum design. 5. to have marine literacy.	1. 了解海洋教育概念。 2. 透過實地踏察瞭解海洋教育資源以及永續發展之運用與規劃 3. 具備海洋教育課程設計之能力。 4. 具備學習圈概念與應用課程設計。 5. 具備海洋素養。	2	Educational Programs	師資培育中心	SDG4、SDG11、SDG12、SDG14
2021	Undergraduate	1	A	海洋教育	Marine Education	This course takes "Caring for the Sea" as its core value, and aims to cultivate students' ability to develop multiple narratives in the teaching profession. 1. To enable students to understand the concept and connotation of marine education and the relationship between "caring for the ocean" and marine education. 2. To allow students to participate in marine experiences and to understand the practical aspects of marine education in order to gain a narrative basis for teaching. 3. To allow students to learn and demonstrate multiple narrative skills through various channels. 4. To provide students with the ability to design and implement marine education teaching activities.	本課程以「關懷海洋」為核心價值，以培養學生在教學專業上的多元敘事能力為主軸，基於「做中學」之理念，讓學生在參與的行動中逐漸獲得知、情、意的成長，並在師資培育的專業領域上預期達成下列四項目標： 1.讓學生認識海洋教育的理念與內涵，理解「關懷海洋」與海洋教育的關係。 2.讓學生參與海洋體驗及了解海洋教育實務狀況，以獲得教學的敘事基礎。 3.讓學生透過各種途徑學習與展現多元敘事能力。 4.讓學生獲得設計海洋教育教學活動及具體實踐之能力。	2	Educational Programs	師資培育中心	SDG4、SDG12
2021	Undergraduate	1	A	德育原理	Principles of Moral Education	1. be aware of the various schools of moral theory and moral education, and be able to understand, summarize, and articulate them. 2. be able to integrate the principles of moral education from various schools into the teaching of each field of study and design a curriculum to teach students the importance of morality and to practice it in their daily lives. 3. be able to learn the principles of moral education from various schools of thought and practice them as a personal discipline and to develop a professional attitude toward education.	１． 認識各個學派的道德理論與道德教育思想，能夠理解、歸納並加以闡述。 ２． 能夠將各個學派的德育原理融入各個學習領域的教學之中，並設計課程進行教學，讓所教學生能體會道德的重要性，以及在日常生活中加以實踐。 ３． 學習各個學派的德育原理之後，能作為個人修養的實踐，也能養成教育專業態度。	2	Educational Programs	師資培育中心	SDG4
2021	Undergraduate	1	A	教育議題專題(教)	Special Topic on Educational Issues	1. understaning current education issues 2. exploring the significance of various educational issues 3. designing curriculum on educational issues	1.能了解當前教育議題的相關內容 2.針對各項議題內涵做深入探究 3.能將各項議題融入教學設計之中	2	Educational Programs	師資培育中心	SDG4
2021	Undergraduate	1	A	教育社會學(教)	Socialogy of Education	1.Students can understand the basic concepts and theory of educational sociology. 2.Students can comprehensive the basic interrelationship between society and education so that they can control the social context of educational development. 3.Students can understand influence factors in society and use them to promote the educational effectiveness.	一、學生能了解教育社會學的基本概念與理論。 二、學生能理解教育與社會的相互關係,促進理解教育發展的社會脈絡。 三、學生能瞭解教育中的社會影響因素，並運用各種社會因素，以提升教育效能。	2	Educational Programs	師資培育中心	SDG4、SDG5、SDG10、SDG16
2021	Undergraduate	1	A	教學原理(教1)	Teaching Strategies	1.students can understand the basic concepts of teaching. 2.students can get the important principles of teaching. 3.students can practice the technique and methods of teaching really. 4.students can comprehension the situation and problem of teaching. 5.students can apply the principles of teaching.	一、學生能瞭解教學的基本概念。 二、學生能掌握教學的重要原則。 三、學生能實際操作教學技術與方法。 四、學生能理解實際教學情境及其困境。 五、學生能根據教學的原理，思考在教學歷程之應用。	2	Educational Programs	師資培育中心	SDG4、SDG5、SDG10
2021	Undergraduate	1	A	國音及說話(教1)	Chinese Phonetics and Speaking	1.To understand the meaning and principles of Guoyin 2. to understand the sounds, rhymes, tones, and phonetics of Guoyin and its teaching methods 3. to understand the art of speaking and apply it in teaching as appropriate	1.了解國音學的意義與原理 2.認識國音的聲、韻、調和拼音,及其教學方式 3.能了解說話術,並適當地應用於教學之中	2	Educational Programs	師資培育中心	SDG3、SDG4
2021	Undergraduate	2	A	職業倫理與工作態度	Occupational ethic and work attitude	This course provides pre-service secondary education teacher education students with an understanding of workplace ethics and the development of appropriate work attitudes prior to entering industry internships, and to learn technical career attitudes and experiences during the internship that can be applied in the future teaching field.	針對技術與職業教育法第二十五條技職校院專業科目或技術科目之教師，應具備一年以上與任教領域相關之業界實務工作經驗。以及教育部公布高級中等學校師資職前教育專門課程應包含「職業倫理與態度」課程。本課程提供中等教育師資職前教育學生在進入業界實習以前，能夠瞭解職場倫理與建立正確的工作態度，並在實習過程學習技術職業態度與經驗，並將其應用在未來的教學場域中。	2	Required Course	師資培育中心	SDG4
2021	Undergraduate	2	A	自然科學領域教材教法	Teaching Materials and Methods of Science and Technology	1.To understand the current teaching activities and classroom practices of Biology (Earth Science) in high school. 2. Observe and observe the teaching of related subjects and analyze the procedures and steps of teaching activities. 3. Flexibly apply teaching methods and strategies to design lesson plans and lesson plans. 4. Validate teaching theory or theories through simulated teaching experiences. 5. Try to establish their own teaching model through self-reflection and joint discussion.	1.了解當前高中的生物科（地球科學科）教學活動與班級經營實務。 2.觀摩見習相關學科教學，分析教學活動的程序與步驟。 3.靈活運用教學方法與策略，設計教學計劃和教案。 4.透過模擬教學的體驗，驗證教學學理或理論。 5.經由自我反思和共同討論，嘗試建立自己的教學模式。	2	Required Course	師資培育中心	SDG4
2021	Undergraduate	2	A	特殊教育導論(教)	Introduction to Special Education	1. Understand the significance of special education, present implementation and development trends. 2. Understand the definition of special education needs, physical and mental characteristics of students with special education needs. 3. Understand the concept and practice of inclusive education and know the relative support and resources. 4. Learn the basic principles and strategies of teaching students with special education needs. 5. To establish respect for acceptance and positive support of the attitude, to provide parents, teachers and students appropriate assistance.	本課程旨在瞭解特殊教育的意義，實施現況與發展，各類特殊教育需求學生的定義、身心特質與教育需求、特殊教育相關法規與議題，以及特殊教育工作者的服務範圍、內涵與專業合作，相關支援與資源等。課程的目的除提升特殊教育知能外，亦期望學習者能經由了解特殊學生及其家人的生命歷程，重視其個別需求與成長，並適時為特殊學生的權益發聲。 期望學習者完成本課程的學習後，具備以下知能： 1.了解特殊教育的意義、實施現況與發展趨勢。 2.認識各類特殊教育需求學生的定義、身心特質與教育需求。 3.了解融合教育的理念與實務，並知悉尋求支援與資源的管道。 4.學習教導特殊教育需求學生的基本原則與策略。 5.建立尊重接納與正向支持的態度，提供親師生適切的協助與倡導。	3	Educational Programs	師資培育中心	SDG3、SDG4、SDG10
2021	Undergraduate	2	A	食品群教學實習(教)	Instructional Internship for Subjects of Food Science	1.To understand current teaching activities and classroom management practices. 2. Observing the teaching of related subjects and analyzing the procedures and steps of teaching activities. 3. Flexibly use teaching methods and strategies to design teaching plans and lesson plans. 4. Validate teaching theory or theories through simulated teaching experiences. 5. Try to establish their own teaching model through self-reflection and joint discussion.	1.了解當前的教學活動與班級經營實務。 2.觀摩見習相關學科教學，分析教學活動的程序與步驟。 3.靈活運用教學方法與策略，設計教學計劃和教案。 4.透過模擬教學的體驗，驗證教學學理或理論。 5.經由自我反思和共同討論，嘗試建立自己的教學模式。	2	Required Course	師資培育中心	SDG4
2021	Undergraduate	2	A	學習評量	Assessment for Learning	Students will become familiar with the relevant areas of educational testing and assessment in order to understand their basic theory and possible practical application.	學生能熟習教育測驗與評量的相關領域，以了解其基本理論及可能的實際運用。	2	Educational Programs	師資培育中心	SDG4
2021	Undergraduate	2	A	國民小學語文(國語)教材教法	Teaching Methods and Materials of Language Arts	1.students can understand and analyze the aims of chinese learning in 9-year continued curriculum 2.students can master the content of language material of primary school. 3.students can use every instructional methods of language 4.students can design and be engaged in teaching chinese.	一、學生能了解並分析九年一貫課程課程國語文學習領域目標 二、學生能熟習國小國語文領域教材的內容。 三、學生能具備運用國語文學習領域各種教學方法的能力。 四、學生能設計語文學習領域教材，選擇適當的教法，進行國語文學習領域教學。	2	Required Course	師資培育中心	SDG1、SDG3、SDG4、SDG8、SDG10、SDG11
2021	Undergraduate	2	A	國民小學數學教材教法	Teaching Methods and Materials of Mathematics	1. To understand the current curriculum framework and textbook characteristics of elementary school mathematics. 2. To explore the current teaching methods and strategies of elementary school mathematics through theoretical and case studies. 3.To integrate "teaching demonstration" to familiarize with related materials and teaching methods.	1.了解當前小學數學的課程架構與教材特性。 2.透過理論及案例分析，探討當前小學數學的教學方法與策略。 3.結合「教學演示」，熟練相關教材與教學方法。	2	Required Course	師資培育中心	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	國民小學社會教材教法	Teaching Methods and Materials of Social Science	1. Students can understand and analyze the teaching materials in social study. 2. students can gain the competence of applying teaching methods in social study. 3. Students can design the lesson, select the appropriate methods, and conduct teaching in social study.	一、學生能了解並分析社會學習領域教材。 二、學生能具備運用社會學習領域教法的能力。 三、學生能設計社會學習領域教材，選擇適當的教法，進行社會學習領域教學。	2	Educational Programs	師資培育中心	SDG4、SDG5、SDG10、SDG11
2021	Undergraduate	2	A	國民小學教學實習(教1)	Instructional Internship	1.to understand status and problem of teaching in elementary school 2.to build the ability of collecting and making media. 3.to foster the skills of classroom management. 4.to apply the teaching strategies each learning area.	一、瞭解國民小學教學實際的現況及問題。 二、具備教案撰寫及教具蒐集製作的能力。 三、培養班級經營的技巧。 四、能運用各學習領域所需之教學策略。	2	Required Course	師資培育中心	SDG3、SDG4、SDG5、SDG10
2021	Undergraduate	1	6	英文(大一英文)	English	The goal of Freshman English is to familiarize you with the fundamental skills needed to help you become an efficient learner in reading and vocabulary (this semester) and speaking and listening (next semester). In addition to the course handouts, valuable resources (both on- and off-line) will be introduced and various learning tasks have been prepared to encourage you to build up an active learning attitude for pursuing ongoing advancement of your English ability in an independent and effective manner.	新生英語課程的目標是讓學生熟悉所需的基本技能，以幫助學生成為閱讀和詞彙（本學期）以及口語和聽力（下學期）方面的高效學習者。除了課程講義外，還將介紹有價值的資源（包括在線和離線），並準備了各種學習任務，以鼓勵學生建立積極的學習態度，以獨立和有效的方式不斷提高英語能力。	2	Required Course	大學部英語課程(原外語中心)	SDG1、SDG2、SDG3、SDG4、SDG5、SDG6、SDG7、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG14、SDG15、SDG16
2021	Undergraduate	1	1	英文(大一英文)	English	This course is designed with topically based passages to enhance listening abilities. Throughout the course, students will progress from easy to advanced exercises in order to facilitate listening comprehension. The exercises combine listening with reading, speaking, and writing tasks to reinforce retention of high-frequency vocabulary and phrases. In addition, each unit has a listening test that includes new question types from the TOEIC.	此課程設計是以每單元環繞一個生活化的主題方式，以提升學生的英語聽力。本課程以大量練習的方式，帶領學生從基礎到進階的聽力。而在練習中，也結合閱讀、口說及寫作，以增強常見用字彙及片語的理解。另外在聽力練習中，題目設計皆有助於學生準備多益聽力測驗。	2	Required Course	大學部英語課程(原外語中心)	SDG1、SDG4
2021	Undergraduate	1	N	英文(大一英文)	English	This course will develop students' listening and reading skills and help them prepare the TOEIC test. Students will also be asked to practice speaking skills in a group project.	本課程將培養學生的聽力和閱讀能力，協助準備多益考試。學生將在一個小組項目中練習口語技能。	2	Required Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	1	M	英文(大一英文)	English	The course aims to help students improve their English language proficiency. While it is a four-skills (listening, speaking, reading, writing) integrated course, a particular emphasis will be placed on vocabulary and listening comprehension. By the end of the course, students will have improved their English language fluency and achieved a familiarity with a selection of issues related to cross-cultural communication.	本課程旨在協助學生增進英文的語言熟練度。本課程雖是學習英文聽說讀寫的整合性課程，但課程中會將重點特別放在字彙和聽力上。學生修習本課程將增進他們的英語流暢性，並能熟悉許多和跨文化溝通相關的議題。	2	Required Course	大學部英語課程(原外語中心)	SDG1、SDG4
2021	Undergraduate	1	9	英文(大一英文)	English	The goal of Freshman English is to familiarize you with the fundamental skills needed to help you become an efficient learner in reading and vocabulary (this semester) and speaking and listening (next semester). In addition to the course handouts, valuable resources (both on- and off-line) will be introduced and various learning tasks have been prepared to encourage you to build up an active learning attitude for pursuing ongoing advancement of your English ability in an independent and effective manner.	新生英語課程的目標是讓學生熟悉所需的基本技能，以幫助學生成為閱讀和詞彙（本學期）以及口語和聽力（下學期）方面的高效學習者。除了課程講義外，還將介紹有價值的資源（包括在線和離線），並準備了各種學習任務，以鼓勵學生建立積極的學習態度，以獨立和有效的方式不斷提高英語能力。	2	Required Course	大學部英語課程(原外語中心)	SDG1、SDG2、SDG3、SDG4、SDG5、SDG6、SDG7、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG14、SDG15、SDG16
2021	Undergraduate	1	8	英文(大一英文)	English	1.Listening, speaking, writing and reading skills 2.increasing different cultural background 3.English reading comprehension ability 4.Help students pass proficiency tests proficiency 5.Promotion reading knowledge	1.培養學生讀說聽寫能力2.增進學生多元性文化認識3.加強英檢通過能力4.加強學生文法能力5.提昇閱讀能力。	2	Required Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	1	H	英文(大一英文)	English	The course aims to help students with pre-intermediate proficiency in English acquire the ability to read college-level materials fluently. This class presents to students major grammatical concepts of the English language and reviews the most basic vocabulary (affixes and roots, words, phrases and collocations).	教學目標在於幫助學生在英文的寫和閱讀方面能順暢，特別是大專程度的文章閱讀能力。	2	Required Course	大學部英語課程(原外語中心)	SDG1、SDG4
2021	Undergraduate	1	C	英文(大一英文)	English	This course is organized around cross-cultural topics that develop all four linguistic skills: listening, reading, speaking and writing. Integrating audio-visual aids and new technologies, we will provide students with meaningful, communicative activities and appropriate strategies to improve their listening comprehension and speaking strategies. In addition to providing students with information encoded in TV, radio, movies and video, we also introduce new technologies, such as multimedia learning progra	本課程融合跨文化主題，並整合聽說讀寫之完整語言訓練。同學們可透過多媒體之視聽輔助教材，以及溝通式小組活動，提昇聽說能力。並藉由廣泛閱讀及網路閱讀任務，增進讀寫能力。	2	Required Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	1	Q	英文(大一英文)	English	Stress reciprocal input with the ultimate goal of improved fluency, utilizing diverse strategies to teach interpersonal communicative skills	強調對等輸入，最終目標是提高流暢性，利用不同的策略來教授人際交往技能。	2	Required Course	大學部英語課程(原外語中心)	SDG1、SDG3、SDG4、SDG5、SDG8、SDG10、SDG12、SDG13、SDG15、SDG17
2021	Undergraduate	1	X	英文(大一英文)	English	This course aims to help students build up their vocabulary bank and improve their listening and reading skills. Students are also expected to have a broader world-view after taking this course.	本課程旨在幫助學生建立他們的詞彙庫，提高他們的聽力和閱讀能力。學生在學習本課程後，還將擁有更廣闊的世界觀。	2	Required Course	大學部英語課程(原外語中心)	SDG1、SDG3、SDG4、SDG5、SDG13
2021	Undergraduate	1	E	英文(大一英文)	English	This course aims to strengthen/improve students' learning motivation with the help of computer-assisted and on-line resources. In addition to using these materials in our class, students are expected to study English as often as they can.	本課程旨在通過計算機輔助和在線資源的幫助，加強/提高學生的學習積極性。除了在我們的課堂上使用這些材料外，學生還應該盡可能多地學習英語。	2	Required Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	1	D	英文(大一英文)	English	This course is to cultivate students' English communication ability and to improve students' English listening and reading skills.	本課程旨在培養學生的英語交流能力，提高學生的英語聽力和閱讀能力。	2	Required Course	大學部英語課程(原外語中心)	SDG2、SDG14
2021	Undergraduate	1	Z	英文(大一英文)	English	This course is organized around cross-cultural topics that develop all four linguistic skills: listening, reading, speaking and writing. Integrating audio-visual aids and new technologies, we will provide students with meaningful, communicative activities and appropriate strategies to improve their listening comprehension and speaking strategies. In addition to providing students with information encoded in TV, radio, movies and video, we also introduce new technologies, such as multimedia learning progra	本課程融合跨文化主題，並整合聽說讀寫之完整語言訓練。同學們可透過多媒體之視聽輔助教材，以及溝通式小組活動，提昇聽說能力。並藉由廣泛閱讀及網路閱讀任務，增進讀寫能力。	2	Required Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	1	Q	英文(大一英文)	English	I. the rule of the word II. Grammar: sentence structure III. analyze the text IV. TOEIC Practice	一 字根自首用法 二 文法練習 三 文章內容 結構 分析 四 多益練習	2	Required Course	大學部英語課程(原外語中心)	SDG4、SDG5、SDG10、SDG12
2021	Undergraduate	1	Y	英文(大一英文)	English	While learners study a language, they are expected to be able to learn the most with the awareness of their learning autonomy and the willingness to express themselves actively in learning processes. Thus, based on that, this class will help students to improve skills necessary for better successful English communication, listening and speaking, through the use of English as the medium of instruction, the use of DVD / CD, and other classroom interactive activities. This will acclimate their ears to understanding spoken English easily, and oral practices will increase their speaking fluency. In order to master English as a tool of verbal communication, emphasis will also be included on developing native-like vocabulary (idioms), speech patterns, and pronunciation. In addition, there will be frequent classroom discussions.	藉由輕鬆活潑的教學方式 幫助同學練習聽說讀寫 上課中會使用影片訓練同學聽力 營造出更實際的生活對話內容	2	Required Course	大學部英語課程(原外語中心)	SDG3、SDG5
2021	Undergraduate	1	X	英文(大一英文)	English	This course aims to help students build up their vocabulary bank and improve their listening and reading skills. Students are also expected to have a broader world-view after taking this course.	本課程旨在幫助學生建立他們的詞彙庫，提高他們的聽力和閱讀能力。學生在學習本課程後，還將擁有更廣闊的世界觀。	2	Required Course	大學部英語課程(原外語中心)	SDG4、SDG5、SDG12
2021	Undergraduate	1	B	英文(大一英文)	English	This course focuses on language abilities that are essential in real life. You will develop effective strategies to understand others well with the various listening and reading materials in class. You will also use the speaking skills to talk in groups,	本課程重點關注現實生活中必不可少的語言能力。將制定有效的策略，通過課堂上的各種聽力和閱讀材料很好地理解他人。學生還將運用口語技能在小組中交談。	2	Required Course	大學部英語課程(原外語中心)	SDG1、SDG3、SDG4、SDG10、SDG13、SDG15
2021	Undergraduate	2	A	英文文法與習作 (進階英文-中級)	English Grammar and Exercises (Intermediate)	The course aims to help students become aware of, and be able to use, a variety of ways to express their ideas in writing. In this course, the emphasis is placed on doing, rather than analyzing the grammatical structures under practice. Provided with practice combining sets of sentences, students are asked to use a variety of sentence combining and expanding techniques to produce more specific, concise and fluent sentences.	教學目標在於幫助學生英文寫作能順暢達意。句型結構分析不是這門課的重點，這門課著重在練習；透過句子組合練習，學生能有精確、簡潔且而流暢的文字表達能力。	2	Elective Course	大學部英語課程(原外語中心)	SDG1、SDG4
2021	Undergraduate	2	A	英文文法與習作 (進階英文-中級)	English Grammar and Exercises (Intermediate)	The course aims to help students become aware of, and be able to use, a variety of ways to express their ideas in writing. In this course, the emphasis is placed on doing, rather than analyzing the grammatical structures under practice. Provided with practice combining sets of sentences, students are asked to use a variety of sentence combining and expanding techniques to produce more specific, concise and fluent sentences.	教學目標在於幫助學生英文寫作能順暢達意。句型結構分析不是這門課的重點，這門課著重在練習；透過句子組合練習，學生能有精確、簡潔且而流暢的文字表達能力。	2	Elective Course	大學部英語課程(原外語中心)	SDG1、SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	B	英文文法與習作 (進階英文-中級)	English Grammar and Exercises (Intermediate)	The course aims to help students become aware of, and be able to use, a variety of ways to express their ideas in writing. In this course, the emphasis is placed on doing, rather than analyzing the grammatical structures under practice. Provided with practice combining sets of sentences, students are asked to use a variety of sentence combining and expanding techniques to produce more specific, concise and fluent sentences.	教學目標在於幫助學生英文寫作能順暢達意。句型結構分析不是這門課的重點，這門課著重在練習；透過句子組合練習，學生能有精確、簡潔且而流暢的文字表達能力。	2	Elective Course	大學部英語課程(原外語中心)	SDG1、SDG4
2021	Undergraduate	2	B	英文文法與習作 (進階英文-中級)	English Grammar and Exercises (Intermediate)	The course aims to help students become aware of, and be able to use, a variety of ways to express their ideas in writing. In this course, the emphasis is placed on doing, rather than analyzing the grammatical structures under practice. Provided with practice combining sets of sentences, students are asked to use a variety of sentence combining and expanding techniques to produce more specific, concise and fluent sentences.	教學目標在於幫助學生英文寫作能順暢達意。句型結構分析不是這門課的重點，這門課著重在練習；透過句子組合練習，學生能有精確、簡潔且而流暢的文字表達能力。	2	Elective Course	大學部英語課程(原外語中心)	SDG1、SDG4
2021	Undergraduate	2	B	看電影學英文 (進階英文-中級)	Learning English and Culture through Movies (Intermediate)	Students will learn authentic English language and culture from the movies selected by the instructor and develop self-study techniques of using movies to enhance their English abilities. Based on the themes of the movies, the instructor designs tasks to increase students' English vocabulary, improve their English listening/speaking skills, and raise their awareness of English cultures. More importantly, through the classroom tasks and after-class assignments, students are expected to become familiar with the techniques of using movies to boost their English proficiency.	學生將從教師選擇的電影中學習地道的英語和文化，並利用電影提高英語能力的自學技巧。根據電影的主題，教師設計任務來增加學生的英語詞彙量，提高英語聽/說能力，並提高他們對英語文化的認識。更重要的是，通過課堂任務和課後作業，學生應該熟悉使用電影來提高他們英語水平的技巧。	2	Elective Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	2	A	看電影學英文 (進階英文-中級)	Learning English and Culture through Movies (Intermediate)	Students will learn authentic English language and culture from the movies selected by the instructor and develop self-study techniques of using movies to enhance their English abilities. Based on the themes of the movies, the instructor designs tasks to increase students' English vocabulary, improve their English listening/speaking skills, and raise their awareness of English cultures. More importantly, through the classroom tasks and after-class assignments, students are expected to become familiar with the techniques of using movies to boost their English proficiency.	學生將從教師選擇的電影中學習地道的英語和文化，並利用電影提高英語能力的自學技巧。根據電影的主題，教師設計任務來增加學生的英語詞彙量，提高英語聽/說能力，並提高他們對英語文化的認識。更重要的是，通過課堂任務和課後作業，學生應該熟悉使用電影來提高他們英語水平的技巧。	2	Elective Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	2	B	看電影學英文 (進階英文-中級)	Learning English and Culture through Movies (Intermediate)	Students will learn authentic English language and culture from the movies selected by the instructor and develop self-study techniques of using movies to enhance their English abilities. Based on the themes of the movies, the instructor designs tasks to increase students' English vocabulary, improve their English listening/speaking skills, and raise their awareness of English cultures. More importantly, through the classroom tasks and after-class assignments, students are expected to become familiar with the techniques of using movies to boost their English proficiency.	學生將從教師選擇的電影中學習地道的英語和文化，並利用電影提高英語能力的自學技巧。根據電影的主題，教師設計任務來增加學生的英語詞彙量，提高英語聽/說能力，並提高他們對英語文化的認識。更重要的是，通過課堂任務和課後作業，學生應該熟悉使用電影來提高他們英語水平的技巧。	2	Elective Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	2	A	看電影學英文 (進階英文-中級)	Learning English and Culture through Movies (Intermediate)	The purpose of this course is to enhance student's listening and speaking abilities by watching videos.	本課程藉由觀看英語短片增進學生的英文聽力和會話能力	2	Elective Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	2	B	職場英語 (進階英文-中級)	Workplace English (Intermediate)	This course is designed to give students the knowledge and confidence necessary to handle daily business affairs in their future workplace. The course will cover many real-life business situations that professionals would encounter. These every-day situations include not only social interactions but also practical transactions. After course completion, students will have developed sufficient vocabulary and listening comprehension skills to write and speak English effectively in key commercial communication areas.	本課程介紹並引導學生能應用於職場上各類商務情境的溝通技巧，目標是增進學生在職場上的英文溝通能力、溝通技巧的培養及廣大知識的取得，讓學生在職場生涯能獲得成功勝利。本課程的最終目標是幫助學生能更順利及更有自信地使用職場語言，增加職場成功的遠景。	2	Elective Course	大學部英語課程(原外語中心)	SDG3、SDG4、SDG5、SDG8、SDG12
2021	Undergraduate	2	B	觀光英語 (進階英文-中級)	Tourism English (Intermediate)	Strengthen and enhance tourism English abilities of listening, speaking, reading, writing and vocabulary.	加強與提升旅遊英文的聽說讀寫和字彙能力	2	Elective Course	大學部英語課程(原外語中心)	SDG3、SDG4、SDG10、SDG11、SDG12、SDG17
2021	Undergraduate	2	A	觀光英語 (進階英文-中級)	Tourism English (Intermediate)	The aim for this course is help students understand English focused on tourism and be able to speak it out as they have an opportunity to travel abroad.	該課程的目的是幫助學生理解以旅遊為重點的英語，並在有機會出國旅遊時能夠將其說出來。	2	Elective Course	大學部英語課程(原外語中心)	SDG1、SDG2、SDG8、SDG9、SDG14
2021	Undergraduate	2	A	觀光英語 (進階英文-中級)	Tourism English (Intermediate)	While learners study a language, they are expected to be able to learn the most with the awareness of their learning autonomy and the willingness to express themselves actively in learning processes. Thus, based on that, this class will help students to improve skills necessary for better successful English communication, listening and speaking, through the use of English as the medium of instruction, the use of DVD / CD, and other classroom interactive activities. This will acclimate their ears to understanding spoken English easily, and oral practices will increase their speaking fluency. In order to master English as a tool of verbal communication, emphasis will also be included on developing native-like vocabulary (idioms), speech patterns, and pronunciation. In addition, there will be frequent classroom discussions.	藉由輕鬆活潑的教學方式 幫助同學練習旅遊聽力與口說 上課中會使用影片訓練同學聽力 營造出更實際的生活對話內容	2	Elective Course	大學部英語課程(原外語中心)	SDG1、SDG2、SDG8、SDG9、SDG14
2021	Undergraduate	2	B	觀光英語 (進階英文-中級)	Tourism English (Intermediate)	While learners study a language, they are expected to be able to learn the most with the awareness of their learning autonomy and the willingness to express themselves actively in learning processes. Thus, based on that, this class will help students to improve skills necessary for better successful English communication, listening and speaking, through the use of English as the medium of instruction, the use of DVD / CD, and other classroom interactive activities. This will acclimate their ears to understanding spoken English easily, and oral practices will increase their speaking fluency. In order to master English as a tool of verbal communication, emphasis will also be included on developing native-like vocabulary (idioms), speech patterns, and pronunciation. In addition, there will be frequent classroom discussions.	藉由輕鬆活潑的教學方式 幫助同學練習旅遊聽力與口說 上課中會使用影片訓練同學聽力 營造出更實際的生活對話內容	2	Elective Course	大學部英語課程(原外語中心)	SDG3、SDG4、SDG10、SDG11、SDG12、SDG17
2021	Undergraduate	2	B	新聞英文（進階英文-中級）	Journalistic English (Intermediate)	This course aims to train students' language skills about news English. Students will learn news vocabulary and styles of news English, be able to read, understand, and talk about news in English, and also improve their comprehension skills when reading English newspapers, articles, and magazines and listening to English news.	本課程旨在訓練學生關於新聞英語的語言能力。學生將學習新聞詞彙和新聞英語的風格，能夠用英語閱讀、理解和談論新聞，並在閱讀英語報紙、文章和雜誌以及聽英語新聞時提高理解能力。	2	Elective Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	3	B	英文精進	Essential English	Business English is an essential skill for all middle and senior executives, and is an important learning program to train the next generation of talent. This course uses real-life videos to enhance students' English learning; at the same time, TOEIC listening questions and TOEIC reading questions will also be shown so that students can apply what they have learned in preparing for the TOEIC exam.	會議英語是所有中高階主管必須具備的能力，是為培養下一代人才的重要學習課程。本課程以真人實境的影片，來增進學生的英文學習; 同時，也會播放TOEIC (多益)聽力題庫及發放多益閱讀題庫，讓學生將學到的會議英文，應用在TOEIC (多益)考試的準備上。	0	Required Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	3	B	英文精進	Essential English	This course focuses on the development of reading and listening skills for the TOEIC exam, and introduces students to the Toeic questions, test-taking strategies, and videos on various topics. At the same time, CNN/BBC interactive videos are sometimes shown in class. The content of the videos is mainly business English and workplace English, which will not only help students to cope with the TOEIC exam, but also be beneficial to their future job search and career. In the class, students with high scores on the TOEIC exam will be invited to share their practical experience on how to prepare for the TOEIC exam.	本課程針對學校畢業門檻TOEIC (多益)考試的閱讀及聽力能力培養，帶領同學講解Toeic 題庫、應考策略及觀看各類型主題的影片。同時，課堂上有時也會播放CNN/BBC互動影片。影片內容以商用英文及職場英文為主，除了有助於學生應付TOEIC (多益)考試外，對未來求職及職場應對也裨益良多。課堂上，會請考取多益高分同學傳授如何準備多益考試及分享考試實戰經驗。	0	Required Course	大學部英語課程(原外語中心)	SDG4
2021	Undergraduate	1	A	地方文化與社區營造	Local Culture and Community Development	1. Through lectures, group discussions, fieldwork and team presentations, this course aims to equip students with the knowledge of community building, place making and development of community clusters. 2. This course is based on the analysis and practice of the University's social responsibility practice sites. Learners are required to work in teams to complete social design-related planning reports and learning outcomes (e.g., community redevelopment projects...etc.) according to the characteristics and problems of the sites to help solve local problems and fulfill the University's social responsibility!	1.本課程透過講授、分組討論、場域田野調查和團隊成果發表等教學方式，培育學生具備社區營造、地方創生及發展社區聚落等知識。 2.本課程以大學社會責任實踐場域為分析及實踐對象，學習者須根據場域特色與問題，以團隊方式製作完成社會設計相關規劃報告及學習成果（例如：社區再發展計畫…等），協助地方解決問題，實踐大學社會責任！	2	Elective Course	海洋文創設計產業學士學位學程	SDG8、SDG12
2021	Undergraduate	1	A	行銷學	Marketing	The goal of this course is to: 1. To help students understand the theoretical knowledge of marketing and related practical issues. 2. To develop students' ability to analyze and solve marketing management problems. 3. To develop students' ability to make presentations on stage.	本課程的目標： 1.幫助學生了解行銷學的理論知識及相關的實務議題。 2.培養學生分析與解決行銷管理問題的能力。 3.培養學生上台簡報的能力。	2	Elective Course	海洋文創設計產業學士學位學程	SDG3、SDG7、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG16、SDG17
2021	Undergraduate	1	A	計算機概論	Introduction to Computer Science	The course content is based on the extended application of electronic carriers as the main axis of the course, planning the three major directions of computer theory, network and communication and life applications, especially to strengthen the design students required for the application of Internet carriers in life, planning the study of online website architecture platform (wix, weebly), in addition to familiar with the development of electronic carriers, but also take into account the development of practical applications of design.	本課程內容以電子載體延伸應用為主要課程主軸，規劃電腦概論、網路與通訊與生活應用三大方向，特別加強設計科系學生所需之網路載體生活應用，規劃網上網站架構平台(wix, weebly)學習，除熟悉電子載體發展的脈絡之餘, 亦兼顧設計實務上的發展應用。	2	Required Course	海洋文創設計產業學士學位學程	SDG9
2021	Undergraduate	1	A	應用統計學	Applied Statistics	This course is designed to develop students' basic concepts of statistics and to establish their ability to summarize, analyze, synthesize and make judgments on data.	本課程主要在於培養學生統計學之基本概念，以奠定學生對數據資料的歸納分析、綜合與判斷之能力；並期學生熟悉統計學常用之電腦套裝軟體，以能將各項技能靈活應用於後續相關課程及實務上。	2	Elective Course	海洋文創設計產業學士學位學程	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	2	A	海洋書寫與傳說	Ocean Writing and Myth	(1) Emotional aspect: In line with the University's teaching direction of developing "ocean", we hope to enable students to understand the emotions or philosophies of life that Chinese writers had when they faced the ocean through reading marine writings and legends in Chinese literature, and to apply what they have learned to their own observations, thoughts, and emotional experiences of the marine environment around them, so that they can cultivate a "marine vision and humanistic care of the people of the University". (2) Awareness: Through reading, interpreting, analyzing and appreciating the distinctive marine writing (connotation and formal techniques) of Chinese literature in different time periods, students will be able to systematically understand the development of Chinese literature in marine writing and its writing characteristics, and further enhance their ability to appreciate marine literature. (3) Skills: Although the course focuses on "reading", it is supplemented by training in "writing" (writing written reports, casual writing) and "oral presentation" (reporting on stage, casual presentation), so that students can improve their reading, writing, and oral presentation skills.	(一)情意方面：配合本校以發展「海洋」為特色的教學方向，期能透過閱讀中國文學中的海洋書寫與傳說，使學生瞭解中國文人面對海洋時所興發的情感或人生哲思，且能應用所學內涵落實至對一己周遭海洋環境的觀察、思維與情感體驗，進而培養出具「海洋視野與人文關懷的海大人」之素養。 (二)認知方面：期能透過對不同時空的中國文學作品各具特色的海洋書寫（內涵與形式技巧）的閱讀、詮釋、分析與鑑賞，使學生能系統地認識中國文學在海洋書寫方面的發展情況及其書寫特色，進而提昇學生對海洋文學的鑑賞能力。 (三)技能方面：課程內容雖以「閱讀」為主，仍會輔以「書寫」的訓練（撰寫書面報告、隨堂寫作）與「口語發表」的訓練（上台報告、隨堂指定發表），期能使學生在閱讀能力、寫作能力與口頭發表能力均有所提昇。	2	Required Course	海洋文創設計產業學士學位學程	SDG11、SDG14
2021	Undergraduate	2	A	消費者心理與行為	Consumer Psychology and Behavior	The goal of this course is to: 1. To help students understand the theoretical and practical knowledge related to consumer psychology and behavior. 2. To develop students' ability to apply "theoretical knowledge" to explore, analyze, and solve practical problems related to consumer behavior. 3. To develop students' ability to present on stage.	本課程的目標： 1.幫助同學了解消費者心理與行為相關的理論與實務知識。 2.培養同學應用「理論知識」，探索、分析、與解決消費者行為相關實務問題的能力。 3.培養學生上台簡報的能力。	2	Required Course	海洋文創設計產業學士學位學程	SDG3、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG16、SDG17
2021	Undergraduate	2	A	海洋人文地理實察	Marine Human Geography Field Course	1. To understand the concept of marine humanities 2. to understand Keelung's maritime culture through geographic survey 3. learn to explain the tour guide skills 4. to learn about tourism resources planning and itinerary arrangement	1. 了解海洋人文概念的概念 2. 透過地理實察瞭解基隆海洋人文 3. 學習解說導覽能力 4. 學習觀光資源規劃與行程安排	2	Required Course	海洋文創設計產業學士學位學程	SDG8
2021	Undergraduate	2	A	藝術管理與展示設計	Arts Management and Display Design	This course will introduce cultural policy and environment, museology and management, cultural assets, cultural industry and community master building, cultural and creative industries, arts management, performing arts, and public art, etc., so that students can understand the reference of the whole cultural and arts environment ecology. The exhibition design section is a practical course to showcase the concept of professionalism. This section will provide practical instruction on the curatorial process in both institutional and non-institutional settings, how to decide on a theme, collect data, smooth the administrative process, conduct story lines, space planning, design exhibition, marketing strategies, etc. The first part of the lecture will be followed by the second half of the lecture on "theme" as a practical exercise!	文化行政與藝術管理，牽涉的是文化內涵與藝術發展，行政牽涉到的即是執行單位「政府」及施政對象「人民」，管理牽涉到文化機構管理，包括規劃與組織、領導統御、品質管控、行銷、募款及藝企合作等。本課程將介紹文化政策與環境、博物館學與管理、文化資產、文化產業暨社區總體營造、文化創意產業、藝術管理、表演藝術、公共藝術等，讓學生能了解整個文化藝術環境生態的參考。 展示設計部分則是專業展現理念概念的實務操作課程，這個部分將會實際授與機構內與非機構內的策展流程實務，如何決定主題、搜集資料、順暢行政流程、進行故事線、空間規劃、設計展開、行銷策略等等，前部分講解後半部將以「主題」分作實務	2	Required Course	海洋文創設計產業學士學位學程	SDG11
2021	Undergraduate	2	A	基礎攝影	Basic photography	1. Familiar with the basic principles and operation of various cameras 2. Understand the difference between digital and traditional photography process 3.Practical exercises of portrait photography and cell phone photography 4. Introduce the concept of visual psychology to enhance the appreciation ability	1.熟悉各類相機的基本原理與操作 2.理解數位與傳統攝影流程的差異 3.人像攝影與手機攝影的實務練習 4.導入視覺心理概念提升鑑賞能力	2	Elective Course	海洋文創設計產業學士學位學程	SDG3
2021	Undergraduate	3	A	商事法	Commercial Law	Let students understand the basic concepts, important systems and court decisions of Company Law and Law of Negotiable Instruments, with a view to protecting their rights in the future.	讓學生瞭解公司法、票據法的基本概念、重要制度以及實務見解，以期日後得以維護自身權益。	2	Elective Course	海洋文創設計產業學士學位學程	SDG16
2021	Undergraduate	1	1	國文（上）（國文領域）	Chinese (I)	(1) The goal of this course is to enhance students' ability to write and appreciate various genres of literature. (2) Through the interpretation and appreciation of classical texts, students will understand the Chinese humanistic tradition and cultivate their humanistic qualities. (3) Through discussion, writing, and observation, students will improve their ability to think and express themselves in a variety of languages. (4) Through in-depth reading and analysis of literary consciousness and life awareness, students will be guided to develop a correct outlook on life. (5) In line with the University's teaching characteristics of promoting maritime studies, students will read the ocean from a humanistic perspective in order to inspire them to care about maritime culture.	【教學目標】 （一）、本課程之教學目標，在於提升學生語文寫作及鑑賞各類文體的能力。 （二）、通過經典文本的講解賞析，使學生瞭解中國的人文傳統，並培育學生的人文素養。 （三）、透過討論、寫作與觀摩，以增進學生多元思辨及語文表達能力。 （四）、透過文學自覺與生命意識的深入閱讀與分析，輔導學生能建立正確的人生觀。 （五）、配合本校弘揚海洋學術之教學特色，從人文角度閱讀海洋，以啟發學生對海洋文化的關懷。	2	Required Course	共同教育中心語文教育組	SDG1、SDG2、SDG3、SDG4、SDG5、SDG6、SDG7、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG14、SDG15、SDG16、SDG17
2021	Undergraduate	1	T	國文（上）（國文領域）	Chinese (I)	Through reading the classics of thinkers and writers, students will not only improve their language skills, but also reflect on their own life situations and attitudes towards others, so that the classics can be integrated into their own lives. In addition, through discussions, reports, and multi-media teaching, we hope to train students' ability to coordinate and communicate, as well as to express themselves orally and communicate through images.	透過閱讀思想家、文學家之經典作品，除能增進同學語文能力的基礎，並能反思己身生命處境，及待人處事態度，使經典得以融入個人生命。另外也希望透過討論、報告、多媒體教學等方式，訓練同學協調溝通及口語表達、影像傳播等能力。	2	Required Course	共同教育中心語文教育組	SDG4
2021	Undergraduate	1	P	國文（上）（國文領域）	Chinese (I)	Through reading the classics of thinkers and writers, students will not only improve their language skills, but also reflect on their own life situations and attitudes towards others, so that the classics can be integrated into their own lives. In addition, through discussions, reports, and multi-media teaching, we hope to train students' ability to coordinate and communicate, as well as to express themselves orally and communicate through images.	透過閱讀思想家、文學家之經典作品，除能增進同學語文能力的基礎，並能反思己身生命處境，及待人處事態度，使經典得以融入個人生命。另外也希望透過討論、報告、多媒體教學等方式，訓練同學協調溝通及口語表達、影像傳播等能力。	2	Required Course	共同教育中心語文教育組	SDG4
2021	Undergraduate	1	J	國文（上）（國文領域）	Chinese (I)	Through a " life" based teaching philosophy and new teaching strategies, and in line with the University's self-positioning as a "comprehensive research university with maritime characteristics" and the basic quality of cultivating "people with maritime vision and humanistic care", it is expected that through reading, interpreting, appreciating, and writing literary works in different time periods and genres, students will be able to appreciate the writers' explanations of their own origins and life experiences. Through reading, interpreting, appreciating, and writing in different literary styles, students will be able to appreciate the writers' explanations of their own origins and life experiences, and further understand the emotional experiences, memories, and life experiences hidden in the texts, achieving the goal of integrating senses and thinking, intellectuality and sensibility, and aesthetics and philosophy. In this way, students will strengthen their Chinese reading and writing skills, cultivate a broad vision of the world, and achieve the goal of enhancing their aesthetic life and humanistic care.	透過以「生命」為本的教學理念、全新的教學策略，並配合本校以「具有海洋特色之綜合型研究大學」之自我定位、培養「具海洋視野與人文關懷的海大人」之基本素養，預期透過不同時空、文類風格等文學作品的閱讀、詮釋、鑑賞、書寫，使學生能鑑賞作家對自身出處得失與生命歷程的闡述，更進而瞭解蘊藏於文字之間的情感體驗、回憶與生命經驗，達成陶冶學生感官與思維結合、知性與感性並重、美學與哲學兼具的目標；指導並激發學生運用觀察、思辨、批判等能力，應用所學內涵落實至周遭生活的具體行動與人事物的多方關照。藉此加強學生之中文閱讀與書寫之能力，培養學生關照他我世界的宏觀視野，並達成提升學生美學生活、人文關懷的目標。	2	Required Course	共同教育中心語文教育組	SDG4
2021	Undergraduate	1	N	國文（上）（國文領域）	Chinese (I)	Through a " life" based teaching philosophy and new teaching strategies, and in line with the University's self-positioning as a "comprehensive research university with maritime characteristics" and the basic quality of cultivating "people with maritime vision and humanistic care", it is expected that through reading, interpreting, appreciating, and writing literary works in different time periods and genres, students will be able to appreciate the writers' explanations of their own origins and life experiences. Through reading, interpreting, appreciating, and writing in different literary styles, students will be able to appreciate the writers' explanations of their own origins and life experiences, and further understand the emotional experiences, memories, and life experiences hidden in the texts, achieving the goal of integrating senses and thinking, intellectuality and sensibility, and aesthetics and philosophy. In this way, students will strengthen their Chinese reading and writing skills, cultivate a broad vision of the world, and achieve the goal of enhancing their aesthetic life and humanistic care.	透過以「生命」為本的教學理念、全新的教學策略，並配合本校以「具有海洋特色之綜合型研究大學」之自我定位、培養「具海洋視野與人文關懷的海大人」之基本素養，預期透過不同時空、文類風格等文學作品的閱讀、詮釋、鑑賞、書寫，使學生能鑑賞作家對自身出處得失與生命歷程的闡述，更進而瞭解蘊藏於文字之間的情感體驗、回憶與生命經驗，達成陶冶學生感官與思維結合、知性與感性並重、美學與哲學兼具的目標；指導並激發學生運用觀察、思辨、批判等能力，應用所學內涵落實至周遭生活的具體行動與人事物的多方關照。藉此加強學生之中文閱讀與書寫之能力，培養學生關照他我世界的宏觀視野，並達成提升學生美學生活、人文關懷的目標。	2	Required Course	共同教育中心語文教育組	SDG3、SDG4、SDG5、SDG10、SDG11、SDG16
2021	Undergraduate	1	H	國文（上）（國文領域）	Chinese (I)	Through a " life" based teaching philosophy and new teaching strategies, and in line with the University's self-positioning as a "comprehensive research university with maritime characteristics" and the basic quality of cultivating "people with maritime vision and humanistic care", it is expected that through reading, interpreting, appreciating, and writing literary works in different time periods and genres, students will be able to appreciate the writers' explanations of their own origins and life experiences. Through reading, interpreting, appreciating, and writing in different literary styles, students will be able to appreciate the writers' explanations of their own origins and life experiences, and further understand the emotional experiences, memories, and life experiences hidden in the texts, achieving the goal of integrating senses and thinking, intellectuality and sensibility, and aesthetics and philosophy. In this way, students will strengthen their Chinese reading and writing skills, cultivate a broad vision of the world, and achieve the goal of enhancing their aesthetic life and humanistic care.	透過以「生命」為本的教學理念、全新的教學策略，並配合本校以「具有海洋特色之綜合型研究大學」之自我定位、培養「具海洋視野與人文關懷的海大人」之基本素養，預期透過不同時空、文類風格等文學作品的閱讀、詮釋、鑑賞、書寫，使學生能鑑賞作家對自身出處得失與生命歷程的闡述，更進而瞭解蘊藏於文字之間的情感體驗、回憶與生命經驗，達成陶冶學生感官與思維結合、知性與感性並重、美學與哲學兼具的目標；指導並激發學生運用觀察、思辨、批判等能力，應用所學內涵落實至周遭生活的具體行動與人事物的多方關照。藉此加強學生之中文閱讀與書寫之能力，培養學生關照他我世界的宏觀視野，並達成提升學生美學生活、人文關懷的目標。	2	Required Course	共同教育中心語文教育組	SDG3、SDG4、SDG5、SDG10、SDG11、SDG16

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	D	國文（上）（國文領域）	Chinese (I)	1.Through the exploration of classical texts, students will become familiar with the humanistic thinking process and gain a deeper understanding of the Chinese humanistic tradition. 2.Students will try to engage in dialogue with the works, integrate cultural awareness and social phenomena, and further reflect on their own lives, leading to the establishment of a mature outlook on life. 3.Through discussion and writing, students will strengthen their ability to think and express themselves in language. 4.In the process of learning and giving what he has learned, he constructs his own learning of life and recognizes that "knowledge is seen in practice".	（一）、通過經典文本的探索，使學生熟悉人文思維程序，並深度瞭解中國的人文傳統。 （二）、嘗試與作品對話，融入文化意識與社會百象，進而反省自我生命，導向成熟人生觀的建立。 （三）、透過討論與寫作，強化學生思辯能力及語文表達能力。 （四）、在學習知識與付出所學間，建構自己的生命學問，認同「知識在實踐中看見力量」。	2	Required Course	共同教育中心語文教育組	SDG4、SDG5、SDG11、SDG14
2021	Undergraduate	1	A	國文（上）（國文領域）	Chinese (I)	Through a " life" based teaching philosophy and new teaching strategies, and in line with the University's self-positioning as a "comprehensive research university with maritime characteristics" and the basic quality of cultivating "people with maritime vision and humanistic care", it is expected that through reading, interpreting, appreciating, and writing literary works in different time periods and genres, students will be able to appreciate the writers' explanations of their own origins and life experiences. Through reading, interpreting, appreciating, and writing in different literary styles, students will be able to appreciate the writers' explanations of their own origins and life experiences, and further understand the emotional experiences, memories, and life experiences hidden in the texts, achieving the goal of integrating senses and thinking, intellectuality and sensibility, and aesthetics and philosophy. In this way, students will strengthen their Chinese reading and writing skills, cultivate a broad vision of the world, and achieve the goal of enhancing their aesthetic life and humanistic care.	透過以「生命」為本的教學理念、全新的教學策略，並配合本校以「具有海洋特色之綜合型研究大學」之自我定位、培養「具海洋視野與人文關懷的海大人」之基本素養，預期透過不同時空、文類風格等文學作品的閱讀、詮釋、鑑賞、書寫，使學生能鑑賞作家對自身出處得失與生命歷程的闡述，更進而瞭解蘊藏於文字之間的情感體驗、回憶與生命經驗，達成陶冶學生感官與思維結合、知性與感性並重、美學與哲學兼具的目標；指導並激發學生運用觀察、思辨、批判等能力，應用所學內涵落實至周遭生活的具體行動與人事物的多方關照。藉此加強學生之中文閱讀與書寫之能力，培養學生關照他我世界的宏觀視野，並達成提升學生美學生活、人文關懷的目標。	2	Required Course	共同教育中心語文教育組	SDG3、SDG4、SDG5、SDG10、SDG11、SDG16
2021	Undergraduate	1	A	日文(一)	Japanese (I)	To know Japanese basic writing system hiragana and katakana. To learn about Japanese pronunciation rules. To learn basic greetings and basic sentence. To Develop interest in learning Japanese.	1認識日本基本文字系統平假名與片假名 2了解日語發音規則 3學習基本打招呼用語 4學習基本詞彙與基本句形 5培養學習日語的興趣。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG17
2021	Undergraduate	1	B	日文(一)	Japanese (I)	1. This course aims to build the foundation of Japanese language, including Japanese pronunciation, kana learning, common Kanji, and elementary grammar sentence patterns. Students will become familiar with Japanese pronunciation, kana, and common Kanji through Japanese vocabulary and grammar. Students will be able to use basic Japanese vocabulary and sentence patterns, and will be able to use dictionaries and related reference books to learn on their own. 2. To develop an international perspective through the Japanese language.	1.本課程以奠定日語的基礎，包括日語發音、假名學習、常用漢字、初級文法句型為主要目標。透過生活相關的日語單字，熟悉日語發音、假名及常用漢字；藉由日常生活常用之日語表達，學習日語句型文法。以期學生能逐步活用日語基礎單字及基本句型，並有自學能力能運用字典及相關參考書來自行學習。 2.透過日語培養國際視野。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG8、SDG9、SDG10、SDG11
2021	Undergraduate	1	C	日文(一)	Japanese (I)	To help students make their Basics listening, reading speaking and writing more effective by interesting style. Example as Orientation, Unit studies, Exercises Grammatical practice Writing practice, Instruction, Group discussion, presentations, in-class activities exercises, film learning watching, etc.	以有趣的日語遊戲學習方式與正確的標準東京音教授，奠定日語基礎，並以實用生動的題材提昇日語學習興趣。另外亦補充課外教材，如日語歌謠、日本當地風情民俗文化介紹、視聽教學等。著重基礎實用日常生活會話課程，期達成有效學習日語之聽、說、讀、寫等目標，以利將來學以致用之所需。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG8、SDG9、SDG10、SDG11、SDG17
2021	Undergraduate	1	B	日文(一)	Japanese (I)	To help students make their Basics listening, reading speaking and writing more effective by interesting style. Example as Orientation, Unit studies, Exercises Grammatical practice Writing practice, Instruction, Group discussion, presentations, in-class activities exercises, film learning watching, etc.	以有趣的日語遊戲學習方式與正確的標準東京音教授，奠定日語基礎，並以實用生動的題材提昇日語學習興趣。另外亦補充課外教材，如日語歌謠、日本當地風情民俗文化介紹、視聽教學等。著重基礎實用日常生活會話課程，期達成有效學習日語之聽、說、讀、寫等目標，以利將來學以致用之所需。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG8、SDG9、SDG10、SDG11
2021	Undergraduate	1	A	日文(一)	Japanese (I)	To know Japanese basic writing system hiragana and katakana. To learn about Japanese pronunciation rules. To learn basic greetings and basic sentence. To Develop interest in learning Japanese.	1認識日本基本文字系統平假名與片假名 2了解日語發音規則 3學習基本打招呼用語 4學習基本詞彙與基本句形 5培養學習日語的興趣。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG17
2021	Undergraduate	1	C	日文(一)	Japanese (I)	1. This course aims to build the foundation of Japanese language, including Japanese pronunciation, kana learning, common Kanji, and elementary grammar sentence patterns. Students will become familiar with Japanese pronunciation, kana, and common Kanji through Japanese vocabulary and grammar. Students will be able to use basic Japanese vocabulary and sentence patterns, and will be able to use dictionaries and related reference books to learn on their own. 2. To develop an international perspective through the Japanese language.	1.本課程以奠定日語的基礎，包括日語發音、假名學習、常用漢字、初級文法句型為主要目標。透過生活相關的日語單字，熟悉日語發音、假名及常用漢字；藉由日常生活常用之日語表達，學習日語句型文法。以期學生能逐步活用日語基礎單字及基本句型，並有自學能力能運用字典及相關參考書來自行學習。 2.透過日語培養國際視野。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG8、SDG9、SDG10、SDG11、SDG17
2021	Undergraduate	1	A	日文(二)	Japanese (Ⅱ)	1. Students will be able to familiarize themselves with the Japanese language and habits of daily life through the materials, develop their ability to use everyday Japanese and basic Japanese sentence patterns, and become familiar with the sentence patterns they have learned to express themselves in Japanese. 2. To develop an international perspective through the Japanese language.	1.學生能透過教材熟解日本人的日常生活用語及習慣，培養學生生活日語及基礎日語句型運用能力，熟練已學過的句型內容作日語表達。 2.透過日語培養國際視野。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG17
2021	Undergraduate	1	B	日文(二)	Japanese (Ⅱ)	1. Students will be trained to have advanced Japanese listening, speaking, reading, writing, and translating skills. 2. In addition to supplementing the course materials, the students will also practice sentence construction and conversation in class. 3. Through lively and advanced learning, students will gain a better understanding of the nature of Japanese culture and enhance their language skills and international perspective.	1.訓練學習者具備進階之日語聽說讀寫譯能力。 2.除了補充教材外，並進行隨堂造句習作與會話演練。 3.透過生動活潑的進階學習，期能更加理解日本文化的本質，以達成語文能力之加強與國際視野之提升。	2	Elective Course	共同教育中心語文教育組	SDG3、SDG4、SDG5、SDG8、SDG9、SDG10、SDG16、SDG17
2021	Undergraduate	1	A	日文(二)	Japanese (Ⅱ)	1. Students will be trained to have advanced Japanese listening, speaking, reading, writing, and translating skills. 2. In addition to supplementing the course materials, the students will also practice sentence construction and conversation in class. 4. Through lively and advanced learning, students will gain a better understanding of the nature of Japanese culture and enhance their language skills and international perspective.	1.訓練學習者具備進階之日語聽說讀寫譯能力。 2.除了補充教材外，並進行隨堂造句習作與會話演練。 3.透過生動活潑的進階學習，期能更加理解日本文化的本質，以達成語文能力之加強與國際視野之提升。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG17
2021	Undergraduate	1	C	日文(二)	Japanese (Ⅱ)	1. Students will be trained to have advanced Japanese listening, speaking, reading, writing, and translating skills. 2. In addition to supplementing the course materials, the students will also practice sentence construction and conversation in class. 5. Through lively and advanced learning, students will gain a better understanding of the nature of Japanese culture and enhance their language skills and international perspective.	1.訓練學習者具備進階之日語聽說讀寫譯能力。 2.除了補充教材外，並進行隨堂造句習作與會話演練。 3.透過生動活潑的進階學習，期能更加理解日本文化的本質，以達成語文能力之加強與國際視野之提升。	2	Elective Course	共同教育中心語文教育組	SDG3、SDG4、SDG5、SDG8、SDG9、SDG10、SDG11、SDG16
2021	Undergraduate	1	A	日文(三)	Japanese (Ⅲ)	1.This course aims to cultivate students' language skills, and at the same time, guide them to understand Japanese culture and explore Taiwanese culture, enhance their international perspective through intercultural dialogue, promote local care, and increase their understanding, appreciation, respect, and tolerance of multiple cultures. 2.Through grammatical analysis and sentence patterns, students will improve their Japanese language skills; supplemented by short Japanese texts, students will improve their reading skills, understand various issues of concern to Japanese society and the current situation, increase their understanding and attention to Japanese and international affairs, and guide their independent learning.	1.本課程的教學目標為培養學生日語能力，同時，引導學生了解日本文化、探索台灣文化，藉由不同文化間的對話，提升學生國際視野，促進在地關懷，增進對多元文化的深度理解、欣賞、尊重與包容。 2.透過文法解析、句型講解，提昇學生日語能力；並輔以日本短文，提昇學生日語文章閱讀能力，了解日本社會所關注的各項議題及現況，增加對日本及國際事務的理解與注意，引導學生自主學習。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG17
2021	Undergraduate	2	A	日文(三)	Japanese (Ⅲ)	1.This course aims to cultivate students' language skills, and at the same time, guide them to understand Japanese culture and explore Taiwanese culture, enhance their international perspective through intercultural dialogue, promote local care, and increase their understanding, appreciation, respect, and tolerance of multiple cultures. 2.Through grammatical analysis and sentence patterns, students will improve their Japanese language skills; supplemented by short Japanese texts, students will improve their reading skills, understand various issues of concern to Japanese society and the current situation, increase their understanding and attention to Japanese and international affairs, and guide their independent learning.	1.本課程的教學目標為培養學生日語能力，同時，引導學生了解日本文化、探索台灣文化，藉由不同文化間的對話，提升學生國際視野，促進在地關懷，增進對多元文化的深度理解、欣賞、尊重與包容。 2.透過文法解析、句型講解，提昇學生日語能力；並輔以日本短文，提昇學生日語文章閱讀能力，了解日本社會所關注的各項議題及現況，增加對日本及國際事務的理解與注意，引導學生自主學習。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	日文(四)	Japanese (4)	1.This course aims to cultivate students' language skills, and at the same time, guide them to understand Japanese culture and explore Taiwanese culture, enhance their international perspective through intercultural dialogue, promote local care, and increase their understanding, appreciation, respect, and tolerance of multiple cultures. 2.Through grammatical analysis and sentence patterns, students will improve their Japanese language skills; supplemented by short Japanese texts, students will improve their reading skills, understand various issues of concern to Japanese society and the current situation, increase their understanding and attention to Japanese and international affairs, and guide their independent learning.	1.本課程的教學目標為培養學生日語能力，同時，引導學生了解日本文化、探索台灣文化，藉由不同文化間的對話，提升學生國際視野，促進在地關懷，增進對多元文化的深度理解、欣賞、尊重與包容。 2.透過文法解析、句型講解，提昇學生日語能力；並輔以日本短文，提昇學生日語文章閱讀能力，了解日本社會所關注的各項議題及現況，增加對日本及國際事務的理解與注意，引導學生自主學習。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG17
2021	Undergraduate	1	A	日文(六)	Japanese (6)	1.This course aims to cultivate students' language skills, and at the same time, guide them to understand Japanese culture and explore Taiwanese culture, enhance their international perspective through intercultural dialogue, promote local care, and increase their understanding, appreciation, respect, and tolerance of multiple cultures. 2.Through grammatical analysis and sentence patterns, students will improve their Japanese language skills; supplemented by short Japanese texts, students will improve their reading skills, understand various issues of concern to Japanese society and the current situation, increase their understanding and attention to Japanese and international affairs, and guide their independent learning.	1.本課程的教學目標為培養學生日語能力，同時，引導學生了解日本文化、探索台灣文化，藉由不同文化間的對話，提升學生國際視野，促進在地關懷，增進對多元文化的深度理解、欣賞、尊重與包容。 2.透過文法解析、句型講解，提昇學生日語能力；並輔以日本短文，提昇學生日語文章閱讀能力，了解日本社會所關注的各項議題及現況，增加對日本及國際事務的理解與注意，引導學生自主學習。	2	Elective Course	共同教育中心語文教育組	SDG4、SDG17
2021	Undergraduate	1	A	觀光韓文(第二外語)	Travelling Korean	1.Learn practical non-formal (Korean tone of speaking) Korean. 2. Practice everyday conversation and sightseeing conversation that is more advanced than Korean I. 3. Develop practical language skills and learn the language of local tourism. 4.After learning sightseeing Korean, you will be able to speak simple everyday travel conversations.	1.學會實用的非格式體(韓文的說話語氣)韓文。 2.比韓文I進步的日常會話及觀光會話的練習。 3.培養實用語言能力及學會現地觀光用語。 4.學習觀光韓語後，會簡單的日常旅行關係會話。	2	Elective Course	共同教育中心語文教育組	SDG8
2021	Undergraduate	1	C	人工智慧概論	Introduction to Artificial Intelligence	This course introduces the meaning of artificial intelligence and how to develop artificial intelligence, then introduces the application methods and examples of artificial intelligence, and finally discusses the future development trend of artificial intelligence.	認識人工智慧的內涵並瞭解人工智慧開發的方法,進而介紹人工智慧的應用方式與實例,最後探討人工智慧的未來發展趨勢。	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	D	人工智慧概論	Introduction to Artificial Intelligence	This course introduces the basic concepts and applications of artificial intelligence, including expert systems, neural-like networks, fuzzy systems, genetic algorithms, and other basic principles.	介紹人工智慧之基本概念,包括專家系統,類神經網路,模糊系統,基因演算法等基本原理及應用.	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	S	人工智慧概論	Introduction to Artificial Intelligence	This course will introduce the basic concepts of artificial intelligence. Artificial intelligence is a science based on computer science, biology, psychology, linguistics, mathematics, and engineering. Due to the development of memory storage capacity and high-speed computing power, artificial intelligence will definitely develop various unimaginable abilities in the future. Nowadays, the application of AI is becoming more and more extensive, especially in the rapid change of computer hardware technology, which provides a new energy for the economic development of this era. With this course as the foundation, the course will be able to connect to the subsequent information foundation courses (including data structure, database system, data science and Python, etc.), intermediate courses (including machine learning, data exploration, web crawler, neural network, etc.) and advanced courses (including deep learning, Big Data technology, cluster framework parallel algorithm, Hadoop Spark, etc.) of the Department of Oceanography. Students will be able to use the latest AI technologies to solve problems in the marine environment, so that they can improve their ability in artificial intelligence information technology when combining marine science with information science.	本課程將介紹人工智慧的基本概念。人工智慧是以電腦科學、生物學、心理學、語言學、數學、工程學為基礎的科學，由於記憶儲存容量與高速運算能力的發展，人工智慧未來一定會發展出各種不可思議的能力。現今AI的應用領域也愈來愈廣泛，特別是在電腦硬體技術的高速變革，也因而為這個時代的經濟發展提供了一種全新的能量。 以本課程為基底下，將可銜接後續海洋系之資訊基礎課程(包含資料結構、資料庫系統、資料科學與Python等)、中階課程(包含機器學習、資料探勘、網頁爬蟲、神經網路等)和進階課程(包含深度學習、Big Data技術、叢集框架平行演算、Hadoop Spark等)。運用AI最新技術以解決海洋環境所面臨的相關問題，使學生在海洋科學結合資訊科學時，能提升人工智慧資訊技術的能力。	2	Required Course	共同教育中心博雅教育組	SDG3、SDG9
2021	Undergraduate	1	J	人工智慧概論	Introduction to Artificial Intelligence	The Artificial Intelligence (AI) era has arrived, and various services have been developed and applied in various fields. The main objective of this course is to integrate and introduce related AI application services, and invite experts from various fields to discuss the application of AI in various industries, share current experiences and analyze future trends. It is expected that students will understand the theories and practical work in the classroom, reduce the gap between learning and application, integrate different academic backgrounds through the management mode of thinking, and further develop cross-disciplinary abilities.	人工智慧(Artificial Intelligence, AI)時代已經來臨，各式各樣不同的服務已經發展並應用於各領域中，本課程主要目標為 整合並介紹相關AI應用服務，並邀請各領域專家對談AI在各產業的應用、現況經驗分享與未來趨勢分析。期望讓同學在課堂中了解相關之理論與作業實作之外，降低學用落差，透過管理的思惟模式整合不同的學理背景，進而培養跨域的能力。	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	B	人工智慧概論	Introduction to Artificial Intelligence	To enable students to understand artificial intelligence and implement its learning method.	讓學生了解人工智慧並實現其學習方式。	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	L	人工智慧概論	Introduction to Artificial Intelligence	Students will gain a basic understanding of artificial intelligence concepts and related technologies (e.g., heuristic algorithms, knowledge representation methods, machine learning, planning techniques, expert systems, etc.). In the future, the course can be connected to advanced courses in the department, such as: neural-like networks, machine learning, deep learning, big data analysis, and data exploration. In the future, students will be able to apply artificial intelligence methods to research related to marine science.	使學生對於人工智慧概念及相關技術(如：啟發式演算法、知識表示方法、機器學習、規劃技術、專家系統等)有基本之認識。日後，可銜接系上進階之相關課程，如：類神經網路、機器學習、深度學習、大數據分析以及資料探勘等。未來，學生能將人工智慧方法應用於海洋科學相關之研究。	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	K	人工智慧概論	Introduction to Artificial Intelligence	The Artificial Intelligence (AI) era has arrived, and various services have been developed and applied in various fields. The main objective of this course is to integrate and introduce related AI application services, and invite experts from various fields to discuss the application of AI in various industries, share current experiences and analyze future trends. It is expected that students will understand the theories and practical work in the classroom, reduce the gap between learning and application, integrate different academic backgrounds through the management mode of thinking, and further develop cross-disciplinary abilities.	人工智慧(Artificial Intelligence, AI)時代已經來臨，各式各樣不同的服務已經發展並應用於各領域中，本課程主要目標為整合並介紹相關AI技術、應用與服務，透過現況經驗分享與未來趨勢分析，期望讓同學在課堂中了解相關之理論與作業實作之外，降低學用落差，透過管理的思惟模式整合不同的學理背景，進而培養跨域的能力。	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	I	人工智慧概論	Introduction to Artificial Intelligence	Distance Learning Link:https://meet.jit.si/DecisiveDisciplinesCompensateNext Machine learning is the study that allows computers to adaptively improve their performance with experience accumulated from the data observed. The course teaches the most fundamental algorithmic, theoretical and practical tools that any user of machine learning needs to know.	遠距上課連結:https://meet.jit.si/DecisiveDisciplinesCompensateNext 機器學習是一項研究，它允許計算機利用觀察到的數據積累經驗，自適應地提高其性能。該課程講授任何機器學習用戶需要了解的最基本的算法、理論和實踐工具。	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	H	人工智慧概論	Introduction to Artificial Intelligence	This course covers fundamental theories, operation principles, and cutting-edge research in artificial intelligence.	本課程旨在介紹人工智慧的發展與應用。修課同學在課程結束後會對人工智慧技術有基本的認知。	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	E	人工智慧概論	Introduction to Artificial Intelligence	This course covers fundamental theories, operation principles, and cutting-edge research in artificial intelligence.	本課程旨在介紹人工智慧的發展與應用。修課同學在課程結束後會對人工智慧技術有基本的認知。	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	G	人工智慧概論	Introduction to Artificial Intelligence	This course will introduce the basic concepts and applications of artificial intelligence, including expert systems, neural-like networks, fuzzy systems, genetic algorithms, machine learning, deep learning, big data and AI applications.	本課程將介紹人工智慧之基本概念,包括專家系統,類神經網路,模糊系統,基因演算法,機器學習,深度學習,大數據與AI應用等基本原理及應用.	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	M	人工智慧概論	Introduction to Artificial Intelligence	This course is suitable for students with life science background to learn the introduction of artificial intelligence: 1. To enable students who do not have programming skills to understand the principles of artificial intelligence computing. 2. To be able to apply artificial intelligence software and hardware resources available on the market or on the Internet. 3. To train students to communicate and collaborate effectively with information or electrical engineers in the future.	適合生命科學背景同學來學習的人工智慧概論，因應學生的訓練背景與屬性，本課程設立以下三個大目標: 1.讓不具備程式設計能力的學生理解人工智慧之運算原理，2.能應用市面上或網路上之人工智慧軟硬體資源，3.訓練學生在將來能與資訊或電機工程師有效溝通與協作。	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	A	人工智慧概論	Introduction to Artificial Intelligence	This course introduces the basic concepts and applications of artificial intelligence, including expert systems, neural-like networks, fuzzy systems, genetic algorithms, and other basic principles.	介紹人工智慧之基本概念,包括專家系統,類神經網路,模糊系統,基因演算法等基本原理及應用.	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	F	人工智慧概論	Introduction to Artificial Intelligence	Basic Python programming and basic AI concepts.	具備基本的Python程式設計及AI基本概念。	2	Required Course	共同教育中心博雅教育組	SDG9
2021	Undergraduate	1	A	智慧財產權實務(科技)	Intellectual Property Rights Practices	This course is based on the theory of the Introduction to Intellectual Property Law, and teaches the important concepts in the Trademark Law and Patent Law, such as traditional and non-traditional trademarks, trademarks and logos, trademark examination and evaluation, functional and non-functional inventions, the principle of exhaustion of rights, parallel importation of genuine goods, and the priority system. In addition, he will discuss the methods and problems in the practical application of the current intellectual property legal system in China with the help of current cases.	立法院於民國九十六年一月九日三讀通過《智慧財產案件審理法》，同(九十六)年三月五日制定《智慧財產法院組織法》；施行至今已累積相當的實務案例。本課程以〈智慧財產權法概論〉先修課程之理論為基礎，進階教授《商標法》與《專利法》中的重要概念，如傳統與非傳統商標、商標與標章、商標審查與評定；職務上與非職務上發明、權利耗盡原則、真品平行輸入、優先權制度等。並舉時事案例探討我國現行智慧財產權法制，在實務應用層面的方法和問題。	2	General Course	共同教育中心博雅教育組	SDG8、SDG9、SDG16、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	智慧財產權實務(科技)	Intellectual Property Rights Practices	Teaching Objectives. (1) To understand intellectual property rights through daily practice cases. (2) To create intangible asset value by utilizing intellectual property rights. (3) To enhance personal and industrial competitiveness through the value of intangible assets.	教學目標： (一)藉由日常實務案例，瞭解智慧財產權。 (二)活用智慧財產權，創造無形資產價值。 (三)藉由無形資產價值，提升個人及產業競爭力。 課程概述、特色及與所選博雅領域之相關性： (一)過去我國產業能迅速成長，最主要係依賴國民的勤勞性、工資低廉、勞工穩定，然而隨著國民生活水準的提昇、民主意識之抬頭，已使國內各產業無法享有低廉工資、穩定勞工的條件，如何創意、創新、創業，提升個人及產業競爭力，為當今必須解決之課題。 (二)知識經濟時代有形資產(人、土地、資本)之重要性相對減弱，創造無形資產的核心競爭優勢成為主流(創新的品質、物品、技術、流程方法、品牌、行銷、營運模式等)。 (三)美國商務部2012年「智慧財產與美國經濟：產業聚焦」研究報告中指出，美國國內與IP密切相關之產業在2010年創造了至少5兆美元的GDP產值，同時更創造了2,710萬份工作機會。(四)全球新經濟時代，智慧財產權成為獲利主軸，研發創新及市場行銷成為營運主要活動，價值變成「行銷通路」、「市場資訊的掌握」、「智財研發成果」、「公司內部管理的know-how」。 (五) 500家代表性美國上市公司市值中有形與無形資產比率分析，1982年為62比38，1992年為38比62，2002年為13比87，顯見無形資產愈來愈重要。 (六)美國貿易代表署（USTR）針對中國大陸的「301調查」結果，判定大陸侵犯美國智慧財產權，美國總統川普2018年簽署總統備忘錄。對中國大陸輸美產品提高關稅，展開中美貿易戰爭，影響全球經濟發展。 (七)現在產業生存唯一不變的原則，就是天天創新改變，累積智慧資產；今天各行各業	2	General Course	共同教育中心博雅教育組	SDG8、SDG9、SDG16、SDG17
2021	Undergraduate	1	A	巨量資料分析與應用(全球)	Big Data Fundamentals	Introduction to Big Data Analytics, also an introductory course for AWS cloud services. It is also an initial point for AWS certifications.	本課程將針對大數據相關技術進行快速瀏覽，並培養學生數據分析思維，建立資料科學與大數據資料探勘的基本概念，結合產業案例的分析與實作，讓學生對於大數據的產業應用能建立概觀。並了解雲端服務基本運用結構，為考取專業證照建立基礎	2	General Course	共同教育中心博雅教育組	SDG4、SDG9、SDG11、SDG17
2021	Undergraduate	1	A	巨量資料分析與應用(全球)	Big Data Fundamentals	This course will provide students with a quick overview of Big Data related technologies, cultivate their thinking on data analysis, establish the basic concepts of data science and Big Data data exploration, and integrate the analysis and practice of industrial cases to enable students to establish an overview of industrial applications of Big Data.	本課程將針對大數據相關技術進行快速瀏覽，並培養學生數據分析思維，建立資料科學與大數據資料探勘的基本概念，結合產業案例的分析與實作，讓學生對於大數據的產業應用能建立概觀。	2	General Course	共同教育中心博雅教育組	SDG4、SDG9、SDG11、SDG17
2021	Undergraduate	1	A	性別文化與中國電影(人格)	Gender Culture and Chinese Films	Caring for the unequal treatment of gender issues in a male-centered culture. It exposes the gender implications and discrimination of Chinese culture and institutions, and brings the issue of patriarchal cultural institutions to social reflection.	關懷性別議題在一個男性中心的文化中受到不平等對待之情況。揭露中國文化與制度的性別意含與歧視，並使得父權文化體制的問題受到社會反思。	2	General Course	共同教育中心博雅教育組	SDG5、SDG10
2021	Undergraduate	1	B	性別文化與中國電影(人格)	Gender Culture and Chinese Films	Caring for the unequal treatment of gender issues in a male-centered culture. It exposes the gender implications and discrimination of Chinese culture and institutions, and brings the issue of patriarchal cultural institutions to social reflection.	關懷性別議題在一個男性中心的文化中受到不平等對待之情況。揭露中國文化與制度的性別意含與歧視，並使得父權文化體制的問題受到社會反思。	2	General Course	共同教育中心博雅教育組	SDG5、SDG10
2021	Undergraduate	1	A	人文、科學的相遇(科技)	The Encounter between Humanity and Science	This course is aimed to enable students to understand the relationship between the development of sciences and elements of humanity, and then to engage in the constructive dialogue between the natural sciences and the humanities. Consequently, the students can recognize that materials-oriented sciences and heart-mind humanity are not two parallel lines, and the motive forces of every life beings are not originated only from the natural sciences, but also from the understanding of everything in the universe.	此課程希望讓學生能了解科學發展和人文元素的關係，進而可以進行自然科學與人文深處的對話。希望學生體認物質自然與心靈人文不是兩條平行線，而每一個人生活的原動力不單單是從自然科學來，是從你瞭解了宇宙萬事萬物，統合起來的。	2	General Course	共同教育中心博雅教育組	SDG3、SDG4、SDG11、SDG13、SDG14、SDG16
2021	Undergraduate	1	A	海洋觀光旅遊實踐與規劃(人格)	Marine Tourism Practices and Plan	(a) Understand the concept of sustainable tourism development. (b) To understand the human and natural resources of Heping Island. (c) Understand the leisure and tourism needs of domestic and international visitors. (d) Be able to apply their expertise in planning the promotion of the International Tourism Island of Peace.	(a)瞭解永續觀光發展的概念。 (b)瞭解和平島人文與自然資源。 (c)瞭解國內外旅客休閒與觀光需求。 (d)能夠應用自身專長規劃和平島國際旅遊島推動方案。	2	General Course	共同教育中心博雅教育組	SDG4、SDG9、SDG11、SDG12、SDG14
2021	Undergraduate	1	A	影像配樂編曲製作(美學)	Music Composing and Arranging for Film and Video	Composing and arranging are the most comprehensive and complete application of musical art expression in personal self-representation, and also the most extensive and complex in the field of music related. Through the technical understanding and execution of scales, harmonies, counterpoint, etc., and the multi-layered organization of instrumental progressions, the core creativity is naturally integrated with it to produce the message that one expects to convey, with rational fusion of sensibility, which can enrich the narrative, diversify the appearance, and express a powerful and deep inner language. This course focuses on the common ground of technical practice, creative inspiration, genre experimentation, and audio-visual work appreciation experience to achieve the breadth of students' possibilities through self-realization in this field.	論作曲，及編曲，為音樂藝術表達於個人自我呈現中，層最為全面，完整之應用途徑，同時在音樂相關領域中，範圍亦牽涉最為廣闊，繁複多樣。經由對音階，和聲，對位等，及多層次樂器行進組織的技術認識，執行，至將核心創意與之自然結合，產生將自身所期待傳遞的訊息，以理性融合感性，可豐富敘述，多樣貌，表達強大和深層的內在語言。 舉凡流行音樂，交響樂，室內樂，電影，影像音樂等，技術與創意皆各有其方向特殊性，本課程著重於針對共同基礎進行技巧實作練習，創意啟發，類型嘗試，影音作品欣賞體驗，達成學生透過此領域自我實現其可能性的廣度。	2	General Course	共同教育中心博雅教育組	SDG4、SDG10
2021	Undergraduate	1	A	影像配樂編曲製作(美學)	Music Composing and Arranging for Film and Video	Composing and arranging are the most comprehensive and complete application of musical art expression in personal self-representation, and also the most extensive and complex in the field of music related. Through the technical understanding and execution of scales, harmonies, counterpoint, etc., and the multi-layered organization of instrumental progressions, the core creativity is naturally integrated with it to produce the message that one expects to convey, with rational fusion of sensibility, which can enrich the narrative, diversify the appearance, and express a powerful and deep inner language. This course focuses on the common ground of technical practice, creative inspiration, genre experimentation, and audio-visual work appreciation experience to achieve the breadth of students' possibilities through self-realization in this field.	論作曲，及編曲，為音樂藝術表達於個人自我呈現中，層最為全 面，完整之應用途徑，同時在音樂相關領域中，範圍亦牽涉最為廣闊，繁複多樣。經由對音階，和聲，對位等，及多層次樂器行進組織的技術認識，執行，至將核心創意與之自然結合，產生將自身所期待傳遞的訊息，以理性融合感性，可豐富敘述，多樣貌，表達強大和深層的內在語言。 舉凡流行音樂，交響樂，室內樂，電影，影像音樂等，技術與創意皆各有其方向特殊性，本課程著重於針對共同基礎進行技巧實作練習，創意啟發，類型嘗試，影音作品欣賞體驗，達成學生透過此領域自我實現其可能性的廣度。	2	General Course	共同教育中心博雅教育組	SDG4、SDG10
2021	Undergraduate	1	A	面對AI智能機器人的時代(科技)	Facing the era of AI intelligent robots	In the past few years, the rapid development of artificial intelligence (AI) and robotics has had a shocking impact on the world. Many people misunderstand that it is a matter for technology professionals, but they do not know that the automobile was introduced to the world a hundred years ago, and now it has become a common knowledge, knowledge and skills that people need to know, and the creativity that can be used in countless fields requires the participation of the public, business, arts, management, law and regulations.... We hope that students will hear about the future of this profession from the past and the present, and that they will be able to talk about, deduce, imagine, and discuss the professional direction of each department... and even the vast and endless needs of a country, such as the fundamental source of global warming and climate change: the global population explosion, etc., and provide an understanding of the expectations of the parties. It is important for university students to face and think about the infinite space of imagination for the rest of their lives. At this time, we hope that this general education course will open students' eyes and ears, stimulate their own lively thoughts according to the initial organization and classification of the teaching materials, and extend their professional studies in various departments, so that they can practice their creativity at any time: if AI robots can..., me natural man can....	這幾年來，人工智能（AI）及機器人的快速發展，已對全世界產生驚人的震撼。許多人誤解那是科技專業人士的事，殊不知百年前汽車現世，至今已成為一般人普遍需知的常識、知識及技能，在無數領域中發揮運用的創意，更需要公商、藝文、管理、法規…無邊的參與，AI機器人必將一樣。通識課，當然意不在專業訓練，而是希望學生聽聞此一專業從過去、現在的概貌來看未來，並針對各科系專業方向來講述、推演、遙想、討論…，甚至大至一國之廣大無盡的需求，直至如地球暖化、氣候變遷的根本源頭：全球人口爆增等，提供了解方的期望等等，提醒大學生該去面對，並終身思考那無窮想像的空間，養成在學校以至出社會都必須隨時觀聽反應這件事，才不致被殘酷淘汰，反能在各行各業永遠站在世代的前鋒。值此之際，期望本通識課程開啓學生耳目，依據教材的初步整理分類，激盪自我活潑的思想，延伸在各系的專業學習，隨時操練天馬行空及如何自處的創意：如果AI機器人能…，me自然人則…。	2	General Course	共同教育中心博雅教育組	SDG4、SDG8、SDG9、SDG11、SDG13、SDG16、SDG17
2021	Undergraduate	1	A	硬筆書法與書道美學(美學)	Hardink Calligraphy and Aesthetics of Traditional Calligraphy	Through the introduction of examples and practical exercises, students will be able to master the basic aesthetics and appreciation of writing, and bring in the aesthetics of shape, line and space through hard brush writing. (Open to 10 students on site for countersigning)	課堂透過範例介紹與實務操作，讓同學具備掌握文字書寫的基本美學觀與鑑賞能力，並透過硬筆書寫帶入文字造形、線條與空間美學，同時賞析歷代書法名家之古典與經典。	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	硬筆書法與書道美學(美學)	Hardink Calligraphy and Aesthetics of Traditional Calligraphy	Through the introduction of examples and practical exercises, students will be able to master the basic aesthetics and appreciation of writing, and bring in the aesthetics of shape, line and space through hard brush writing.	課堂透過範例介紹與實務操作，讓同學具備掌握文字書寫的基本美學觀與鑑賞能力，並透過硬筆書寫帶入文字造形、線條與空間美學，同時賞析歷代書法名家之古典與經	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	臺灣美術與社會(美學)	Taiwan Art and Society	The course aims at Taiwanese art before and after the Japanese occupation, and explores the deep cultivation and development of local artists in the former immigrant art and the latter colonial art, and then looks at Japanese and Western art history from Japanese Taiwanese art.	課程以日治前、後的臺灣美術為目標，探討本土藝術家於前者移民美術，和後者殖民美術的深耕與發展，再從日治臺灣美術看日本、西洋美術史，可發現臺灣透過日本來理解歐洲後期印象派以後的風尚，並能銜接對西洋美術的理解，進程探討臺灣現代與當代藝術與社會、區域的美學。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	臺灣美術與社會(美學)	Taiwan Art and Society	The course aims at Taiwanese art before and after the Japanese occupation, and explores the deep cultivation and development of local artists in the former immigrant art and the latter colonial art, and then looks at Japanese and Western art history from Japanese Taiwanese art. (Open to 10 students on site for countersigning)	課程以日治前、後的臺灣美術為目標，探討本土藝術家於前者移民美術，和後者殖民美術的深耕與發展，再從日治臺灣美術看日本、西洋美術史，可發現臺灣透過日本來理解歐洲後期印象派以後的風尚，並能銜接對西洋美術的理解，進程探討臺灣現代與當代藝術與社會、區域的美學。 (開放現場10位同學加簽)	2	General Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	A	物聯網實務應用(科技)	Practices for Internet of Things	With control system from Internet of Things, this class will guide the attendee to create a practical system. In this class, Raspberry will be the target system, besides, web, database, Restful API will also be applied as control system. Then we will have a practical system in the end of the class, attendee can combine the subjects in their focus to define the final project.	本課程旨在引導同學了解物聯網的架構，並學習以物聯網的控制裝置(本課程會以Raspberry作為練習裝置)製作出可控制各種感應器的系統，再搭配網站與資料庫、Restful API、App, 製作出可透過手機遙控的物聯網系統，該系統可以依照修課同學的科系訂定題目，結合不同系所的主題進行發揮。	2	General Course	共同教育中心博雅教育組	SDG4、SDG7、SDG10、SDG13、SDG17
2021	Undergraduate	1	A	物聯網實務應用(科技)	Practices for Internet of Things	With control system from Internet of Things, this class will guide the attendee to create a practical system. In this class, Raspberry will be the target system, besides, web, database, Restful API will also be applied as control system. Then we will have a practical system in the end of the class, attendee can combine the subjects in their focus to define the final project.	本課程旨在引導同學了解物聯網的架構，並學習以物聯網的控制裝置(本課程會以Raspberry作為練習裝置)製作出可控制各種感應器的系統，再搭配網站與資料庫、Restful API、App, 製作出可透過手機遙控的物聯網系統，該系統可以依照修課同學的科系訂定題目，結合不同系所的主題進行發揮。	2	General Course	共同教育中心博雅教育組	SDG4、SDG7、SDG10、SDG13、SDG17
2021	Undergraduate	1	A	傳承與創新--王光祥講座(全球)	Inheritance and Innovation	1. to combine theoretical and practical experiences, and to cultivate students with a broad perspective. 2. to provide students with an understanding of the development mechanism and trends of contemporary Taiwan society through multifaceted discussions of practical cases. 3. To enrich students' knowledge and experience, strengthen their understanding of the world, and increase their appreciation of the meaning and value of life.	1. 結合理論與實務經驗探討、培養學生具備廣闊視野。 2. 實際案例的多元討論，讓學生了解當代台灣社會發展機制及趨勢。 3. 豐富學生的知能與經驗，強化對世界的理解、增加對生活意義和價值的體悟	2	General Course	共同教育中心博雅教育組	SDG1、SDG4、SDG16、SDG17
2021	Undergraduate	1	A	海洋急救與健康促進(科技)	First Aid and Health Promotion in Marine Medicine	Teaching Objectives: 1. To enhance the knowledge and skills of self-health care and emergency medical care. 2. To promote self-systematic health care knowledge, basic life-saving concepts, related ethics and laws, etc. 3. To promote comprehensive health care and emergency medical care education, and to link the concepts of health care. To create a healthy environment, create a healthy and vibrant campus, and enhance the health promotion and well-being of students.	教學目標 1.提升自我健康照顧、緊急醫療照護知識與技能。 2.促進自我系統性健康照護知識、基本救 命術之概念、相關倫理與法律等。 3.推展全面性健康照護、緊急醫療救護教育，並以健康照護概念與接軌。從而塑造健康的環境，營造健康活力校園，增進學生之健康促進福祉。	2	General Course	共同教育中心博雅教育組	SDG3、SDG4
2021	Undergraduate	1	A	海洋生態與全球變遷(自然)	Marine Ecology and Global Change	Students will learn about the types and functions of the marine ecosystem and the impact of global change on the marine ecosystem. By cultivating students' knowledge and love of the sea, we hope to inspire their passion for marine science research.	使學生了解海洋生態環境的種類與功能，以及全球變遷對海洋生態環境的衝擊。希望藉由培養學生知海、愛海的情操，進而啟發其投身海洋科學研究的熱情。	2	General Course	共同教育中心博雅教育組	SDG13、SDG14
2021	Undergraduate	1	B	傳播倫理與媒體素養(民主)	Communication Ethics and Media Literacy	Communication ethics is a set of guidelines and ethical norms that address the impact of the actions of media practitioners on the recipients of their content; media literacy is not a professional media education, but rather a media education that addresses the general public's use, analysis, evaluation, and production of information. With the growing importance and influence of the media, media ethics education and media literacy has become a lifelong learning issue that is essential to everyday life and is relevant to the building of democracy, the rule of law, and civic awareness. The course covers topics ranging from media professional autonomy, freedom of expression, and social responsibility to fake news, media trustworthiness, embedded marketing, advertising and viewership, near-use rights and media oversight, and media literacy and behavior, as well as major cases, key issues, self-regulation, accountability mechanisms, policies and regulations, media trust crises, and solutions for different media industries involved in communication ethics with various new forms of media. Students will learn about the core concepts of communication ethics, and the thinking and judgment, communication and expression, and media literacy skills needed in the age of multimedia.	假新聞全球肆虐，分不清新聞的真假，如何面對後真相時代的亂象？假新聞該誰管？誰能管？管不管得了？真正解決問題的途徑為何？長期以來，電視收視率掛帥、羶色腥內容、業配/廣告置入新聞，媒體可信度如何維持？該誰把關？如何判斷新聞價值？提升媒體專業品質如何可能？而隨著傳播科技發展，社群平台日新月異，在人人都可以是記者，每個人都能報導新聞、自行傳播內容的網路時代，媒體的公信及專業，與一般人何異？後真相時代來臨，培養具媒體素養的公民、耳聰目明的閱聽人，無疑是傳播媒體改革相當重要的動能之一。 傳播倫理（Communication Ethics）是針對媒體從業人員傳播內容行為對接收者產生影響所涉行動方針與道德規範；媒體素養（Media Literacy）不同於培養媒體專業教育，而是針對一般公眾近用、分析、評估及產製訊息的媒體教育。隨著傳播媒介所涉重要議題及影響力日深且廣，傳播倫理教育及媒體素養/識讀已漸成日常生活所需能力、終身學習課題之一，與民主法治及公民意識建立，至為相關。本課程授課內容從媒體專業自主、言論自由、社會責任，到探討假新聞、媒體可信度、置入性行銷、廣告與收視率、近用權與媒體監督、媒體識讀行動力等議題，同時隨著各式新型態傳播媒體，傳播倫理所涉不同媒體產業之重大案例、關鍵課題、自律規範、問責機制、政策法規、媒體信任危機、解決方案等，逐步培養學生認知傳播倫理核心觀念，以及全媒體時代所需思考判斷、溝通表達與媒體素養行動力。	2	General Course	共同教育中心博雅教育組	SDG4、SDG12、SDG16
2021	Undergraduate	1	A	傳播倫理與媒體素養(民主)	Communication Ethics and Media Literacy	Communication ethics is a set of guidelines and ethical norms that address the impact of the actions of media practitioners on the recipients of their content; media literacy is not a professional media education, but rather a media education that addresses the general public's use, analysis, evaluation, and production of information. With the growing importance and influence of the media, media ethics education and media literacy has become a lifelong learning issue that is essential to everyday life and is relevant to the building of democracy, the rule of law, and civic awareness. The course covers topics ranging from media professional autonomy, freedom of expression, and social responsibility to fake news, media trustworthiness, embedded marketing, advertising and viewership, near-use rights and media oversight, and media literacy and behavior, as well as major cases, key issues, self-regulation, accountability mechanisms, policies and regulations, media trust crises, and solutions for different media industries involved in communication ethics with various new forms of media. Students will learn about the core concepts of communication ethics, and the thinking and judgment, communication and expression, and media literacy skills needed in the age of multimedia.	假新聞全球肆虐，分不清新聞的真假，如何面對後真相時代的亂象？假新聞該誰管？誰能管？管不管得了？真正解決問題的途徑為何？長期以來，電視收視率掛帥、羶色腥內容、業配/廣告置入新聞，媒體可信度如何維持？該誰把關？如何判斷新聞價值？提升媒體專業品質如何可能？而隨著傳播科技發展，社群平台日新月異，在人人都可以是記者，每個人都能報導新聞、自行傳播內容的網路時代，媒體的公信及專業，與一般人何異？後真相時代來臨，培養具媒體素養的公民、耳聰目明的閱聽人，無疑是傳播媒體改革相當重要的動能之一。 傳播倫理（Communication Ethics）是針對媒體從業人員傳播內容行為對接收者產生影響所涉行動方針與道德規範；媒體素養（Media Literacy）不同於培養媒體專業教育，而是針對一般公眾近用、分析、評估及產製訊息的媒體教育。隨著傳播媒介所涉重要議題及影響力日深且廣，傳播倫理教育及媒體素養/識讀已漸成日常生活所需能力、終身學習課題之一，與民主法治及公民意識建立，至為相關。本課程授課內容從媒體專業自主、言論自由、社會責任，到探討假新聞、媒體可信度、置入性行銷、廣告與收視率、近用權與媒體監督、媒體識讀行動力等議題，同時隨著各式新型態傳播媒體，傳播倫理所涉不同媒體產業之重大案例、關鍵課題、自律規範、問責機制、政策法規、媒體信任危機、解決方案等，逐步培養學生認知傳播倫理核心觀念，以及全媒體時代所需思考判斷、溝通表達與媒體素養行動力。	2	General Course	共同教育中心博雅教育組	SDG4、SDG5、SDG10
2021	Undergraduate	1	A	傳播倫理與媒體素養(民主)	Communication Ethics and Media Literacy	Communication ethics is a set of guidelines and ethical norms that address the impact of the actions of media practitioners on the recipients of their content; media literacy is not a professional media education, but rather a media education that addresses the general public's use, analysis, evaluation, and production of information. With the growing importance and influence of the media, media ethics education and media literacy has become a lifelong learning issue that is essential to everyday life and is relevant to the building of democracy, the rule of law, and civic awareness. The course covers topics ranging from media professional autonomy, freedom of expression, and social responsibility to fake news, media trustworthiness, embedded marketing, advertising and viewership, near-use rights and media oversight, and media literacy and behavior, as well as major cases, key issues, self-regulation, accountability mechanisms, policies and regulations, media trust crises, and solutions for different media industries involved in communication ethics with various new forms of media. Students will learn about the core concepts of communication ethics, and the thinking and judgment, communication and expression, and media literacy skills needed in the age of multimedia.	假新聞全球肆虐，分不清新聞的真假，如何面對後真相時代的亂象？假新聞該誰管？誰能管？管不管得了？真正解決問題的途徑為何？長期以來，電視收視率掛帥、羶色腥內容、業配/廣告置入新聞，媒體可信度如何維持？該誰把關？如何判斷新聞價值？提升媒體專業品質如何可能？而隨著傳播科技發展，社群平台日新月異，在人人都可以是記者，每個人都能報導新聞、自行傳播內容的網路時代，媒體的公信及專業，與一般人何異？後真相時代來臨，培養具媒體素養的公民、耳聰目明的閱聽人，無疑是傳播媒體改革相當重要的動能之一。 傳播倫理（Communication Ethics）是針對媒體從業人員傳播內容行為對接收者產生影響所涉行動方針與道德規範；媒體素養（Media Literacy）不同於培養媒體專業教育，而是針對一般公眾近用、分析、評估及產製訊息的媒體教育。隨著傳播媒介所涉重要議題及影響力日深且廣，傳播倫理教育及媒體素養/識讀已漸成日常生活所需能力、終身學習課題之一，與民主法治及公民意識建立，至為相關。本課程授課內容從媒體專業自主、言論自由、社會責任，到探討假新聞、媒體可信度、置入性行銷、廣告與收視率、近用權與媒體監督、媒體識讀行動力等議題，同時隨著各式新型態傳播媒體，傳播倫理所涉不同媒體產業之重大案例、關鍵課題、自律規範、問責機制、政策法規、媒體信任危機、解決方案等，逐步培養學生認知傳播倫理核心觀念，以及全媒體時代所需思考判斷、溝通表達與媒體素養行動力。	2	General Course	共同教育中心博雅教育組	SDG4、SDG5、SDG10

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	當代傳播問題(科技)	Contemporary Communication Issues	This course focuses on both theory and practice, guiding students' concern for and understanding of major social communication issues, familiarizing them with contemporary communication ecology, and examining contemporary communication issues to equip them with the ability to think and judge. The course instructors update and adjust the course materials according to major or immediate communication issues so that students can reflect on contemporary communication issues, imagine future trends in the field of communication and industry, and develop innovative responses to new technological developments and the rapid dissemination of information, and develop communication/information literacy, diversified perspectives, communication and expression, thinking and judgment, and action skills in the fields of technology and society. This course is designed for students who are interested in the new forms of communication and the key issues involved in online social media. This course is not limited to Taiwan, but also explores contemporary global communication issues to enhance students' international perspective.	本課程理論與實務並重，引導學生對社會重大傳播議題之關心與認識，熟悉當代傳播生態，進而檢視當代傳播問題，具備思考判斷能力。授課教師依據重大或即時傳播議題，隨時更新調整編製教材，使修課同學藉由反思當代傳播所面臨課題，同步想像未來傳播領域與產業趨勢，在新科技發展、訊息高速傳播下，如何創新應變，培養於科技與社會領域之傳播/資訊素養、多元視野、溝通表達、思考判斷及行動力，並且能主動發現新型態傳播現象與網路社群媒體所涉關鍵議題。本課程不以臺灣為限，同步探討全球當代傳播問題，以提升學生國際宏觀視野。	2	General Course	共同教育中心博雅教育組	SDG4、SDG9、SDG10、SDG17
2021	Undergraduate	1	A	海洋環境教育(自然)	Marine Environmental Education	The sea provides many opportunities for leisure, sightseeing, food and transportation. The " marine environment understanding " is the literacy that people should have.	讓學習者覺知當都市居民透過休閒、觀光、飲食與交通運輸消耗有限的海洋資源時，許多海洋子民，正在運用祖先的智慧為這片海洋而努力，因此透過課程瞭解海洋環境具備應有的海洋素養，是本課程的教學目標。	2	General Course	共同教育中心博雅教育組	SDG9、SDG12、SDG14、SDG16
2021	Undergraduate	1	A	環境保護、海岸污染與預防-生態工法(科技)	Environmental Protection, Coastal	Students will learn about the importance of environmental protection and the relationship between the environment and human life, and develop the ability to protect the environment and solve environmental problems, as well as the attitude of caring for the environment and the enthusiasm to participate in environmental protection work. Students will also learn how to protect the environment and learn to coexist with nature so that they and their children can live in a healthy and safe environment.	引導同學瞭解環境與人類生活之關聯及環境保護之重要性，同時培養學生保護環境與解決環境問題之能力，以及愛護環境之態度與主動參與環保工作之熱忱。並透過淨灘實作，了解各環境問題的現況與因應之道，同時省思我們應如何保護環境，學習與自然共存，使自己與後代生活在健康、安全的環境中。	2	General Course	共同教育中心博雅教育組	SDG4、SDG6、SDG7、SDG11、SDG12、SDG13、SDG14、SDG15
2021	Undergraduate	1	A	傳播技能-媒體聲音表達專題(美學)	Communication Competencies-Speaking Voice Training Programs	The goal of this course is to cultivate students' understanding of the current and future development of the digital convergence trend of the media sound industry, and to train students with the skills and expertise to produce and broadcast sound media content, in addition to inspiring them to design and express media sound creatively, and to further equip them with the necessary skills and practical abilities to plan/produce/host/voiceover/voice performance of sound media content, so that they can be flexibly applied to their work in different professional fields and develop relevant potentials and outstanding elements.	媒體類型發展愈趨多元，從廣播、電視、網路影音、直播、電玩遊戲到新興媒體，「聲音」始終是內容呈現的關鍵元素之一；然而，廣播劇、廣告配音、戲劇、電玩遊戲配音、有聲書、新聞報導、節目主持、線上直播等，不同型態之媒體內容於有效傳播所需之聲音表情、說話表演、言說技巧、論述能力等，均涉及不同專業及聲音技巧運用，因此，「聲音」表達訓練至今一直是傳播亟需培養之基本且重要技能，也是非新聞傳播媒體相關科系學生，學習傳播技能最基礎且極具實用性之入門課程。 本課程目標在於培養學生對於數位匯流趨勢之媒體聲音產業生態現況及未來發展有所瞭解，訓練具備製播聲音媒介內容之技巧與專長，除啟發學生對媒體聲音創意設計及表達，更進一步具備聲音媒介內容企畫/製作/主持/配音/聲音表演等所需之條件與實務能力，得以靈活應用於其不同專業領域工作，開展相關潛力與傑出要件。	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	傳播技能-媒體聲音表達專題(美學)	Communication Competencies-Speaking Voice Training Programs	The naturalness, relevance, smoothness, and vividness of voice expressions in spoken words, pictures, videos, animations, video games, narrations, voice-overs, hosts, and commentaries are crucial to the quality of the final presentation of the content, which belongs to the field of "aesthetics and aesthetic expression. In other words, in addition to the nature of the message conveyed by the content, the quality of sound, timbre, articulation, breathing, volume, intonation, paragraphing, and rhythm also greatly affect the communication of the media content and the reception of the message by the audience. Even if students do not have a background in basic communication or media-related courses, they can take this course to understand, appreciate, and imagine how to become a professional voiceover artist, program host, or voice performer, and to develop the communication expression, aesthetic aesthetics, taste appreciation, and critical thinking and professionalism needed in the communication media. Even if you are not aiming to be a professional voice practitioner, you will be able to discover the subtleties of the voice, get to know yourself through vocal expressions, become familiar with the use of vocal expressions and speaking styles, and develop natural, confident and fluent speech and discourse, which will help you improve your communication skills in your daily and professional life.	媒體類型發展愈趨多元，從廣播、電視、網路影音、直播、電玩遊戲到新興媒體，「聲音」始終是內容呈現的關鍵元素之一；然而，廣播劇、廣告配音、戲劇、電玩遊戲配音、有聲書、新聞報導、節目主持、線上直播等，不同型態之媒體內容於有效傳播所需之聲音表情、說話表演、言說技巧、論述能力等，均涉及不同專業及聲音技巧運用，因此，「聲音」表達訓練至今一直是傳播亟需培養之基本且重要技能，也是非新聞傳播媒體相關科系學生，學習傳播技能最基礎且極具實用性之入門課程。 舉凡口語文字、圖片、影片、動畫、電玩遊戲，所涉旁白、配音、主持或解說表達，聲音表情是否自然、切合、順暢、生動，攸關內容製播最終呈現之品質，屬「美學與美感表達」領域。媒體聲音是「內容＋表情」，真實的聲音表情能使人產生共感，換言之，除內容傳遞訊息本質外，音質、音色、發聲、呼吸、音量、語調、段落、節奏等，亦相當程度影響媒體內容感染力之傳達，以及閱聽眾訊息接收效果。同學們即便不具傳播或媒體相關基礎課程之經驗背景者，亦可藉此課程認識、理解與想像，如何成為一名專業配音員、節目主持人或聲音表演者，培養於聲音媒體所需之傳播表達、美感美學、品味鑑賞能力與傳播媒體亟需之思辨敬業態度。即便未以專業聲音工作者為目標，當學習過程中，發現聲音的奧妙，能從聲音表情去認識自我、熟悉聲音表情運用與說話方式，培養自然、自信與流暢的言說及論述，更有助於具體提升日常及個人專業領域之溝通表達能力。	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	B	傳播技能-媒體聲音表達專題(美學)	Communication Competencies-Speaking Voice Training Programs	The naturalness, relevance, smoothness, and vividness of voice expressions in spoken words, pictures, videos, animations, video games, narrations, voice-overs, hosts, and commentaries are crucial to the quality of the final presentation of the content, which belongs to the field of "aesthetics and aesthetic expression. In other words, in addition to the nature of the message conveyed by the content, the quality of sound, timbre, articulation, breathing, volume, intonation, paragraphing, and rhythm also greatly affect the communication of the media content and the reception of the message by the audience. Even if students do not have a background in basic communication or media-related courses, they can take this course to understand, appreciate, and imagine how to become a professional voiceover artist, program host, or voice performer, and to develop the communication expression, aesthetic aesthetics, taste appreciation, and critical thinking and professionalism needed in the communication media. Even if you are not aiming to be a professional voice practitioner, you will be able to discover the subtleties of the voice, get to know yourself through vocal expressions, become familiar with the use of vocal expressions and speaking styles, and develop natural, confident and fluent speech and discourse, which will help you improve your communication skills in your daily and professional life.	媒體類型發展愈趨多元，從廣播、電視、網路影音、直播、電玩遊戲到新興媒體，「聲音」始終是內容呈現的關鍵元素之一；然而，廣播劇、廣告配音、戲劇、電玩遊戲配音、有聲書、新聞報導、節目主持、線上直播等，不同型態之媒體內容於有效傳播所需之聲音表情、說話表演、言說技巧、論述能力等，均涉及不同專業及聲音技巧運用，因此，「聲音」表達訓練至今一直是傳播亟需培養之基本且重要技能，也是非新聞傳播媒體相關科系學生，學習傳播技能最基礎且極具實用性之入門課程。 舉凡口語文字、圖片、影片、動畫、電玩遊戲，所涉旁白、配音、主持或解說表達，聲音表情是否自然、切合、順暢、生動，攸關內容製播最終呈現之品質，屬「美學與美感表達」領域。媒體聲音是「內容＋表情」，真實的聲音表情能使人產生共感，換言之，除內容傳遞訊息本質外，音質、音色、發聲、呼吸、音量、語調、段落、節奏等，亦相當程度影響媒體內容感染力之傳達，以及閱聽眾訊息接收效果。同學們即便不具傳播或媒體相關基礎課程之經驗背景者，亦可藉此課程認識、理解與想像，如何成為一名專業配音員、節目主持人或聲音表演者，培養於聲音媒體所需之傳播表達、美感美學、品味鑑賞能力與傳播媒體亟需之思辨敬業態度。即便未以專業聲音工作者為目標，當學習過程中，發現聲音的奧妙，能從聲音表情去認識自我、熟悉聲音表情運用與說話方式，培養自然、自信與流暢的言說及論述，更有助於具體提升日常及個人專業領域之溝通表達能力。	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	海洋環境體驗與影視創作(人格)	Marine Environment Experience and Film Creation	Combining the issues of ocean, society and humanity, the student""s team will work with the spirit of cooperation to create a documentary that incorporates aesthetic and affectionate attitudes.	結合海洋及社會人文相關議題，發揮學生團隊合作精神，製作融入美感與情意態度的紀錄片。	2	General Course	共同教育中心博雅教育組	SDG11、SDG12
2021	Undergraduate	1	A	永續發展保護環境與健康(自然)	Sustainable Developmental Coals for Protecting Environment and Human Health	Through the concept of "sustainable development", students will learn about the relationship between the environment and health, identify the effects of environmental hazards on health, and explore ways to control environmental pollution and promote health through the two main themes of "environment" and "health".	透過「永續發展」（sustainable development）的概念，以「環境」與「健康」這兩大主軸議題，讓學生瞭解環境與健康之關係、辨識環境危害物對健康之影響，並探討如何控制環境污染的方法與促進健康。	2	General Course	共同教育中心博雅教育組	SDG3、SDG4、SDG6、SDG7、SDG11、SDG12、SDG13、SDG14、SDG15、SDG16
2021	Undergraduate	1	A	聽覺識別與流行創作(美學)	Music Recognition and Song Writing	This course introduces and develops students' ability to use their sense of hearing to distinguish the exact position of different frequencies in musical tonality in order to achieve the ability to write about pop songs and pop music.	本課程引導及培養學生建立在音樂調性上使用聽覺分辨其不同頻率的確切位置，以達成對流行歌曲及流行音樂進行寫作的能力，具有敏銳的音頻正確性聽覺辨識是一項在於音樂寫作上必備的條件，課程採用各種範例工具提升學生建構此條件並進而可嘗試自行創作，達到產生個人獨特作品為本課程實現實務的目標.	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	聽覺識別與流行創作(美學)	Music Recognition and Song Writing	This course introduces and develops students' ability to use their sense of hearing to distinguish the exact position of different frequencies in musical tonality in order to achieve the ability to write about pop songs and pop music.	本課程引導及培養學生建立在音樂調性上使用聽覺分辨其不同頻率的確切位置，以達成對流行歌曲及流行音樂進行寫作的能力，具有敏銳的音頻正確性聽覺辨識是一項在於音樂寫作上必備的條件，課程採用各種範例工具提升學生建構此條件並進而可嘗試自行創作，達到產生個人獨特作品為本課程實現實務的目標。	2	General Course	共同教育中心博雅教育組	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	傳播技能 - 新聞採訪寫作(民主)	Communication Competencies - News Reporting and Writing	This course is taught in a variety of ways, including classroom lectures, practical demonstrations and analysis, group discussions, presentations, on-site news reporting and writing, practical evaluation, lectures by celebrities, media interviews, and evaluation of reporting and writing, etc. The main purpose of this course is to develop and enhance the basic skills and elements of media planning, reporting, writing, and presentation required by "non-news communication" students, so that "non-news communication" students can be able to specialize in the production of content for broadcast. Students in the Department of Non-News Communication will be able to specialize in the production of content that is widely publicized. As there are different types of media content, and considering the digital convergence era, the basic skills of news content production can be widely applied to various types of media content production, this course guides students in practical journalism work, specifically grasping the characteristics of different media, learning to identify news clues, planning, sources/lines, interview design/questions, news writing and various modes of news processing, etc., and concluding each stage of study. At the end of each stage of study, students will strengthen their learning through practical work/evaluation to enhance their professional ability in news reporting and content production, with the aim of producing accurate, logical, in-depth, meaningful and valuable news stories in the future.	本課程主要採課堂講授、實作示範與解析、隨堂/分組討論、專題報告、新聞現場採訪寫作、實作評鑑、名人專題演講、媒體參訪、採訪寫作評鑑等多元方式進行教學，主要培養並增進「非新聞傳播科系」學生具備媒體製作所需之組織企劃、採訪、寫作、表達等基本技能及要件，使「非新聞傳播科系」學生學習得以專業製作成果內容廣宣。由於媒介內容類型不一而足，考量數位匯流時代，新聞內容產製基礎功可廣泛運用於各類型媒介內容製作，本課程指導修課學生新聞實作，具體掌握不同媒體特性，學習判別新聞線索、企劃前置、消息來源/佈線、採訪設計/提問、新聞寫作及各類新聞處理模式等，並於各階段學習告一段落，透過實作/評鑑強化學習成效，提升修課學生新聞採訪寫作專業能力與內容產製能量，以期未來產製出精準、邏輯完整、具深度、意義與價值之新聞專題/報導。	2	General Course	共同教育中心博雅教育組	SDG4、SDG5、SDG10、SDG16
2021	Undergraduate	1	A	傳播技能 - 海洋新聞採訪寫作(民主)	Communication Competencies-Ocean News Reporting and Writing	This course is taught in a variety of ways, including classroom lectures, practical demonstrations and analysis, group discussions, presentations, on-site news reporting and writing, practical evaluation, lectures by celebrities, media interviews, and evaluation of reporting and writing, etc. The main purpose of this course is to develop and enhance the basic skills and elements of media planning, reporting, writing, and presentation required by "non-news communication" students, so that "non-news communication" students can be able to specialize in the production of content for broadcast. Students in the Department of Non-News Communication will be able to specialize in the production of content that is widely publicized. As there are different types of media content, and considering the digital convergence era, the basic skills of news content production can be widely applied to various types of media content production, this course guides students in practical journalism work, specifically grasping the characteristics of different media, learning to identify news clues, planning, sources/lines, interview design/questions, news writing and various modes of news processing, etc., and concluding each stage of study. At the end of each stage of study, students will strengthen their learning through practical work/evaluation to enhance their professional ability in news reporting and content production, with the aim of producing accurate, logical, in-depth, meaningful and valuable news stories in the future.	本課程主要採課堂講授、實作示範與解析、隨堂/分組討論、專題報告、新聞現場採訪寫作、實作評鑑、名人專題演講、媒體參訪、採訪寫作評鑑等多元方式進行教學，培養並增進「非新聞傳播科系」學生具備製作海洋新聞相關內容所需之組織企劃、採訪、寫作、表達等基本技能及要件。本課程指導修課學生海洋新聞實作，具體掌握不同媒體特性，學習判別海洋相關新聞線索、企劃前置、消息來源/佈線、採訪設計/提問、新聞寫作及新聞處理模式等，並於各階段學習告一段落，透過實作/評鑑強化學習成效，提升修課學生新聞採訪寫作專業能力，尤其聚焦培養海洋新聞內容產製能量，以期未來產製出精準、邏輯完整、具深度、意義與價值之海洋新聞專題報導，有效提升海洋議題影響性。	2	General Course	共同教育中心博雅教育組	SDG4、SDG14
2021	Undergraduate	1	A	全球暖化與海平面上升(自然)	Global warming and sea level rise	1. Use a large number of images and videos to explain the current situation of global warming and sea level rise, as well as the possible impact. 2. Using teamwork, we will collect information, present on stage, and discuss in class to gain a deeper understanding of the issues. 3. Encourage students to develop their thinking and speaking skills on issues related to environmental protection and to put environmental awareness into practice in their lives.	1.利用大量影像與影音說明全球暖化與海平面上升之現況，以及可能造成之衝擊。 2.利用團隊合作方式，蒐集資料、上台報告、課堂討論，以深入了解相關議題。 3.鼓勵學生針對環境保護相關議題培養思考與論述能力，並將環保意識落實於生活中。	2	General Course	共同教育中心博雅教育組	SDG13
2021	Undergraduate	1	A	健康食品化學新趨勢(自然)	Special Topics on Health Food Chemistry	1. Teach yourself how to design a balanced and nutritious menu , calculate food calories, make good use of food substitution tables, and be your own nutritionist. 2. Hand-made malt candy, fruit wine... Handcrafting courses. 3. In addition to the daily diet, the general public may purchase food products for maintenance or nutritional needs, and these products are often mislabeled as "health food". This course will help you to be a smart consumer.	授課教師: 領有營養師專業證照(營養字第001184號) 1.教您如何為自己設計均衡又營養的菜單設計，會計算食物熱量，善用食物代換表，做自己的營養師。 2.親手做麥芽糖、釀水果酒..等手作課程。 3.一般民眾於日常飲食之外，可能為了保養或補充營養等需求，去購買相關食品，而這些產品，常常被誤冠上「健康食品」的名號，透過此課程，帶領各位修課學生認識經政府認證的小綠人標章「健康食品」，並解析該產品的化學成分分析及實質科學證據之「保健功效」，藉以分辨市售廣告詞，當一個聰明的消費者。	2	General Course	共同教育中心博雅教育組	SDG2、SDG3
2021	Undergraduate	1	A	韓國的性別意識與文化變遷(人格)	The Gender Consciousness and Cultural Change in South Korea.	The films and other media explore gender relations in Korea and their connection to related cultures. This course is categorized under the selected area because it involves the understanding of the differences between Korean and Chinese cultures. The goal of this course is to develop and critique students' existing gender consciousness in our country through film and other media, and to develop a new and comprehensive understanding of the similarities and differences with our neighboring East Asian country, Korea.	由多部電影等媒體，探討韓國的性別關係及其與相關文化之扣連。涉及韓國文化與我國文化差異之認識，故歸類於此所選之領域別。 本課程之教學目標在於，藉電影等媒體，培養並反省批判學生在我國既有的性別意識，藉由與東亞鄰國，韓國，在同與異方面的比較而能有綜合性的新認識。	2	General Course	共同教育中心博雅教育組	SDG5
2021	Undergraduate	1	A	韓國的性別意識與文化變遷(人格)	The Gender Consciousness and Cultural Change in South Korea.	This course explores gender relations in Korea and their connection to related cultures through various films and other media. The course is similar to A1 in terms of course area because it deals with the understanding of the difference between Korean culture and our own culture. * Teaching Objectives: The goal of this course is to develop and critique students' existing gender consciousness in our country through film and other media, and to develop a new and comprehensive understanding of the similarities and differences with our neighboring East Asian country, Korea.	由多部電影等媒體，探討韓國的性別關係及其與相關文化之扣連。涉及韓國文化與我國文化差異之認識，故在課程領域別上與A1相近。 * 教學目標 本課程之教學目標在於，藉電影等媒體，培養並反省批判學生在我國既有的性別意識，藉由與東亞鄰國，韓國，在同與異方面的比較而能有綜合性的新認識。	2	General Course	共同教育中心博雅教育組	SDG5
2021	Undergraduate	1	B	韓國的性別意識與文化變遷(人格)	The Gender Consciousness and Cultural Change in South Korea.	This course explores gender relations in Korea and their connection to related cultures through various films and other media. The course is similar to A2 in terms of course area because it deals with the understanding of the difference between Korean culture and our own culture. * Teaching Objectives: The goal of this course is to develop and critique students' existing gender consciousness in our country through film and other media, and to develop a new and comprehensive understanding of the similarities and differences with our neighboring East Asian country, Korea.	由韓國多部電影等媒體，探討韓國的性別關係及其與相關文化之扣連。涉及韓國文化與我國文化差異之認識，故在課程領域別上與A1相近。 * 教學目標 本課程之教學目標在於，藉電影等媒體，培養並反省批判大學生在我國既有的性別意識，藉由與東亞鄰國，韓國，在同與異方面的比較而能有綜合性的新認識。	2	General Course	共同教育中心博雅教育組	SDG5
2021	Undergraduate	1	A	地方創生與智慧科技(科技)	Regional Revitalization × Smart Technology	This course explores the use of emerging technologies for local industry applications and government subsidies to enhance the digital transformation of local industries in an in-depth and simple manner. Students will understand that a university can be a different kind of university and that a university should be a university that society needs. The content of the study ranges from ICT information and communication, IoT, big data, AI, block chain, cloud technology, and the construction of the basic knowledge of the ecosystem. High technology is used to improve the convenience of life and solve the social problems of today. Through the flexible and practical discussion process of the "World Café", we hope that students can effectively create new meanings or even find new opportunities for action for the issues they are introduced to in the dialogue. It is hoped that this professional knowledge and narrative integration course will provide students with a glimpse of the essence of smart technology in local creativity and lay a good foundation for promoting local creativity in practice.	本課程以深入淺出的方式探討善用新興科技導入地方產業應用與政府補助資源提升地方產業數位轉型，在強調利他精神為核心的思惟下，將含括地方人地產DNA結合科技、生態、農業等領域，以循環經濟、數位經濟及體驗經濟等三大概念設計創新營運模式推動智慧科技化城鄉的建置授與學生，讓學生理解大學可以是不一樣的大學，大學也應該是社會需要的大學。學習內容從ICT資通訊、IoT物聯網、大數據、AI人工智慧、區塊鏈、雲端技術、生態系的基礎知識建構，接著瞭解如何在城鄉環境操作推進網絡化、智能化技術的應用、創新智慧科技跨領域整合、網絡與實體空間的高度融合、巨量資料的分析回饋及正確運用數據的思維模式、與利用高科技提高生活便利及解決當今社會問題。透由「世界咖啡館」有彈性的實用討論流程， 帶動同步對話、分享共同知識，冀望學生有效地在對話中為所導入的議題創造新的意義甚或找到新的行動契機。希望此專業知能融入敘事力之新創課程可以讓學生一窺智慧科技導入地方創	2	General Course	共同教育中心博雅教育組	SDG3、SDG4、SDG9、SDG11
2021	Undergraduate	1	A	微生物與疾病((科技)	Microbes and diseases	This course aims to give a general understanding of microbial pathogens of human, infectious diseases, and disease transmission in a perspective of public science, which could help to enhance the awareness of public health.	使學生對造成人類疾病之微生物有更多認識，了解疾病的發生與傳播，提升健康維護與公共衛生意識。	2	General Course	共同教育中心博雅教育組	SDG3、SDG11

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	海洋資源的開發與保育(科技)	Exploitation and Conservation of Ocean Resources	This course is not Oceanography which mainly looks at the physical, chemical, geological and biological aspects of the ocean. However it focuses on the exploitation and conservation of the renewable and non-renewable resources from the ocean. Since a brief introduction to Oceanography will be covered at the beginning so that no prerequisite course on ocean is required. Students will then learn about the interactions between ocean dynamics, such as hydrological and climatic change and human activities, such as fishing, navigation and mining, etc. Influence of human activities on ocean's environment and resources will be revealed and accordingly, proper policy and management scheme will be proposed to minimize the adverse impact so that sustainable use of the resources and harmony between human and ocean will be achieved.	此課程並非學習物理、化學、地質、生物海洋方面的海洋學，然而它聚焦在開發並保育來自海洋的可再生及不可再生的資源。由於課程開始會簡介海洋學，因此不須要先修過海洋方面的課程即可來修習本課程。接着學生會學習到海洋動態，如水文與氣象的變化等和人為活動，如捕魚、航海、採礦等之間的相互作用。人為活動對海洋環境及資源的影響會被揭示，而且據此提出適當的政策及管理經營策畫，是以將負面衝擊極小化來達到資源的永續利用以及人與海洋之間的和諧。	2	General Course	共同教育中心博雅教育組	SDG3、SDG6、SDG13、SDG14
2021	Undergraduate	1	A	智慧財產權法概論(民主)	Introduction to Intellectual Property Laws	Intellectual property laws mainly consists of Trademark rights, Copyrights and Patents Law. To help our students obtaining the relevant knowledge and cultivate the mind and the spirit of law-abiding, this class focuses on the scope, limits of Intellectual property rights and the reasonable access of its fair use.	立法院於民國九十六年一月九日三讀通過智慧財產案件審理法，同(九十六)年三月五日制定智慧財產法院組織法。智慧財產（Intellectual property）的法制化有助於社會經濟發展。然而，智慧財產在權利性質上也是一種對於智慧活動成果壟斷的特權；在專利法除罪化之後，刑罰的制裁仍存在於著作權法及商標法之中。值得反思的是，我國現行法律是否提供權利人過度的保護，造成人們在日常生活中動輒得咎，構成侵權。本課程除介紹現行法律對於著作權、商標權、專利權等相關規定，也嘗試從「合理使用」的角度檢視具體案例及爭議。期望藉由討論與對話，讓這門相當專業的法學課程，能應用及落實在日常生活中；也期使學生們在其各自的專業領域上，具備成為一個	2	General Course	共同教育中心博雅教育組	SDG4、SDG10、SDG16
2021	Undergraduate	1	A	智慧財產權法概論(民主)	Introduction to Intellectual Property Laws	Intellectual property laws mainly consists of Trademark rights, Copyrights and Patents Law. To help our students obtaining the relevant knowledge and cultivate the mind and the spirit of law-abiding, this class focuses on the scope, limits of Intellectual property rights and the reasonable access of its fair use.	立法院於民國九十六年一月九日三讀通過智慧財產案件審理法，同(九十六)年三月五日制定智慧財產法院組織法。智慧財產（Intellectual property）的法制化有助於社會經濟發展。然而，智慧財產在權利性質上也是一種對於智慧活動成果壟斷的特權；在專利法除罪化之後，刑罰的制裁仍存在於著作權法及商標法之中。值得反思的是，我國現行法律是否提供權利人過度的保護，造成人們在日常生活中動輒得咎，構成侵權。本課程除介紹現行法律對於著作權、商標權、專利權等相關規定，也嘗試從「合理使用」的角度檢視具體案例及爭議。期望藉由討論與對話，讓這門相當專業的法學課程，能應用及落實在日常生活中；也期使學生們在其各自的專業領域上，具備成為一個	2	General Course	共同教育中心博雅教育組	SDG4、SDG10、SDG16
2021	Undergraduate	1	A	電影中的南北韓與脫北問題(歷史)	South and North Korea and Problems of defectors in Films	The goal of this course is to gain a deeper understanding of the political, economic, ethnic relations, and psychological conditions involved in the historical context of the division of North and South Korea. This course is an attempt to reflect on a number of issues related to cross-strait conflicts and exchanges in Taiwan, as President Chen Shui-bian congratulated South Korean President Kim Dae-jung for receiving the Nobel Peace Prize on October 13, 1989.	本課程教學目標在於深刻理解南北韓分裂的歷史背景涉及之政治經濟、族群關係與心理狀況。陳總統水扁於中華民國89年10月13日電賀南韓總統金大中獲諾貝爾和平獎，本課程藉此嘗試反思若干台灣海峽兩岸衝突與交流問題。	2	General Course	共同教育中心博雅教育組	SDG3
2021	Undergraduate	1	A	基礎小提琴演奏與聽覺應用藝術(美學)	The art of basic violin technique and aural application	This course integrates the basic music appreciation, listening training, basic music theory, and instrument performance... The goal of this course is to develop students' awareness of music aesthetics and to bring them closer to the essence of music practice through performance practice. Through basic violin performance training and repertoire analysis, we aim to build students' awareness of sound and aesthetics, and to focus on accurate practice and self-analysis skills.	本課程將基礎音樂素養包含：鑑賞、聽力訓練、基礎樂理及樂器演奏...等融為一體，搭配本校教學中心所提供之學生自製小提琴，從小提琴訓練中培養音樂鑑賞、解析以及練習演奏之能力，目標指向為拓展學生對於音樂美學之認知以及透過演奏練習更為貼近音樂實務本質。 透過小提琴基礎演奏訓練以及曲目聆聽分析，建立學生對於音感與美感的認知，並且以準確的練習方式以及自我分析能力為主，旨在希望學生修習課程完畢後，能掌握全	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	里海與漁村:人與海的和諧共生(自然)	Satoumi and fishing village: harmony between humans and the sea	The main objectives of this course are to help students build basic knowledge for Satoumi concept and to realize the connection between humans and the sea. To achieve our main purpose of this course, case studies are conducted for helping students to understand the current status and issues of Satoumi in Taiwan. Moreover, students will gain capacities and skills of systematic thinking for planning fishing communities to achieve a harmonious situation between local people and the ocean.	本課程的目的是讓學生能夠理解里海的基本理念，重新連結人類與海洋的關係，從國內外的個案去理解里海的樣貌與脈絡。藉由本課程所讓學生近一步去獲取思考台灣的沿海漁村及依海而生的人們如何與海洋共存共榮。	2	General Course	共同教育中心博雅教育組	SDG11、SDG14、SDG17
2021	Undergraduate	1	A	全球環境變遷(自然)	Global Environment Change	This course is a systematic introduction to global environmental change issues. Through an issue-oriented curriculum, the course introduces the scientific basis of major global change issues and their human, social, economic, and political dimensions, and specifically explores the impact of global change in Taiwan, its adaptation and response.	全球環境變遷是人類生存發展要面對的險惡問題，進行與發展中的國際及地區的行動將深深影響每一個人的生活與生涯，作為一個現代人必須具備正確的全球變遷基本學識，對主要議題的內涵具有辨識力與敘事力。本課程系統化介紹全球環境變遷議題，透過議題導向的課程設計，介紹全球變遷主要議題的科學基礎及其所牽涉之人文、社會、經濟、政治等層面的問題，並特別對台灣本地的全球變遷衝擊、調適與因應進行探討，培養學生對本地環境變遷議題的敘事能力。	2	General Course	共同教育中心博雅教育組	SDG14
2021	Undergraduate	1	A	世界文明與發展(全球)	Civilizations and Development of the World	This course is designed as a one-semester course; eight representative and historically significant topics are selected from the vast world history and are presented in a concise manner. These include four ancient civilizations related to the origins of European culture: Western Asia, Egypt, Greece, and Rome; and four cultures that are closely related to the emergence of Western modernity: medieval culture, the Renaissance, modern urban culture, and the Enlightenment. Through the presentation of ancient civilizations and modernity, we hope to expand students' horizons and improve their understanding of the world by following the context of the times from ancient to modern.	立足台灣、放眼世界，如何以更開闊的視野面向世界，是台灣世界文明課程的重要主題。本課程將簡明扼要地介紹世界文明的特色與精髓，經由客觀理性的文化認知，豐富學生的世界觀。 本課程設計為一學期課程；從浩瀚的世界歷史當中，選擇八個具有代表性與歷史意義的主題，做精要的介紹。其中包含與歐洲文化起源有關的四個古文明：西亞、埃及、希臘、羅馬；以及四個與西方現代性的產生，有著密切相關的文化：中古文化、文藝復興、近代都市文化、啟蒙運動。希望透過古文明與現代性的鋪陳，依循從古而今的時代脈絡，拓展學生視野、增進對世界的瞭解。	2	General Course	共同教育中心博雅教育組	SDG11
2021	Undergraduate	1	B	世界文明與發展(全球)	Civilizations and Development of the World	This course is designed as a one-semester course; eight representative and historically significant topics are selected from the vast world history and are presented in a concise manner. These include four ancient civilizations related to the origins of European culture: Western Asia, Egypt, Greece, and Rome; and four cultures that are closely related to the emergence of Western modernity: medieval culture, the Renaissance, modern urban culture, and the Enlightenment. Through the presentation of ancient civilizations and modernity, we hope to expand students' horizons and improve their understanding of the world by following the context of the times from ancient to modern.	立足台灣、放眼世界，如何以更開闊的視野面向世界，是台灣世界文明課程的重要主題。本課程將簡明扼要地介紹世界文明的特色與精髓，經由客觀理性的文化認知，豐富學生的世界觀。 本課程設計為一學期課程；從浩瀚的世界歷史當中，選擇八個具有代表性與歷史意義的主題，做精要的介紹。其中包含與歐洲文化起源有關的四個古文明：西亞、埃及、希臘、羅馬；以及四個與西方現代性的產生，有著密切相關的文化：中古文化、文藝復興、近代都市文化、啟蒙運動。希望透過古文明與現代性的鋪陳，依循從古而今的時代脈絡，拓展學生視野、增進對世界的瞭解。	2	General Course	共同教育中心博雅教育組	SDG11
2021	Undergraduate	1	B	世界文明與發展(全球)	Civilizations and Development of the World	This course is designed as a one-semester course; eight representative and historically significant topics are selected from the vast world history and are presented in a concise manner. These include four ancient civilizations related to the origins of European culture: Western Asia, Egypt, Greece, and Rome; and four cultures that are closely related to the emergence of Western modernity: medieval culture, the Renaissance, modern urban culture, and the Enlightenment. Through the presentation of ancient civilizations and modernity, we hope to expand students' horizons and improve their understanding of the world by following the context of the times from ancient to modern.	立足台灣、放眼世界，如何以更開闊的視野面向世界，是台灣世界文明課程的重要主題。本課程將簡明扼要地介紹世界文明的特色與精髓，經由客觀理性的文化認知，豐富學生的世界觀。 本課程設計為一學期課程；從浩瀚的世界歷史當中，選擇八個具有代表性與歷史意義的主題，做精要的介紹。其中包含與歐洲文化起源有關的四個古文明：西亞、埃及、希臘、羅馬；以及四個與西方現代性的產生，有著密切相關的文化：中古文化、文藝復興、近代都市文化、啟蒙運動。希望透過古文明與現代性的鋪陳，依循從古而今的時代脈絡，拓展學生視野、增進對世界的瞭解。	2	General Course	共同教育中心博雅教育組	SDG11
2021	Undergraduate	1	A	世界文明與發展(全球)	Civilizations and Development of the World	This course is designed as a one-semester course; eight representative and historically significant topics are selected from the vast world history and are presented in a concise manner. These include four ancient civilizations related to the origins of European culture: Western Asia, Egypt, Greece, and Rome; and four cultures that are closely related to the emergence of Western modernity: medieval culture, the Renaissance, modern urban culture, and the Enlightenment. Through the presentation of ancient civilizations and modernity, we hope to expand students' horizons and improve their understanding of the world by following the context of the times from ancient to modern.	立足台灣、放眼世界，如何以更開闊的視野面向世界，是台灣世界文明課程的重要主題。本課程將簡明扼要地介紹世界文明的特色與精髓，經由客觀理性的文化認知，豐富學生的世界觀。 本課程設計為一學期課程；從浩瀚的世界歷史當中，選擇八個具有代表性與歷史意義的主題，做精要的介紹。其中包含與歐洲文化起源有關的四個古文明：西亞、埃及、希臘、羅馬；以及四個與西方現代性的產生，有著密切相關的文化：中古文化、文藝復興、近代都市文化、啟蒙運動。希望透過古文明與現代性的鋪陳，依循從古而今的時代脈絡，拓展學生視野、增進對世界的瞭解。	2	General Course	共同教育中心博雅教育組	SDG11

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	海港城市與文化(人格)	Seaport City and Its Culture	This course aims to present the multi-cultural characteristics and inclusive and integrated styles of seaport cities shaped by different historical experiences through the historical development and cultural connotations of different seaport cities in Taiwan and China; it is expected that students will grasp the past conditions and subsequent development of the cities that opened their ports as a result of foreign invasion in the modern era, and compare the homogeneity and differences of different seaport cities as a reference for observation of the current situation and future outlook. The course will also compare the homogeneity and differences of different seaport cities, and serve as a reference for current observations and future prospects. The course is designed to introduce the historical development process of the two seaport cities and the most important social and cultural contents of the cities, and to analyze them in detail, showing their important historical connotations and multicultural values.	本課程旨在透過對臺灣與中國不同海港城市的歷史發展與文化內涵之說明，呈現海港城市因不同歷史經驗形塑出之多元文化特色與包融整合風格；期望學生由此掌握近代外力入侵造成開港之城市，其以往狀況與後來發展情形，並比較不同海港城市的同質性與差異性，作為現況觀察及未來展望之參考依據。課程設計主要選擇基隆、上海兩大城市為標的，將兩個海港城市之歷史發展過程，及該城市最重要之社會與文化內容予以詳細介紹及深入分析說明，顯示其重要歷史意涵與多元文化價值觀。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	A	海港城市與文化(人格)	Seaport City and Its Culture	This course aims to present the multi-cultural characteristics and inclusive and integrated styles of seaport cities shaped by different historical experiences through the historical development and cultural connotations of different seaport cities in Taiwan and China; it is expected that students will grasp the past conditions and subsequent development of the cities that opened their ports as a result of foreign invasion in the modern era, and compare the homogeneity and differences of different seaport cities as a reference for observation of the current situation and future outlook. The course will also compare the homogeneity and differences of different seaport cities, and serve as a reference for current observations and future prospects. The course is designed to introduce the historical development process of the two seaport cities and the most important social and cultural contents of the cities, and to analyze them in detail, showing their important historical connotations and multicultural values.	本課程旨在透過對臺灣與中國不同海港城市的歷史發展與文化內涵之說明，呈現海港城市因不同歷史經驗形塑出之多元文化特色與包融整合風格；期望學生由此掌握近代外力入侵造成開港之城市，其以往狀況與後來發展情形，並比較不同海港城市的同質性與差異性，作為現況觀察及未來展望之參考依據。課程設計主要選擇基隆、上海兩大城市為標的，將兩個海港城市之歷史發展過程，及該城市最重要之社會與文化內容予以詳細介紹及深入分析說明，顯示其重要歷史意涵與多元文化價值觀。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	C	民主憲政與基本人權(民主)	Democracy and Human Rights	The objectives of this course are as follows. 1. To understand the "supremacy" of the Constitution Since the Constitution is the supreme character of a country governed by the rule of law, no law or order can contradict it, and no government or interaction with the people can contradict it. Therefore, it is necessary to understand it first. 2. Understanding the true meaning and application of fundamental rights The existence of the state is not to restrict the exercise of people's basic rights, but to guarantee their full realization. Therefore, the people can demand that the state take an active role in fulfilling the social tasks of the state (the state actively benefits the people). 3. The ability to make basic human rights a reality Under a constitutional democracy, the people cannot remain outside the state. Therefore, they must understand basic human rights and their operation, and integrate constitutionalism into their lives, i.e., integrate respect for democratic constitutionalism into their food, clothing, housing, transportation, and education.	本課程基於憲政主義的角度，首將針對權力分立與制衡的基本架構，說明其實質意義，以及其對政府體制和政府組織安排的影響作一背景的介紹。主要係針對中華民國憲法基本人權之基本規定與實務運作，加以探究。在教學方式上，除了闡述人權基本理論與規定之外，輔之以法律案例分析教學，以提升學生之學習動力與興趣。 本課程之教學目標如下： 1、認識憲法「最高性」特質 由於憲法在法治國具最高位特質，任何法律或命令均不得與其牴觸， 政府施政與人民互動均無法與憲法牴觸。故具首要認識之必要性。 2、明瞭基本權利之真義與運用 國家之存在，非限制人民基本權利行使，而應保障其充分的實現。故人民可要求國家有積極作為以完成國家社會國任務（國家積極造福人民）。 3、能將基本人權生活化 在民主憲政運作體制之下，人民無法置身於國家之外，故須認識基本人權及其運作，將憲政與生活結合為一，即將對民主憲政的尊重融入於食衣住行育樂中。	2	General Course	共同教育中心博雅教育組	SDG10、SDG16
2021	Undergraduate	1	B	民主憲政與基本人權(民主)	Democracy and Human Rights	The objectives of this course are as follows. 1. To understand the "supremacy" of the Constitution Since the Constitution is the supreme character of a country governed by the rule of law, no law or order can contradict it, and no government or interaction with the people can contradict it. Therefore, it is necessary to understand it first. 2. Understanding the true meaning and application of fundamental rights The existence of the state is not to restrict the exercise of people's basic rights, but to guarantee their full realization. Therefore, the people can demand that the state take an active role in fulfilling the social tasks of the state (the state actively benefits the people). 3. The ability to make basic human rights a reality Under a constitutional democracy, the people cannot remain outside the state. Therefore, they must understand basic human rights and their operation, and integrate constitutionalism into their lives, i.e., integrate respect for democratic constitutionalism into their food, clothing, housing, transportation, and education.	本課程基於憲政主義的角度，首將針對權力分立與制衡的基本架構，說明其實質意義，以及其對政府體制和政府組織安排的影響作一背景的介紹。主要係針對中華民國憲法基本人權之基本規定與實務運作，加以探究。在教學方式上，除了闡述人權基本理論與規定之外，輔之以法律案例分析教學，以提升學生之學習動力與興趣。 本課程之教學目標如下： 1、認識憲法「最高性」特質 由於憲法在法治國具最高位特質，任何法律或命令均不得與其牴觸， 政府施政與人民互動均無法與憲法牴觸。故具首要認識之必要性。 2、明瞭基本權利之真義與運用 國家之存在，非限制人民基本權利行使，而應保障其充分的實現。故人民可要求國家有積極作為以完成國家社會國任務（國家積極造福人民）。 3、能將基本人權生活化 在民主憲政運作體制之下，人民無法置身於國家之外，故須認識基本人權及其運作，將憲政與生活結合為一，即將對民主憲政的尊重融入於食衣住行育樂中。	2	General Course	共同教育中心博雅教育組	SDG10、SDG16
2021	Undergraduate	1	A	民主憲政與基本人權(民主)	Democracy and Human Rights	The objectives of this course are as follows. 1. To understand the "supremacy" of the Constitution Since the Constitution is the supreme character of a country governed by the rule of law, no law or order can contradict it, and no government or interaction with the people can contradict it. Therefore, it is necessary to understand it first. 2. Understanding the true meaning and application of fundamental rights The existence of the state is not to restrict the exercise of people's basic rights, but to guarantee their full realization. Therefore, the people can demand that the state take an active role in fulfilling the social tasks of the state (the state actively benefits the people). 3. The ability to make basic human rights a reality Under a constitutional democracy, the people cannot remain outside the state. Therefore, they must understand basic human rights and their operation, and integrate constitutionalism into their lives, i.e., integrate respect for democratic constitutionalism into their food, clothing, housing, transportation, and education.	本課程基於憲政主義的角度，首將針對權力分立與制衡的基本架構，說明其實質意義，以及其對政府體制和政府組織安排的影響作一背景的介紹。主要係針對中華民國憲法基本人權之基本規定與實務運作，加以探究。在教學方式上，除了闡述人權基本理論與規定之外，輔之以法律案例分析教學，以提升學生之學習動力與興趣。 本課程之教學目標如下： 1、認識憲法「最高性」特質 由於憲法在法治國具最高位特質，任何法律或命令均不得與其牴觸， 政府施政與人民互動均無法與憲法牴觸。故具首要認識之必要性。 2、明瞭基本權利之真義與運用 國家之存在，非限制人民基本權利行使，而應保障其充分的實現。故人民可要求國家有積極作為以完成國家社會國任務（國家積極造福人民）。 3、能將基本人權生活化 在民主憲政運作體制之下，人民無法置身於國家之外，故須認識基本人權及其運作，將憲政與生活結合為一，即將對民主憲政的尊重融入於食衣住行育樂中。	2	General Course	共同教育中心博雅教育組	SDG10、SDG16
2021	Undergraduate	1	2	海洋科學概論	Introduction to Oceanography	This class aims to descriptively introduce the general physics, chemistry, geology, and biology of the ocean to non-ocean science major freshman undergraduate students, and brings an overview of the oceanography as well to help the students understand the fundamentals of the ocean sciences.	本課程針對非海洋科學主修之大一學生，以描述性講授與宏觀的角度，簡介海洋的物理、化學性質、與海洋地質及生物。期能使學生對海洋科學有概括性認識與了解。	2	Required Course	共同教育中心博雅教育組	SDG4、SDG11、SDG13、SDG14、SDG17
2021	Undergraduate	1	2	海洋科學概論	Introduction to Oceanography	This class aims to descriptively introduce the general physics, chemistry, geology, and biology of the ocean to non-ocean science major freshman undergraduate students, and brings an overview of the oceanography as well to help the students understand the fundamentals of the ocean sciences.	本課程針對非海洋科學主修之大一學生，以描述性講授與宏觀的角度，簡介海洋的物理、化學性質、與海洋地質及生物。期能使學生對海洋科學有概括性認識與了解。	2	Required Course	共同教育中心博雅教育組	SDG4、SDG11、SDG13、SDG14、SDG17
2021	Undergraduate	1	1	海洋科學概論	Introduction to Oceanography	This class aims to descriptively introduce the general physics, chemistry, geology, and biology of the ocean to non-ocean science major freshman undergraduate students, and brings an overview of the oceanography as well to help the students understand the fundamentals of the ocean sciences.	本課程針對非海洋科學主修之大一學生，以描述性講授與宏觀的角度，簡介海洋的物理、化學性質、與海洋地質及生物。期能使學生對海洋科學有概括性認識與了解。	2	Required Course	共同教育中心博雅教育組	SDG4、SDG11、SDG13、SDG14、SDG17
2021	Undergraduate	1	1	海洋科學概論	Introduction to Oceanography	This class aims to descriptively introduce the general physics, chemistry, geology, and biology of the ocean to non-ocean science major freshman undergraduate students, and brings an overview of the oceanography as well to help the students understand the fundamentals of the ocean sciences.	本課程針對非海洋科學主修之大一學生，以描述性講授與宏觀的角度，簡介海洋的物理、化學性質、與海洋地質及生物。期能使學生對海洋科學有概括性認識與了解。	2	Required Course	共同教育中心博雅教育組	SDG4、SDG11、SDG13、SDG14、SDG17
2021	Undergraduate	1	A	海洋生態與經濟永續發展(科技)	Sustainable Development of Marine Ecology and Economics	The goal of this course is to provide students with an understanding of the current state of marine ecology and the problems and management strategies it faces. On the other hand, economic problems and behaviors occur every day in both societies and individuals, such as market, supply, demand, time allocation, public decision making, environmental pollution, etc. are also the areas that this course hopes to explore. The course will use in-depth case studies to train students how to apply them in their daily life, so that they can have this basic concept of marine environment and marine economy in their future career or research field.	海洋面積3.6億平方千米，約佔地球面積5.1億平方千米的70.8%，蘊藏豐富的自然資源量，世界各主要海岸國家不但視“21世紀是海洋的世紀”，並積極發展以海洋、島嶼及海岸為主體的海洋經濟產業。臺灣四面環海，所管轄的海域面積約17萬平方公里，為陸域面積3萬6千餘平方公里的4.72倍，擁有豐富的海洋資源與海岸環境。海洋與臺灣的經濟活動有著很密切關係，諸如糧食安全、貿易、運輸、造船、觀光休閒等。海洋與我們的生活息息相關，惟目前海洋面臨許多危機，包括過漁(Overfishing)、不負責任的養殖漁業(Irresponsible Fish Farming)、幽靈撈捕(Ghost Fishing)、垃圾(Garbage)、酸化(Acidification)、死海(Dead Zones)、汞污染(Mercury Pollution)、海上鑽油(Offshore Drilling)、濫捕鯊魚翅及鯨魚(Shark Finning/Whaling)，使得如何對海洋生態合理利用、保育與管理，是海洋永續發展的重要議題之一。本課程之教學目標即是希望學生能瞭解海洋生態的現況，以及其面臨之問題與管理策略。另一方面，不論是社會群體或個人，每天皆有經濟問題與行為發生，舉凡市場、供給、需求、時間分配、公共決策、環境污染等問題亦是本課程所希望探討的範圍。課程將以深入淺出的案例分析討論，藉此訓練學生如何將其實際運用於日常生活之中，以期未來投入相關行業或研究領域	2	General Course	共同教育中心博雅教育組	SDG11、SDG12、SDG14

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	文化與社會(人格)	Culture And Society	Culture is a key to understanding social development. A growing number of scholars believe that the development gap between nations and ethnic groups stems from their different cultural values, which shape their political and economic development. Through the introduction of this course, students will be able to develop a diversified and macroscopic perspective, as well as a better understanding of the meaning of social life.	文化是了解社會發展的一把鑰匙。有愈來愈多的學者認為，國與國間、不同民族間的發展差距主要源於他們不同的文化價值觀，是這些價值觀左右了他們在政治及經濟上的發展。透過本課目的介紹，將可以幫助修課同學培養多元、宏觀的視野，同時更進一步了解社會生活的意義。	2	General Course	共同教育中心博雅教育組	SDG1、SDG3、SDG8、SDG10、SDG16
2021	Undergraduate	1	A	地方文化產業與海洋節慶活動(人格)	Local Culture Industries and Oceanic Festivals	1. to enable the learners to understand the meaning of cultural industries and the development of cultural industries in the context of Taiwan's cultural policies. 2. to understand the development of local industries and festivals related to marine culture in Taiwan, and be able to focus on famous cases (e.g. Matsu Noon Cultural Festival, Jigong Chinese New Year Festival, Dajia A-Ma International Tourism and Cultural Festival, Pingtung Donggang/Small Liuqiu Yingwang Pingan Festival, Donggang Bluefin Tuna Cultural Tourism Season, Penghu Sea Flower Festival, Fulong International Sand Sculpture Festival, Gongliao International Marine Music Festival in New Taipei City, Spring Wave Music Festival in Kenting, Pingxi Sky Lantern Festival in New Taipei City, Taiwan International Hot Air Balloon Carnival. (Pingtung East Harbor/Small Liuqiu), (East Harbor) bluefin tuna cultural tourism season, Penghu Sea Flower Festival, Fulong International Sand Sculpture Season, Gongliao International Ocean Festival in New Taipei City, (Kenting) Spring Wave Music Festival, Pingxi Sky Lantern Festival in New Taipei City, Taiwan International Hot Air Balloon Carnival, Tucheng Kuo Folk Culture Event, 10,000 people swimming in Sun Moon Lake, Chiayi International Wind Festival, etc.)	1.使學習者了解文化產業的意涵，以及台灣文化政策對文化產業的發展； 2.使學習者了解與海洋文化相關的台灣地方特色產業與節慶活動發展，並能針對著名個案（例如：馬祖擺暝文化祭、雞籠中元祭、大甲媽祖國際觀光文化節、（屏東東港/小琉球）迎王平安祭典活動、（東港）黑鮪魚文化觀光季、澎湖海上花火節、福隆國際沙雕藝術季、新北市貢寮國際海洋音樂祭、（墾丁）春浪音樂節、新北市平溪天燈節、臺灣國際熱氣球嘉年華、頭城搶孤民俗文化活動、日月潭萬人泳渡、嘉義市國際管樂節…等節慶）進行分組討論與報告。	2	General Course	共同教育中心博雅教育組	SDG8
2021	Undergraduate	1	A	台灣政經發展與經驗（民主）	The Development of Politic and Economic Experience in Taiwan	In conjunction with current events, the program enhances students' understanding and appreciation of Taiwan's political and economic development and experiences. We also encourage young students to give back to the society and the country by utilizing their strengths.	配合時事，加強學生對台灣政治及經濟發展與經驗之瞭解與 體認，並鼓勵青年學子發揮所長、回饋社會、奉獻國家。	2	General Course	共同教育中心博雅教育組	SDG3、SDG4、SDG8、SDG16、SDG17
2021	Undergraduate	1	A	政治變遷與國家發展(全球)	Political Change and National Development	1. To develop students' basic understanding of constitutional theory. 2. To enhance students' understanding of the political changes and national development in Taiwan, and to cultivate the ability to analyze the national situation and the world situation from the perspective of Taiwan, caring for the society, and taking a global view. 3. To strengthen students' understanding of constitutional law and the development of Taiwan's democratic politics in general, and to integrate them with professional theories in order to explore some important issues in constitutional law and the development of Taiwan's democratic politics in depth.	1、培養學生對憲法理論具基本認識。 2、提昇學生了解台灣政治變遷與國家發展，培養立足台灣、關懷社會、宏觀全球之胸襟與視野剖析國情與世局之能力。 3、強化研修學生對憲法與臺灣民主政治發展具正確認識與概括性瞭解，進而與專業性學理相結合，期能深入探索憲法與臺灣民主政治發展中之若干重要議題。	2	General Course	共同教育中心博雅教育組	SDG16
2021	Undergraduate	1	A	中國社會史(歷史)	History of Chinese Society	This course aims to present, through several social movements of different nature and modes, the resistance or self-help actions of the four peoples in traditional Chinese society who were dissatisfied with their living environment. Students will gain a deeper understanding of some cases and learn from them as a reference for examining social movements today.	本課程旨在透過數種不同性質與模式的社會運動，呈現傳統中國社會中的四民大眾對生存環境不滿而產生的反抗行動或自力救濟行為。同學可因此對若干個案有較深入地了解，並藉此吸取經驗，以為檢視當今社會運動的參考。	2	General Course	共同教育中心博雅教育組	SDG4、SDG10、SDG11、SDG16
2021	Undergraduate	1	A	中國社會史(歷史)	History of Chinese Society	This course aims to present, through several social movements of different nature and modes, the resistance or self-help actions of the four peoples in traditional Chinese society who were dissatisfied with their living environment. Students will gain a deeper understanding of some cases and learn from them as a reference for examining social movements today.	本課程旨在透過數種不同性質與模式的社會運動，呈現傳統中國社會中的四民大眾對生存環境不滿而產生的反抗行動或自力救濟行為。同學可因此對若干個案有較深入地了解，並藉此吸取經驗，以為檢視當今社會運動的參考。	2	General Course	共同教育中心博雅教育組	SDG4、SDG10、SDG11、SDG16
2021	Undergraduate	1	B	中國社會史(歷史)	History of Chinese Society	This course aims to present, through several social movements of different nature and modes, the resistance or self-help actions of the four peoples in traditional Chinese society who were dissatisfied with their living environment. Students will gain a deeper understanding of some cases and learn from them as a reference for examining social movements today.	本課程旨在透過數種不同性質與模式的社會運動，呈現傳統中國社會中的四民大眾對生存環境不滿而產生的反抗行動或自力救濟行為。同學可因此對若干個案有較深入地了解，並藉此吸取經驗，以為檢視當今社會運動的參考。	2	General Course	共同教育中心博雅教育組	SDG4、SDG10、SDG11、SDG16
2021	Undergraduate	1	B	中國社會史(歷史)	History of Chinese Society	This course aims to present, through several social movements of different nature and modes, the resistance or self-help actions of the four peoples in traditional Chinese society who were dissatisfied with their living environment. Students will gain a deeper understanding of some cases and learn from them as a reference for examining social movements today.	本課程旨在透過數種不同性質與模式的社會運動，呈現傳統中國社會中的四民大眾對生存環境不滿而產生的反抗行動或自力救濟行為。同學可因此對若干個案有較深入地了解，並藉此吸取經驗，以為檢視當今社會運動的參考。	2	General Course	共同教育中心博雅教育組	SDG4、SDG10、SDG11、SDG16
2021	Undergraduate	1	B	民生主義與台灣經驗(民主)	The Principle of Min Sien and Taiwan Experience	The purpose of the course is to help students understand the concept of livelihoodism and to encourage them to contribute to the country.	為使學生加條對民生主義之概念瞭解台灣經驗,鼓勵青年學子對國家貢獻為目的	2	General Course	共同教育中心博雅教育組	SDG16
2021	Undergraduate	1	A	民生主義與台灣經驗(民主)	The Principle of Min Sien and Taiwan Experience	The purpose of the course is to help students understand the concept of livelihoodism and to encourage them to contribute to the country.	為使學生加條對民生主義之概念瞭解台灣經驗,鼓勵青年學子對國家貢獻為目的	2	General Course	共同教育中心博雅教育組	SDG16
2021	Undergraduate	1	B	中國文化史(歷史)	History of Chinese Culture	This course aims to explore the development and evolution of traditional Chinese culture through various topics, so that students can gain a deeper and broader understanding of the characteristics and some aspects of traditional Chinese culture, and learn from this experience as a reference for examining the culture of today's society. In addition to the introduction, the course is divided into four major areas: political (institutions), social (classes), economic (livelihood activities), and intellectual (science and technology), from which important topics are selected for illustration.	本課程旨在透過各個專題探討傳統中國文化的發展與演變，使學生對傳統中國文化的特色及若干面相能有較深入而廣泛地瞭解，並藉此吸取經驗，以為檢視當今社會文化的參考。課程設計除導論外，分為政治（制度）、社會（階層）、經濟（生計活動）及思想（科技）四大領域，自各領域中選擇重要課題予以說明。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11、SDG16
2021	Undergraduate	1	A	中國文化史(歷史)	History of Chinese Culture	This course aims to explore the development and evolution of traditional Chinese culture through various topics, so that students can gain a deeper and broader understanding of the characteristics and some aspects of traditional Chinese culture, and learn from this experience as a reference for examining the culture of today's society. In addition to the introduction, the course is divided into four major areas: political (institutions), social (classes), economic (livelihood activities), and intellectual (science and technology), from which important topics are selected for illustration.	本課程旨在透過各個專題探討傳統中國文化的發展與演變，使學生對傳統中國文化的特色及若干面相能有較深入而廣泛地瞭解，並藉此吸取經驗，以為檢視當今社會文化的參考。課程設計除導論外，分為政治（制度）、社會（階層）、經濟（生計活動）及思想（科技）四大領域，自各領域中選擇重要課題予以說明。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11、SDG16
2021	Undergraduate	1	A	中國文化史(歷史)	History of Chinese Culture	This course aims to explore the development and evolution of traditional Chinese culture through various topics, so that students can gain a deeper and broader understanding of the characteristics and some aspects of traditional Chinese culture, and learn from this experience as a reference for examining the culture of today's society. In addition to the introduction, the course is divided into four major areas: political (institutions), social (classes), economic (livelihood activities), and intellectual (science and technology), from which important topics are selected for illustration.	本課程旨在透過各個專題探討傳統中國文化的發展與演變，使學生對傳統中國文化的特色及若干面相能有較深入而廣泛地瞭解，並藉此吸取經驗，以為檢視當今社會文化的參考。課程設計除導論外，分為政治（制度）、社會（階層）、經濟（生計活動）及思想（科技）四大領域，自各領域中選擇重要課題予以說明。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11、SDG16
2021	Undergraduate	1	B	中日關係史(歷史)	A History of Sino-Japanese Relation	In the past 2,000 years of China-Japan relations, Japan has benefited a lot from China, but since the establishment of the Meiji government (1868), the basic national policy of Japan is to produce and prosper, to enrich the country and strengthen the army, and to have a strong army from a rich country, and to move towards a world power, but China began to suffer from Japan, because China does not understand Japan. Moreover, in recent years, Japanese scholars have been studying China (Taiwan), but there are very few scholars in Taiwan studying Japan, so it is indispensable for university history courses. Therefore, through the teaching of this course, students can learn about the development of Japanese history and cultural characteristics. This course is designed to promote understanding and interaction between China (Taiwan) and Japan and to establish friendly relations between the two countries.	過去二千年來的中日關係，日本受惠於中國者甚厚，但自日本明治政府成立（1868年）以後，以殖產興業、富國強兵作基本國策，並且由富國擁有強大的軍隊，進而邁向世界強國，中國卻開始飽受日本之害，此因中國不瞭解日本之故。更且，近年來日本學者研究中國（台灣）者頗為豐碩，但台灣之學者研究日本者特少，因此大學的歷史課程中則不可或缺。是以，透過是項課程的教學，讓學生對於日本歷史的發展以及文化特色等有所認識。進而以增進中（台）、日兩國之間的瞭解與互動，建立雙方的友好關係，此為是項課程教學之計畫及目標。	2	General Course	共同教育中心博雅教育組	SDG10、SDG17
2021	Undergraduate	1	A	中日關係史(歷史)	A History of Sino-Japanese Relation	In the past 2,000 years of China-Japan relations, Japan has benefited a lot from China, but since the establishment of the Meiji government (1868), the basic national policy of Japan is to produce and prosper, to enrich the country and strengthen the army, and to have a strong army from a rich country, and to move towards a world power, but China began to suffer from Japan, because China does not understand Japan. Moreover, in recent years, Japanese scholars have been studying China (Taiwan), but there are very few scholars in Taiwan studying Japan, so it is indispensable for university history courses. Therefore, through the teaching of this course, students can learn about the development of Japanese history and cultural characteristics. This course is designed to promote understanding and interaction between China (Taiwan) and Japan and to establish friendly relations between the two countries.	過去二千年來的中日關係，日本受惠於中國者甚厚，但自日本明治政府成立（1868年）以後，以殖產興業、富國強兵作基本國策，並且由富國擁有強大的軍隊，進而邁向世界強國，中國卻開始飽受日本之害，此因中國不瞭解日本之故。更且，近年來日本學者研究中國（台灣）者頗為豐碩，但台灣之學者研究日本者特少，因此大學的歷史課程中則不可或缺。是以，透過是項課程的教學，讓學生對於日本歷史的發展以及文化特色等有所認識。進而以增進中（台）、日兩國之間的瞭解與互動，建立雙方的友好關係，此為是項課程教學之計畫及目標。	2	General Course	共同教育中心博雅教育組	SDG10、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	地球環境與人生(自然)	Earth Environment and Human Life	This course covers the formation of Taiwan, including national parks, coasts, rivers, mountain forests, estuarine wetlands, marine corals, and special plants and animals, encouraging students to explore the natural world. Students are encouraged to explore the natural world and develop an interest in exploring it.	國人有全面國家遊而不知台灣本身就是一美麗之島」。 台灣由於特殊的造山環境（地形特殊）並位處太平洋季風區及熱帶－亞熱帶（生態豐富，氣候宜人），是發展觀光業的好地方。此外，國人對身處的環境應有深入的了解，才能喚起愛鄉愛國並維護環境和生態的意識。本課程自台灣的形成談起，內容包括國家公園、海岸、河流、山地森林、河口溼地，海域珊瑚，特殊動植物等，鼓勵學生自動探索， 培養其對自然界探索的興趣。	2	General Course	共同教育中心博雅教育組	SDG8、SDG13
2021	Undergraduate	1	A	性別議題與親密關係發展(人格)	Gender Issues and Close Relationship Development	1. to increase sensitivity to gender issues 2. to explore issues related to the development of intimate relationships 3. to consider theories and contents of gender differences from gender roles 4. to explore special issues in gender relationships - homosexuality, internet romance, sexual harassment, dating rape	1.增加對性別議題的敏感度 2.探討親密關係發展的相關議題 3.從性別角色思考兩性差異的相關理論與內容 4.探討性別關係中的特殊議題—同性戀、網路戀情、性騷擾、約會強暴	2	General Course	共同教育中心博雅教育組	SDG5
2021	Undergraduate	1	A	臺灣文化史(歷史)	Cultural History of Taiwan	This course is designed to help students understand the 400 years of Taiwanese history, including important people, events, and the evolution and importance of history, and to help them analyze the various domestic and international issues facing Taiwan today. This course is a basic training course in Taiwanese history, providing students with knowledge of Taiwanese history and culture, with the aim of helping students understand Taiwanese culture and affirm the superiority of their own culture. The course aims to help students understand Taiwan's culture and affirm their own cultural superiority.	生於斯，長於斯，不可不知台灣事。本課程旨在幫助修課同學瞭解四百年台灣歷史的梗概，包括重要人物、事件以及歷史的沿革與重要性，裨益同學分析當前台灣所面臨的國內和國際的種種問題。本課程屬於台灣歷史的基礎訓練課程，主要提供台灣歷史與文化的知識授與學生，旨在幫助學生瞭解台灣文化，進而肯定自身文化的優越性。 增進學生對於台灣文化發展的瞭解，透過各個不同時期的歷史文化，使學生明白台灣文化的多樣性，進而凝聚「軟實力」的向心力量。	2	General Course	共同教育中心博雅教育組	SDG3
2021	Undergraduate	1	B	海洋考古(人格)	The Maritime Archaeology	1. Respond to the campaign of marine humanistic education launched by Ministry of Education, and enhance the students' knowledge about the marine history. 2. In recent years, the Government starts to value the underwater cultural heritage and has drafted the Law on the Conservation of Underwater Cultural Heritage. The purpose of this course is to make the students know the development process and achievements of the marine archeology in Taiwan and other countries, and to use the achievements of marine archeology to explain the marine civilization of that area. 3. As a branch of the marine cultural studies, the marine archeology involves the material heritage of marine culture created by the ancient human race, through which we can have another channel to understand the development process of marine civilization. 4. The achievements of marine archeology can reconstruct, verify, revise and enrich the marine historic culture. Thus, with the marine education being increasingly valu	1.配合教育部海洋人文教育的推廣，強化同學海洋史知識 2.近來政府開始重視水下文化資產，並草擬水下文化資產保存法，本課程即是要讓同學瞭解世界 各國以至臺灣其海洋考古發展歷程與成果，並利用海洋考古成果說明該地區之海洋文明。 3.做為研究海洋文化的眾多分支學科之一，海洋考古涉及古代人類創造海洋文化的物質文化遺存，透過它可以讓我們多一個管道來瞭解海洋文明發展歷程。 4.海洋考古成果可重新建構、驗證、修正、以及豐富海洋歷史文化本身，因此在海洋教育逐漸被 政府當局重視之際，希冀透過本課程，帶領同學以海洋考古的角度以及對於海洋文明的進一步 瞭解，來強化自己的海洋人文知識與海洋史觀。 5.從知海到親海到利用海洋，這是身為海島子民必須要認真面對的重要課題，本課程希冀能誘發 同學對海洋的關注。 6.希冀引發同學對海洋考古產生興趣，成為臺灣海洋考古隊的生力軍。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	B	海洋考古(人格)	The Maritime Archaeology	1. Respond to the campaign of marine humanistic education launched by Ministry of Education, and enhance the students' knowledge about the marine history. 2. In recent years, the Government starts to value the underwater cultural heritage and has drafted the Law on the Conservation of Underwater Cultural Heritage. The purpose of this course is to make the students know the development process and achievements of the marine archeology in Taiwan and other countries, and to use the achievements of marine archeology to explain the marine civilization of that area. 3. As a branch of the marine cultural studies, the marine archeology involves the material heritage of marine culture created by the ancient human race, through which we can have another channel to understand the development process of marine civilization. 4. The achievements of marine archeology can reconstruct, verify, revise and enrich the marine historic culture.	1、 配合教育部海洋人文教育的推廣，強化同學海洋史知識。 2、 近來政府開始重視水下文化資產，並通過水下文化資產保存法，本課程即是要讓同學瞭解世界各國以至臺灣其海洋考古發展歷程與成果，並利用海洋考古成果說明該地區之海洋文明。 3、 做為研究海洋文化的眾多分支學科之一，海洋考古涉及古代人類創造海洋文化的物質文化遺存，透過它可以讓我們多一個管道來瞭解海洋文明發展歷程。 4、 海洋考古成果可重新建構、驗證、修正、以及豐富海洋歷史文化本身，因此在海洋教育逐漸被政府當局重視之際，希冀透過本課程，帶領同學以海洋考古的角度以及對於海洋文明的進一步瞭解，來強化自己的海洋人文知識與海洋史觀。 5、 從知海到親海到利用海洋，這是身為海島子民必須要認真面對的重要課題，本課程希冀能誘發同學對海洋的關注。 6、希冀引發同學對海洋考古產生興趣，成為臺灣海洋考古隊的生力軍。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	A	海洋考古(人格)	The Maritime Archaeology	1. Respond to the campaign of marine humanistic education launched by Ministry of Education, and enhance the students' knowledge about the marine history. 2. In recent years, the Government starts to value the underwater cultural heritage and has drafted the Law on the Conservation of Underwater Cultural Heritage. The purpose of this course is to make the students know the development process and achievements of the marine archeology in Taiwan and other countries, and to use the achievements of marine archeology to explain the marine civilization of that area. 3. As a branch of the marine cultural studies, the marine archeology involves the material heritage of marine culture created by the ancient human race, through which we can have another channel to understand the development process of marine civilization. 4. The achievements of marine archeology can reconstruct, verify, revise and enrich the marine historic culture. Thus, with the marine education being increasingly valu	1.配合教育部海洋人文教育的推廣，強化同學海洋史知識 2.近來政府開始重視水下文化資產，並草擬水下文化資產保存法，本課程即是要讓同學瞭解世界 各國以至臺灣其海洋考古發展歷程與成果，並利用海洋考古成果說明該地區之海洋文明。 3.做為研究海洋文化的眾多分支學科之一，海洋考古涉及古代人類創造海洋文化的物質文化遺存，透過它可以讓我們多一個管道來瞭解海洋文明發展歷程。 4.海洋考古成果可重新建構、驗證、修正、以及豐富海洋歷史文化本身，因此在海洋教育逐漸被 政府當局重視之際，希冀透過本課程，帶領同學以海洋考古的角度以及對於海洋文明的進一步 瞭解，來強化自己的海洋人文知識與海洋史觀。 5.從知海到親海到利用海洋，這是身為海島子民必須要認真面對的重要課題，本課程希冀能誘發 同學對海洋的關注。 6.希冀引發同學對海洋考古產生興趣，成為臺灣海洋考古隊的生力軍。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	A	海洋考古(人格)	The Maritime Archaeology	1. Respond to the campaign of marine humanistic education launched by Ministry of Education, and enhance the students' knowledge about the marine history. 2. In recent years, the Government starts to value the underwater cultural heritage and has drafted the Law on the Conservation of Underwater Cultural Heritage. The purpose of this course is to make the students know the development process and achievements of the marine archeology in Taiwan and other countries, and to use the achievements of marine archeology to explain the marine civilization of that area. 3. As a branch of the marine cultural studies, the marine archeology involves the material heritage of marine culture created by the ancient human race, through which we can have another channel to understand the development process of marine civilization. 4. The achievements of marine archeology can reconstruct, verify, revise and enrich the marine historic culture. Thus, with the marine education being increasingly valu	1、 配合教育部海洋人文教育的推廣，強化同學海洋史知識。 2、 近來政府開始重視水下文化資產，並通過水下文化資產保存法，本課程即是要讓同學瞭解世界各國以至臺灣其海洋考古發展歷程與成果，並利用海洋考古成果說明該地區之海洋文明。 3、 做為研究海洋文化的眾多分支學科之一，海洋考古涉及古代人類創造海洋文化的物質文化遺存，透過它可以讓我們多一個管道來瞭解海洋文明發展歷程。 4、 海洋考古成果可重新建構、驗證、修正、以及豐富海洋歷史文化本身，因此在海洋教育逐漸被政府當局重視之際，希冀透過本課程，帶領同學以海洋考古的角度以及對於海洋文明的進一步瞭解，來強化自己的海洋人文知識與海洋史觀。 5、 從知海到親海到利用海洋，這是身為海島子民必須要認真面對的重要課題，本課程希冀能誘發同學對海洋的關注。 6、希冀引發同學對海洋考古產生興趣，成為臺灣海洋考古隊的生力軍。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	A	面對全球暖化之海洋科技(科技)	Marine Sciences & Technologies To Cope With The Global Warming	In the face of the warming crisis, there are many technological actions, including marine science and engineering technology. Since the students of the University are from different departments, this course is structured similar to the contents of a popular science course, and is subdivided into 14 topics. We hope that the students will create a new civilization for human beings in any corner of the world.	面對暖化危機，因應的科技動作繁多，包括海洋科學與工程技術兩大部分的海洋科技亦然。海大學生所屬科系不同，故架構出類似科普級之本課程內容，就此兩大部分再分門別類細分十四項專題，聘請海大資深而熱衷關懷全球暖化與永續經營地球的十二位教授，分別介紹不同領域的海洋科技如何看待和對待全球暖化，以精彩的授課和考核方式激勵學生腦力激盪，期望學生們出社會後在任何角落開創人類的新文明。	2	General Course	共同教育中心博雅教育組	SDG12、SDG13

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	三國志與三國演義(經典)	Orthodox History About The Three Kingdom Period & Romance of Three Kingdoms	Most people rely on the Romance of the Three Kingdoms to build their concept of Three Kingdoms history. The content of the Romance of the Three Kingdoms has influenced Chinese people's life, thinking, interpersonal relationships, and value judgments in a wide range of aspects, and it is also a time traveler, and modern popular games also use the history of the Three Kingdoms as a background stage. However, there are many differences between the history shaped by the people and the official history. The analysis of the differences in the classroom will show the objective historical choices and subjective aspirations, the official insistence of the big history and the folk power of the small history, and so on, so that the learners will be aware of the cultural background that they have not noticed. Secondly, with the characters as the warp and the historical events as the weft, we discuss the life experiences of all kinds of people in the chaotic world and in the unpredictable world situation, so that the students can realize the meaning of life, reflect on the value of life, and learn to observe human nature in order to gain a foothold in society. In addition, through the study of the original texts, students can appreciate the beauty of the classical writings, and through the analysis of ancient people and events, they can gain insight into the present and current events.	一般人對三國歷史概念的建立大多依賴三國演義，三國演義的內容對中國人的生活、思維、人際關係、價值判斷多所影響，層面寬廣之外，猶穿越時空，現代流行的遊戲亦有以三國歷史為背景舞臺的。 然演義是由民間形塑成的歷史，與正史由官方撰述成的歷史，多所差異。課堂上對差異形成的分析，將展現客觀歷史的抉擇與主觀願望的懵往，大歷史的官方堅持與小歷史的民間力量等等，令學習者醒覺習焉不察的文化底蘊。 其次，以人物為經，以史事為緯，論述處亂世形形色色人物，在變化莫測世局的生命歷練，令學習者體悟生命的意義，返思人生的價值，進而學習觀察人性，以利立足社會。 再者，藉原典原文的研讀，得欣賞經典著作文章之美，假古人古事的析論，能洞悉今人今事之理。	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	三國志與三國演義(經典)	Orthodox History About The Three Kingdom Period & Romance of Three Kingdoms	Most people rely on the Romance of the Three Kingdoms to build their concept of Three Kingdoms history. The content of the Romance of the Three Kingdoms has influenced Chinese people's life, thinking, interpersonal relationships, and value judgments in a wide range of aspects, and it is also a time traveler, and modern popular games also use the history of the Three Kingdoms as a background stage. However, there are many differences between the history shaped by the people and the official history. The analysis of the differences in the classroom will show the objective historical choices and subjective aspirations, the official insistence of the big history and the folk power of the small history, and so on, so that the learners will be aware of the cultural background that they have not noticed. Secondly, with the characters as the warp and the historical events as the weft, we discuss the life experiences of all kinds of people in the chaotic world and in the unpredictable world situation, so that the students can realize the meaning of life, reflect on the value of life, and learn to observe human nature in order to gain a foothold in society. In addition, through the study of the original texts, students can appreciate the beauty of the classical writings, and through the analysis of ancient people and events, they can gain insight into the present and current events.	一般人對三國歷史概念的建立大多依賴三國演義，三國演義的內容對中國人的生活、思維、人際關係、價值判斷多所影響，層面寬廣之外，猶穿越時空，現代流行的遊戲亦有以三國歷史為背景舞臺的。 然演義是由民間形塑成的歷史，與正史由官方撰述成的歷史，多所差異。課堂上對差異形成的分析，將展現客觀歷史的抉擇與主觀願望的懵往，大歷史的官方堅持與小歷史的民間力量等等，令學習者醒覺習焉不察的文化底蘊。 其次，以人物為經，以史事為緯，論述處亂世形形色色人物，在變化莫測世局的生命歷練，令學習者體悟生命的意義，返思人生的價值，進而學習觀察人性，以利立足社會。 再者，藉原典原文的研讀，得欣賞經典著作文章之美，假古人古事的析論，能洞悉今人今事之理。	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	世界名歌欣賞(經典)	An Appreciation of The World Famous Songs	(1)his course is an interactive and life-like introduction to the classic series of songs from around the world, exploring the connotations of their musical art and their diverse styles. The course introduces the song compositions inspired by different countries and languages, and the factors that influence the development of songs, with the aim of developing appreciation and singing skills. (2) To learn the pronunciation of the lyrics of classic songs from different countries through fun and practical exercises, to gain experience and learn the basic pronunciation of various languages, and to understand the beauty of the art presented in the process of combining words and songs. (3) To learn about the various genres and vocal styles of the world's most famous songs, so that students can feel a sense of kinship with the places where they live and grow up, and can develop a love of the land to which they belong and an international world view. (4) The introduction of songs in different singing styles and the classroom group activity reports reveal the beauty and artistic realm of different song voices, which will be useful for students' life adjustment and future career learning skills orientation.	〈一〉本課程以互動式、生活化介紹世界各地名歌之經典系列介紹，探討其音樂藝術之內涵及其多樣貌風格。介紹不同國家、語言所激發出的歌曲創作，其影響到歌曲之發展因素等，藉以培養鑑賞能力及歌唱技能之素養為導向。 〈二〉從趣味化的實際習唱中，學習到不同國家經典名歌中其歌詞語言的發音，從中獲取經驗的累積，能學習多種語言之基本發音，了解到歌曲的詞與曲結合過程中所呈現的藝術之美。 〈三〉認識世界名歌各種類型、聲樂演唱方式呈現，使學生與其生活、生長背景之鄉土具有親切感，更能產生認同歸屬的土地之愛與國際世界觀。 〈四〉從不同的演唱方式之歌曲介紹與課堂分組活動報告，呈現出不同的歌謠聲音之美與藝術化的境界，對於學生生活調劑及未來就職學習技能導向皆能有所助益。	2	General Course	共同教育中心博雅教育組	SDG3、SDG5、SDG17
2021	Undergraduate	1	A	世界名歌欣賞(經典)	An Appreciation of The World Famous Songs	(1)his course is an interactive and life-like introduction to the classic series of songs from around the world, exploring the connotations of their musical art and their diverse styles. The course introduces the song compositions inspired by different countries and languages, and the factors that influence the development of songs, with the aim of developing appreciation and singing skills. (2) To learn the pronunciation of the lyrics of classic songs from different countries through fun and practical exercises, to gain experience and learn the basic pronunciation of various languages, and to understand the beauty of the art presented in the process of combining words and songs. (3) To learn about the various genres and vocal styles of the world's most famous songs, so that students can feel a sense of kinship with the places where they live and grow up, and can develop a love of the land to which they belong and an international world view. (4) The introduction of songs in different singing styles and the classroom group activity reports reveal the beauty and artistic realm of different song voices, which will be useful for students' life adjustment and future career learning skills orientation.	〈一〉本課程以互動式、生活化介紹世界各地名歌之經典系列介紹，探討其音樂藝術之內涵及其多樣貌風格。介紹不同國家、語言所激發出的歌曲創作，其影響到歌曲之發展因素等，藉以培養鑑賞能力及歌唱技能之素養為導向。 〈二〉從趣味化的實際習唱中，學習到不同國家經典名歌中其歌詞語言的發音，從中獲取經驗的累積，能學習多種語言之基本發音，了解到歌曲的詞與曲結合過程中所呈現的藝術之美。 〈三〉認識世界名歌各種類型、聲樂演唱方式呈現，使學生與其生活、生長背景之鄉土具有親切感，更能產生認同歸屬的土地之愛與國際世界觀。 〈四〉從不同的演唱方式之歌曲介紹與課堂分組活動報告，呈現出不同的歌謠聲音之美與藝術化的境界，對於學生生活調劑及未來就職學習技能導向皆能有所助益。	2	General Course	共同教育中心博雅教育組	SDG3、SDG5、SDG17
2021	Undergraduate	1	A	成功的策略與人生智慧(人格)	The Successful Strategy And The Wisdom of Life	In order to help students to understand the strategy of doing things with strategy, and to cultivate students' life experience, and to achieve the goal of life university liberal arts education.	為使同學了解以策略做是以謀略做人之謀略學，藉以培養同學增長人生歷練，達成人生大學通識教育目標。	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	全球化、朝聖與旅遊(全球)	Globalization, Pilgrimage and Tourism	A broad ethnographic and sociological discussion of tourism from a global perspective. It is about how people leave their places of daily work and life for short periods of time. Religious pilgrimage travel emerged in the 8th century B.C., with ancient Egypt celebrating on a grand scale and pilgrims coming from all countries along the Nile River; the Greek Olympian feast, which gradually made religious pilgrimages a worldwide event; and the prevalence of religious pilgrimages in the world. The Olympiad festival in Greece made religious pilgrimages a worldwide event; the pilgrimages of Muslims to Mecca, Christians to Jerusalem, Rome and Santiago, which were prevalent in the medieval period, were also popular. The course also explores the pilgrimage of Christians to Jerusalem, Rome and Santiago.	以全球性的角度，廣泛對旅遊進行人類學與社會學論述。人們怎樣短期離開自己日常工作和生活的地方。 在西元前8世紀興起宗教朝聖旅行，古埃及規模隆重的慶典，尼羅河沿岸各國的朝聖者順江而至；希臘的奧林皮亞節盛典，更是讓宗教朝覲逐漸成為了一種世界性的活動；還有盛行於中世紀時期的伊斯蘭教徒去參加朝聖，基督教徒去耶路撒冷、羅馬和聖地牙哥朝聖，本課程亦一併探討。	2	General Course	共同教育中心博雅教育組	SDG10、SDG16、SDG17
2021	Undergraduate	1	A	電影詮釋與文化研究(美學)	Film Interpretation & Cultural Study	To guide the understanding of film as a social practice, and to understand the production and consumption of film as well as its pleasure and meaning, is the role of culture.	引導了解電影乃是一種社會實踐,並了解電影的生產與消費以及其快感與意義都是文化的作用。	2	General Course	共同教育中心博雅教育組	SDG10
2021	Undergraduate	1	A	戰爭、武器、流亡詩人與全球公民(科技)	War, Weapons, Poets in Exile & Global Citizenship	This course discusses how mankind has evolved from early weapons to today's information warfare and air-to-space, air-to-sea warfare. However, many media still focus on warfare. This course connects literature with warfare and weapons to raise students' awareness of weapons technology and reflections on peace, and to increase their understanding of global citizenship.	戰爭與槍炮的傳播與管制已成國際重視的大議題，尤其是武器科技的發展大大改變了現代戰爭與戰略。本課程討論人類如何由早期的武器發展至今天的資訊戰與空天，空海一體戰。但許多媒體仍以渲染戰爭為重點，本課程串連文獻與戰爭、武器，提升學生對武器科技與和平反思的重視，增進對全球公民的認識。	2	General Course	共同教育中心博雅教育組	SDG16、SDG17
2021	Undergraduate	1	A	戰爭、武器、流亡詩人與全球公民(科技)	War, Weapons, Poets in Exile & Global Citizenship	This course discusses how mankind has evolved from early weapons to today's information warfare and air-to-space, air-to-sea warfare. However, many media still focus on warfare. This course connects literature with warfare and weapons to raise students' awareness of weapons technology and reflections on peace, and to increase their understanding of global citizenship.	戰爭與槍炮的傳播與管制已成國際重視的大議題，尤其是武器科技的發展大大改變了現代戰爭與戰略。本課程討論人類如何由早期的武器發展至今天的資訊戰與空天，空海一體戰。但許多媒體仍以渲染戰爭為重點，本課程串連文獻與戰爭、武器，提升學生對武器科技與和平反思的重視，增進對全球公民的認識。。	2	General Course	共同教育中心博雅教育組	SDG16、SDG17
2021	Undergraduate	1	A	臺灣海洋史(歷史)	The Maritime History of Taiwan	The educational mission of Ocean University is to place equal emphasis on marine professions, marine science and technology, and humanities, and to be "based on the ocean, facing the whole country, and going global". The goal of this course is to establish a humanistic foundation for maritime education and to meet the needs of liberal arts education, so that students can understand the historical and cultural connections between the sea and Taiwan, appreciate the interaction between people and the natural environment, and gain a better understanding of the historical background of their professional knowledge. The course covers a wide range of topics, including trade, shipping, fisheries, ports, shipbuilding, migration, maritime disasters, beliefs in sea gods, and maritime industries, as well as economic history, transportation history, technology history, international relations, and religious beliefs. In addition to broadening students' view of the sea, the course also focuses on the importance of interdisciplinary learning through the sea. 3. From knowing the sea to loving the sea to using the sea/ caring for the sea. 4. To cultivate the character of "tolerance for all rivers".	1.海洋大學之教育宗旨，以海洋專業、海洋科技與人文三者並重，並期「立足海洋、面向全國、走向世界」。本課程教學目標為建立海洋教育所應有的人文基礎，並契合通識教育之需要，以期學生瞭解海洋與臺灣歷史文化的關連性，體會人與自然環境的互動，希冀其對本科專業知識的歷史背景能有進一步的認識。 2.海洋史的內容豐富，包括：貿易、航運、漁業、港口、造船，移民、海難、海神信仰、海洋產業等不同主題，涵蓋經濟史、交通史、科技史、國際關係、宗教信仰等研究領域。除了拓展同學的海洋觀之視野外，另以海洋為核心，使學生認識跨科學習的重要性。 3.從知海到親海到利用海洋/關懷海洋。 4.海納百川，有容乃大的人格養成。 5.培養同學實踐社會責任的態度。	2	General Course	共同教育中心博雅教育組	SDG4、SDG10、SDG11、SDG12

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	臺灣海洋史(歷史)	The Maritime History of Taiwan	The educational mission of Ocean University is to place equal emphasis on marine professions, marine science and technology, and humanities, and to be "based on the ocean, facing the whole country, and going global". The goal of this course is to establish a humanistic foundation for maritime education and to meet the needs of liberal arts education, so that students can understand the historical and cultural connections between the sea and Taiwan, appreciate the interaction between people and the natural environment, and gain a better understanding of the historical background of their professional knowledge. The course covers a wide range of topics, including trade, shipping, fisheries, ports, shipbuilding, migration, maritime disasters, beliefs in sea gods, and maritime industries, as well as economic history, transportation history, technology history, international relations, and religious beliefs. In addition to broadening students' view of the sea, the course also focuses on the importance of interdisciplinary learning through the sea. 3. From knowing the sea to loving the sea to using the sea/ caring for the sea. 4. To cultivate the character of "tolerance for all rivers".	一、 海洋大學之教育宗旨，以海洋專業、海洋科技與人文三者並重，並期「立足海洋、面向全國、走向世界」。本課程教學目標為建立海洋教育所應有的人文基礎，另配合教育部海洋教育的推廣，強化同學海洋史知識。 二、 海洋史的內容豐富，包括：貿易、航運、漁業、港口、造船，移民、海難、海神信仰、海洋產業等不同主題，涵蓋經濟史、交通史、科技史、國際關係、宗教信仰等研究領域。除了拓展同學的海洋史觀之視野外，並培養其海洋人文素養。 三、 從知海到親海到利用海洋/關懷海洋。 四、 海納百川，有容乃大的人格養成。 五、 培養同學實踐社會責任的態度。	2	General Course	共同教育中心博雅教育組	SDG4、SDG10、SDG11、SDG12
2021	Undergraduate	1	A	海洋文化與城市歷史(歷史)	Ocean Culture & City History	Marine Culture and Urban History is an emerging and comprehensive discipline that encompasses both the humanities and the social sciences and basic theories, and has significant academic value and potential for development. This course aims to help students understand the impact of maritime culture on urban history, including the history and events, and to help them understand the various issues of maritime countries, so that they can understand the diversity of maritime culture and build up their future "soft power" for cultural and creative activities or tourism.	海洋文化與城市歷史是一門新興的綜合性學科，既包含了人文科學，也包含了社會科學與基礎理論學科，具有重要的學術價值和發展潛力。本課程旨在幫助修課同學瞭解海洋文化對城市歷史的影響，包括歷史的沿革、事件等等，裨益同學了解海洋國家的種種問題，使學生明白海洋文化的多樣性，進而凝聚未來從事文創或觀光的「軟實力」。 補課方式:每堂課延長6分鐘。	2	General Course	共同教育中心博雅教育組	SDG11、SDG14
2021	Undergraduate	1	B	海洋文化與城市歷史(歷史)	Ocean Culture & City History	Marine Culture and Urban History is an emerging and comprehensive discipline that encompasses both the humanities and the social sciences and basic theories, and has significant academic value and potential for development. This course aims to help students understand the impact of maritime culture on urban history, including the history and events, and to help them understand the various issues of maritime countries, so that they can understand the diversity of maritime culture and build up their future "soft power" for cultural and creative activities or tourism.	海洋文化與城市歷史是一門新興的綜合性學科，既包含了人文科學，也包含了社會科學與基礎理論學科，具有重要的學術價值和發展潛力。本課程旨在幫助修課同學瞭解海洋文化對城市歷史的影響，包括歷史的沿革、事件等等，裨益同學了解海洋國家的種種問題，使學生明白海洋文化的多樣性，進而凝聚未來從事文創或觀光的「軟實力」。 (補課方式:每堂課延長6分鐘。)	2	General Course	共同教育中心博雅教育組	SDG8、SDG14
2021	Undergraduate	1	A	海洋文化與城市歷史(歷史)	Ocean Culture & City History	Marine Culture and Urban History is an emerging and comprehensive discipline that encompasses both the humanities and the social sciences and basic theories, and has significant academic value and potential for development. This course aims to help students understand the impact of maritime culture on urban history, including the history and events, and to help them understand the various issues of maritime countries, so that they can understand the diversity of maritime culture and build up their future "soft power" for cultural and creative activities or tourism.	海洋文化與城市歷史是一門新興的綜合性學科，既包含了人文科學，也包含了社會科學與基礎理論學科，具有重要的學術價值和發展潛力。本課程旨在幫助修課同學瞭解海洋文化對城市歷史的影響，包括歷史的沿革、事件等等，裨益同學了解海洋國家的種種問題，使學生明白海洋文化的多樣性，進而凝聚未來從事文創或觀光的「軟實力」。 補課方式:每堂課延長6分鐘。	2	General Course	共同教育中心博雅教育組	SDG11、SDG14
2021	Undergraduate	1	B	性別平權教育(民主)	Education of Gender Equality	(1). To understand the importance of gender equality, to discover the diversity of human rights through gender equality, and to consider how gender and its changes are perceived in the context of globalization. (2). To assess the learning process of students through multiple assessment methods. (3). Develop students' critical, reflective, and creative skills through visioning workshops	（1）.瞭解性別平權的重要性，同時藉由性別平權發現人權的多樣面貌，以及在全球化脈絡下思考如何看待性別及其轉變。 （2）.透過多元評量方式評量學生的學習過程 （3）.透過願景工作坊養成學生批判、思考及創造能力	2	General Course	共同教育中心博雅教育組	SDG5
2021	Undergraduate	1	B	性別平權教育(民主)	Education of Gender Equality	(1). To understand the importance of gender equality, to discover the diversity of human rights through gender equality, and to consider how gender and its changes are perceived in the context of globalization. (2). To assess the learning process of students through multiple assessment methods. (3). Develop students' critical, reflective, and creative skills through visioning workshops	（1）.瞭解性別平權的重要性，同時藉由性別平權發現人權的多樣面貌，以及在全球化脈絡下思考如何看待性別及其轉變。 （2）.透過多元評量方式評量學生的學習過程 （3）.透過願景工作坊養成學生批判、思考及創造能力	2	General Course	共同教育中心博雅教育組	SDG5
2021	Undergraduate	1	A	性別平權教育(民主)	Education of Gender Equality	(1). To understand the importance of gender equality, to discover the diversity of human rights through gender equality, and to consider how gender and its changes are perceived in the context of globalization. (2). To assess the learning process of students through multiple assessment methods. (3). Develop students' critical, reflective, and creative skills through visioning workshops	（1）.瞭解性別平權的重要性，同時藉由性別平權發現人權的多樣面貌，以及在全球化脈絡下思考如何看待性別及其轉變。 （2）.透過多元評量方式評量學生的學習過程 （3）.透過願景工作坊養成學生批判、思考及創造能力	2	General Course	共同教育中心博雅教育組	SDG5
2021	Undergraduate	1	A	性別平權教育(民主)	Education of Gender Equality	(1). To understand the importance of gender equality, to discover the diversity of human rights through gender equality, and to consider how gender and its changes are perceived in the context of globalization. (2). To assess the learning process of students through multiple assessment methods. (3). Develop students' critical, reflective, and creative skills through visioning workshops	（1）.瞭解性別平權的重要性，同時藉由性別平權發現人權的多樣面貌，以及在全球化脈絡下思考如何看待性別及其轉變。 （2）.透過多元評量方式評量學生的學習過程 （3）.透過願景工作坊養成學生批判、思考及創造能力	2	General Course	共同教育中心博雅教育組	SDG5
2021	Undergraduate	1	A	海洋能源環境科學概論(自然)	Introduction to Environmental Science Related to Marine Energy	It is one of the core themes in the construction of the interdisciplinary system of marine energy science and technology, and is also one of the basic core courses required for the marine energy science and technology program.	使非自然科學領域學生對海洋能源環境所需認知的科學知識有初步瞭解，作為建構海洋能源科技跨領域系統之核心主題之一，亦屬於海洋能源科技學程必修的基礎核心課程之一。	2	General Course	共同教育中心博雅教育組	SDG7、SDG9
2021	Undergraduate	1	A	民主政治與人權(民主)	Democracy and Human Rights	This course will first lead students to explore the basic values of human rights, including human dignity, equality, freedom, autonomy, and justice. Students will then explore some actual cases of human rights actions in Taiwan and abroad, so that they can have both theoretical and practical knowledge. In addition, the students will be able to take practical actions related to the protection of human rights through group work, which will develop their civic action ability and strengthen their human rights awareness.	「人權」是人生而擁有的基本權利，因此，具備人權的相關知識，便成為公民維護自己與他人權益的必備條件。要真正理解人權的內涵，首先須探索人權內蘊的基本價值，在運用上才能超越現有法規的羈絆，而有更高遠的視野。同時，在探討人權議題時，也更能判斷是非對錯，或提出具說服力的理據。但人權不能只是停留在知識層次，它還需在行動中被捍衛、踐履，方能發揮其意義。基於上述諸項因素，本課程將先帶領學生逐一探索人權的基本價值，主要包括：人性尊嚴、平等、自由、自主與正義。接著探討國內、外一些實際的人權行動案例，使學生能兼具理論性跟實務性的知識。除此，也透過分組的方式，讓學實際進行與維護人權有關的行動，而能培養其公民的	2	General Course	共同教育中心博雅教育組	SDG10、SDG16
2021	Undergraduate	1	B	民主政治與人權(民主)	Democracy and Human Rights	This course will first lead students to explore the basic values of human rights, including human dignity, equality, freedom, autonomy, and justice. Students will then explore some actual cases of human rights actions in Taiwan and abroad, so that they can have both theoretical and practical knowledge. In addition, the students will be able to take practical actions related to the protection of human rights through group work, which will develop their civic action ability and strengthen their human rights awareness.	「人權」是人生而擁有的基本權利，因此，具備人權的相關知識，便成為公民維護自己與他人權益的必備條件。要真正理解人權的內涵，首先須探索人權內蘊的基本價值，在運用上才能超越現有法規的羈絆，而有更高遠的視野。同時，在探討人權議題時，也更能判斷是非對錯，或提出具說服力的理據。但人權不能只是停留在知識層次，它還需在行動中被捍衛、踐履，方能發揮其意義。基於上述諸項因素，本課程將先帶領學生逐一探索人權的基本價值，主要包括：人性尊嚴、平等、自由、自主與正義。接著探討國內、外一些實際的人權行動案例，使學生能兼具理論性跟實務性的知識。除此，也透過分組的方式，讓學實際進行與維護人權有關的行動，而能培養其公民的	2	General Course	共同教育中心博雅教育組	SDG10、SDG16
2021	Undergraduate	1	A	海巡法規概要(民主)	Introduction to Coast Guard Law	This course provides students with a preliminary understanding of the legal basis for the enforcement of the National Maritime Patrol Service, the guidelines for law enforcement, and the cultivation of basic maritime law intelligence. [This course will enable students to prepare for the special examination for the Marine Patrol and the general police examinations for the Marine Police (Navigation and Engine), and to become more comfortable with the single professional examination subject (Marine Patrol Laws and Regulations).	使學生能夠初步了解我國海巡署執行任務之相關法源依據、安檢勤務執法準則、培養學生基礎海洋事務法令智能外，使其奠定投入海巡相關職場時，能對基礎實務問題有所認知與應用。[修習本課程可增加同學未來準備海巡特考、一般警察人員考試水上警察職科(航海組、輪機組)裡之單科專業考試科目(海巡法規)上，能夠更加得心應手!]	2	General Course	共同教育中心博雅教育組	SDG16
2021	Undergraduate	1	A	刑法概要(民主)	A Summary of the Criminal Law	This course provides students with an understanding of the basic concepts, guiding principles, and the relationship between effectiveness and application of criminal law; and an overall awareness of the types of crimes, the basis for determining culpability, and doctrine.	藉由本課程使學生理解刑法基礎概念、指導原則、效力與適用關係；並對犯罪類型、罪責判斷基礎、學說有整體認知。	2	General Course	共同教育中心博雅教育組	SDG3、SDG4、SDG5、SDG6、SDG10、SDG11、SDG16
2021	Undergraduate	1	A	刑法概要(民主)	A Summary of the Criminal Law	This course provides students with an understanding of the basic concepts, guiding principles, and the relationship between effectiveness and application of criminal law; and an overall awareness of the types of crimes, the basis for determining culpability, and doctrine.	藉由本課程使學生理解刑法基礎概念、指導原則、效力與適用關係；並對犯罪類型、罪責判斷基礎、學說有整體認知。	2	General Course	共同教育中心博雅教育組	SDG3、SDG4、SDG5、SDG6、SDG10、SDG11、SDG16
2021	Undergraduate	1	A	卓越大師講座(民主)	Lectures of Excellent Masters	There are many life artists in our society, and their social status is obvious to all. They have a unique taste for life, a discerning and insightful view of society, and a compassion for the people. However, these living masters may not be able to come to school regularly to give lectures. Through the invitation of the "Masters of Excellence Lecture", students and community members can meet the masters, feel the attitude of living in art and art in life, and then realize the value of life and open up a broad vision.	在社會上有許多生活藝術家，他們的社會地位是有目共睹的。他們對生命有著獨到的品味，對社會能明察秋毫、能發表真知灼見，對百姓有悲天憫人的情懷。然而這些生活大師或許無法到校定期上課，透過「卓越大師講座」的邀請，可以讓學生及社區民眾親炙大師，感受生活於藝術、藝術於生活的態度，進而體會人生的價值、開拓通達的視野。	2	General Course	共同教育中心博雅教育組	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	卓越大師講座(民主)	Lectures of Excellent Masters	There are many life artists in our society, and their social status is obvious to all. They have a unique taste for life, a discerning and insightful view of society, and a compassion for the people. However, these living masters may not be able to come to school regularly to give lectures. Through the invitation of the "Masters of Excellence Lecture", students and community members can meet the masters, feel the attitude of living in art and art in life, and then realize the value of life and open up a broad vision.	在社會上有許多生活藝術家，他們的社會地位是有目共睹的。他們對生命有著獨到的品味，對社會能明察秋毫、能發表真知灼見，對百姓有悲天憫人的情懷。然而這些生活大師或許無法到校定期上課，透過「卓越大師講座」的邀請，可以讓學生及社區民眾親炙大師，感受生活於藝術、藝術於生活的態度，進而體會人生的價值、開拓通達的視野。	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	創業與管理(全球)	Enterprise and Management	1.How to establish a new enterprise. 2.Learn all the needed business management skills. 3.Finish an excellent new enterprise business plan. 4.Model company CEO help to improve your business plan.	創業與管理課程，旨在使學生瞭解如何運用所學，掌握產業發展趨勢，結合社會資源，並邀請產業界知名企業家分享實務經驗，逐步引導學生培養創業之各項關鍵能力，進而使學生具備創業及企業管理之概念。課程採分組習作,完成經營企劃書,並有產業界企業家協助指導修正企劃書,期末並會進行創業競賽,邀企業家參與評審.上完本課程,學生會學會簡報技巧.會議主持.構建網路平台.全面品管及行銷能力提升.	2	General Course	共同教育中心博雅教育組	SDG8
2021	Undergraduate	1	A	創業與管理(全球)	Enterprise and Management	The aim is to enable students to understand how to apply their studies, grasp the trend of industrial development, combine social resources, and invite famous entrepreneurs in the industry to share their practical experience, so as to gradually guide students to develop various key abilities of entrepreneurship, and further equip them with the concept of entrepreneurship and business management.	創業與管理課程，旨在使學生瞭解如何運用所學，掌握產業發展趨勢，結合社會資源，並邀請產業界知名企業家分享實務經驗，逐步引導學生培養創業之各項關鍵能力，進而使學生具備創業及企業管理之概念。	2	General Course	共同教育中心博雅教育組	SDG8
2021	Undergraduate	1	A	創業管理之實務應用(全球)	Start An Enterprise	The aim is to enable students to continue the foundation of the business plan, further grasp the trend of industry development, deepen various analysis skills, create unique advantages, and integrate practical experience of well-known enterprises to gradually guide students to master the key factors of entrepreneurship, and further develop their future entrepreneurial and management skills.	進階創業與管理課程，旨在使學生延續營運計畫書所學基礎，進一步掌握產業發展趨勢，深入各種分析技巧，創造出特色優勢，結合知名企業實務經驗，逐步引導學生掌握創業之各項關鍵因素，進而培養學生未來創業及經營管理能力。	2	General Course	共同教育中心博雅教育組	SDG8
2021	Undergraduate	1	A	創業管理之實務應用(全球)	Start An Enterprise	1.How to establish a new enterprise. 2.Learn all the needed business management skills. 3.Finish an excellent new enterprise business plan. 4.Model company CEO help to improve your business plan. 5.Known the trend of new business style.	國外有許多年輕學子,在大學期間就創業成功,這與歐美先進國家優良創業環境有關,台灣近幾年也急起直追,愈來愈多的企業,願意支持年輕人創業.本進階創業與管理課程，旨在使學生延續營運計畫書所學基礎，進一步掌握產業發展趨勢，深入各種分析技巧，創造出特色優勢，結合知名企業實務經驗，逐步引導學生掌握創業之各項關鍵因素，進而培養學生未來創業及經營管理能力。課程採分組習作,完成經營企劃書,並有產業界企業家協助指導修正企劃書,期末並會進行創業競賽,邀企業家參與評審.上完本課程,學生會學會簡報技巧.會議主持.構建網路平台.全面品管及行銷能力提升.	2	General Course	共同教育中心博雅教育組	SDG8
2021	Undergraduate	1	A	生涯規劃與投資理財(全球)	Life Planning & Investment Management	Students will be guided to develop a positive outlook on life and values, and to live a life that they enjoy and contribute to their surroundings.	引導學生建立正面的人生觀及價值觀,過一個自己喜歡又對周遭有貢獻的人生.	2	General Course	共同教育中心博雅教育組	SDG2、SDG3、SDG4、SDG5、SDG9
2021	Undergraduate	1	A	優質企業人系列講座(全球)	Quality Man of NTOU	In view of the lack of role models in the society that young students face and the fact that they may have been influenced by bad companies and bad entrepreneurs, and the fact that primary and secondary school education and the social atmosphere are too localized and lack a global perspective, we invite CEOs of quality companies to come and speak about their own requirements for quality, their interpretation of success and the core values that lead to success, sustainable management, and the challenges they face in global deployment, so that students can prepare for their graduation from school.	有鑑於年輕學子所面對的社會缺乏典範，受劣質企業與劣質企業人耳濡目染，可能已以此為常態，加以中小學教育及社會氛圍過度本土化，缺乏全球視域，乃邀請優質企業CEO撥冗前來現身說法，闡述自身對品質的要求，對成功的詮釋及導致成功的核心價值、永續經營、以及全球佈局所面臨的挑戰，供學生為出校門預作準備。	2	General Course	共同教育中心博雅教育組	SDG4、SDG9、SDG12
2021	Undergraduate	1	A	音樂劇場(經典)	The Theater of Music	1.To approach the Art of Theater include of music forms, facility, backstage crew, different Theater performance stage….etc, to their appreciation with open minds and open ears. 2.To know the essential elements of Theater performance space from various stages, the evolution history of Opera Vs. Musical Theatre. The Theatre of dance with the body movement, music of tempo, melody, emotion. Animation film in music express the magic power attractive. Traditional music with the Theater perform to the folk theme of soul. 3.Form different kind of The Theatre of Music to know－literature and theatre, Classical music , popular music , Traditional music, as well as designs and expenses, have the good fun and intensive appreciation life. 4.The Theater games for improving creation by team work arrangement, this course aims to cultivate students" ability to body reaction, memory, concentration, imagination, body relaxing, improving student to learn and have achievement.	〈一〉認識經典劇場之藝術形式、演出，各式舞台的種類名稱，藉以培養學生欣賞能力的建立。 〈二〉學習到劇場美學涵蓋音樂元素的多元展演空間，如歌劇、音樂劇的比較及其演變發展的歷史，舞蹈劇場肢體與音樂節奏、線條、旋律情感的相關性，動畫電影配合音樂魔力吸引人的魅力風情，地方劇種中戲曲音樂又為其靈魂的主體。 〈三〉從諸多的音樂劇場中認識各種風格的音樂類型、動聽的歌曲，從中認識文學與戲劇、古典音樂、流行音樂、傳統音樂間的互動，進而使其生活能活潑化，且能有豐富的欣賞饗宴。 〈四〉安排創作性戲劇課程訓練分組活動進行，以遊戲為目標，激發身體的反應，對於學生記憶力，專注力、想像力、創造力、肌肉放鬆的訓練，有幫助學習的成效。	2	General Course	共同教育中心博雅教育組	SDG3、SDG5、SDG17
2021	Undergraduate	1	A	音樂劇場(經典)	The Theater of Music	1.To approach the Art of Theater include of music forms, facility, backstage crew, different Theater performance stage….etc, to their appreciation with open minds and open ears. 2.To know the essential elements of Theater performance space from various stages, the evolution history of Opera Vs. Musical Theatre. The Theatre of dance with the body movement, music of tempo, melody, emotion. Animation film in music express the magic power attractive. Traditional music with the Theater perform to the folk theme of soul. 3.Form different kind of The Theatre of Music to know－literature and theatre, Classical music , popular music , Traditional music, as well as designs and expenses, have the good fun and intensive appreciation life. 4.The Theater games for improving creation by team work arrangement, this course aims to cultivate students" ability to body reaction, memory, concentration, imagination, body relaxing, improving student to learn and have achievement.	〈一〉認識經典劇場之藝術形式、演出，各式舞台的種類名稱，藉以培養學生欣賞能力的建立。 〈二〉學習到劇場美學涵蓋音樂元素的多元展演空間，如歌劇、音樂劇的比較及其演變發展的歷史，舞蹈劇場肢體與音樂節奏、線條、旋律情感的相關性，動畫電影配合音樂魔力吸引人的魅力風情，地方劇種中戲曲音樂又為其靈魂的主體。 〈三〉從諸多的音樂劇場中認識各種風格的音樂類型、動聽的歌曲，從中認識文學與戲劇、古典音樂、流行音樂、傳統音樂間的互動，進而使其生活能活潑化，且能有豐富的欣賞饗宴。 〈四〉安排創作性戲劇課程訓練分組活動進行，以遊戲為目標，激發身體的反應，對於學生記憶力，專注力、想像力、創造力、肌肉放鬆的訓練，有幫助學習的成效。	2	General Course	共同教育中心博雅教育組	SDG3、SDG5、SDG17
2021	Undergraduate	1	A	藝術創作與心靈探討(美學)	Art Creation & Mind Exploration	Art has been practiced for years as a form of psychotherapy. All expressive arts, such as visual arts, music, dance, and theater, have their rich elements and energy to develop our mind, body, and spirit for a more harmonious and fulfilling life.	藝術作為一種心理治療已行之有年，舉凡視覺藝術、音樂、舞蹈、演劇等表現性藝術都具有其豐富元素與能量，開發我們身心靈，以使生活更加和諧完滿。	2	General Course	共同教育中心博雅教育組	SDG3
2021	Undergraduate	1	B	海洋社會科學概論(科技)	Introduction Marine Social Science	(1) To understand the nature and connotation of social science and to integrate the diverse learning and interests of natural science. (2) To cultivate students' concern and sentiment for the marine social and humanistic fields, and to construct a humanistic perspective on marine social science from marine social science theories. (3) To understand the relationship between maritime rights and national development, China's maritime policy and organizational mechanism, and the concept of strengthening maritime law enforcement and maintaining maritime security, and to establish the basic concepts of maritime law and politics. (4) To bring into full play the values and opportunities provided by the marine industry, and to shape the marine culture, as well as to continuously develop marine scientific research and cultivate marine talents.	（一）、理解社會科學本質與內涵，結合自然科學涵養的多元學習與興趣。 （二）、培養學生對於海洋社會人文領域的關懷與情操，從海洋社會科學理論出發，建構對於海洋社會科學的人文思維。 （三）、明瞭海洋權益與國家發展之關係、我國海洋政策與組織機制，以及強化海域執法與維護海上安全理念，建立海洋法政基本概念。 （四）、發揮海洋產業所提供之價值與機會，同時形塑海洋文化,並且不斷深耕海洋科學研究、培育海洋優秀人才。	2	General Course	共同教育中心博雅教育組	SDG8、SDG12
2021	Undergraduate	1	A	海洋社會科學概論(科技)	Introduction Marine Social Science	(1) To understand the nature and connotation of social science and to integrate the diverse learning and interests of natural science. (2) To cultivate students' concern and sentiment for the field of marine society and humanities, and to construct humanistic thinking about marine social science from marine social science theories. (3) To understand marine tourism resources and their management, to explore the interaction between the development of blue highway passenger vessels (cruise ships, yachts, and ferries) in Taiwan and the blue economy in Asia, the latest development trend of ports and cities, and the achievements of green environmental sustainability and fishing village revitalization. Through theoretical lectures, practical visits, industry-academic seminars and issue discussions, students will strengthen their exploration and study of marine (cultural) tourism governance and local creative development. (4) To make full use of the value and opportunities provided by the marine industry and to create a sense of marine culture in order to continue to develop marine science research and cultivate outstanding marine talents.	（一）、理解社會科學本質與內涵，結合自然科學涵養的多元學習與興趣。 （二）、培養學生對於海洋社會人文領域的關懷與情操，從海洋社會科學理論出發，建構對於海洋社會科學的人文思維。 （三）、明瞭海洋觀光資源及其治理、探索台灣藍色公路客輪(郵輪、遊艇、渡輪)發展與亞洲藍色經濟之互動關係、港市最新發展趨勢、綠色環境永續和漁村活化成果。藉由理論講述、實務參訪、產學講座和議題研討之教學方式，強化學生對於海洋(文化)觀光治理與地方創生發展之探究與深研。 （四）、發揮海洋產業所提供之價值與機會，同時形塑海洋文化意識,以期不斷深耕海洋科學研究、培育海洋優秀人才。	2	General Course	共同教育中心博雅教育組	SDG8、SDG12

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	海洋社會科學概論(科技)	Introduction Marine Social Science	(1) To understand the nature and connotation of social science and to integrate the diverse learning and interests of natural science. (2) To cultivate students' concern and sentiment for the marine social and humanistic fields, and to construct a humanistic perspective on marine social science from marine social science theories. (3) To understand the relationship between maritime rights and national development, China's maritime policy and organizational mechanism, and the concept of strengthening maritime law enforcement and maintaining maritime security, and to establish the basic concepts of maritime law and politics. (4) To bring into full play the values and opportunities provided by the marine industry, and to shape the marine culture, as well as to continuously develop marine scientific research and cultivate marine talents.	（一）、理解社會科學本質與內涵，結合自然科學涵養的多元學習與興趣。 （二）、培養學生對於海洋社會人文領域的關懷與情操，從海洋社會科學理論出發，建構對於海洋社會科學的人文思維。 （三）、明瞭海洋權益與國家發展之關係、我國海洋政策與組織機制，以及強化海域執法與維護海上安全理念，建立海洋法政基本概念。 （四）、發揮海洋產業所提供之價值與機會，同時形塑海洋文化,並且不斷深耕海洋科學研究、培育海洋優秀人才。	2	General Course	共同教育中心博雅教育組	SDG8、SDG12
2021	Undergraduate	1	B	海洋社會科學概論(科技)	Introduction Marine Social Science	(1) To understand the nature and connotation of social science and to integrate the diverse learning and interests of natural science. (2) To cultivate students' concern and sentiment for the field of marine society and humanities, and to construct humanistic thinking about marine social science from marine social science theories. (3) To understand marine tourism resources and their management, to explore the interaction between the development of blue highway passenger vessels (cruise ships, yachts, and ferries) in Taiwan and the blue economy in Asia, the latest development trend of ports and cities, and the achievements of green environmental sustainability and fishing village revitalization. Through theoretical lectures, practical visits, industry-academic seminars and issue discussions, students will strengthen their exploration and study of marine (cultural) tourism governance and local creative development. (4) To make full use of the value and opportunities provided by the marine industry and to create a sense of marine culture in order to continue to develop marine science research and cultivate outstanding marine talents.	（一）、理解社會科學本質與內涵，結合自然科學涵養的多元學習與興趣。（二）、培養學生對於海洋社會人文領域的關懷與情操，從海洋社會科學理論出發，建構對於海洋社會科學的人文思維。 （三）、明瞭海洋觀光資源及其治理、探索台灣藍色公路客輪(郵輪、遊艇、渡輪)發展與亞洲藍色經濟之互動關係、港市最新發展趨勢、綠色環境永續和漁村活化成果。藉由理論講述、實務參訪、產學講座和議題研討之教學方式，強化學生對於海洋(文化)觀光治理與地方創生發展之探究與深研。　（四）、發揮海洋產業所提供之價值與機會，同時形塑海洋文化意識,以期不斷深耕海洋科學研究、培育海洋優秀人才。	2	General Course	共同教育中心博雅教育組	SDG8、SDG12
2021	Undergraduate	1	A	混沌學入門(科技)	Introduction to Chaos	This course is to provide students a first contact with the most impact of new concept initiated at the end of 20th century upon the science history. It is the knowledge to deal with the chaotic phenomena which are non-predictable but not random and full filled in the nature. After the introduction of the astonishing development and wide influence in the past three decades, some basic and easy mathematics to disclose the world of non-linear dynamics will be included. The beauty of the fractal behind th	使學生接觸「充滿自然界中不可預測但非隨機之混沌現象」，認識二十世紀末開啟的人類科學史上最具衝擊性的新觀念。在綜覽此一新興科學近三十年的驚人發展過程和廣大影響層面之後，進而學習以淺近的數學方法來剖析混沌現象的非線性動力內涵，並經由電腦推算及繪圖來觀察混沌現象背後過去不為人知的美妙碎形世界。	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	海洋、漁業與生活(自然)	Ocean、Fisheries and Life	The purpose of this general education course is to provide students who are interested in marine science with some basic knowledge about the ocean, fisheries, and resource utilization and management. The course is designed in a question-and-answer format to integrate the characteristics, utilization, and management of marine resources into everyday life related issues. The course will help beginners to understand the ocean from the perspective of daily life, to understand the importance of fishery resources, and to have a general understanding of how human beings can effectively use and develop these resources. We hope that after taking this course, students will realize the inextricable relationship between human life and the ocean and its resources, and that they will contribute to the sustainable use of the ocean and its resources.	本通識課程的目的是希望提供有興趣於海洋科學的同學，一些最基本的海洋、漁業與資源利用及管理的相關知識。本課程以問答的方式設計課程內容，將海洋資源的特性、利用與管理融入生活相關議題。幫助初學者：從日常生活相關的議題去認識海洋，了解漁業資源的重要性、並在人類如何有效的利用與開發此等資源等，有一通識性的了解，課程內容也將探討我們在資源開發及利用上所衍生的種種問題，及人類應有的思維與對策；期望同學在修習本課程之後，都能夠體認到人類生活與海洋及資源密不可分的關聯，進而能夠對海洋及資源的永續利用盡一份心力。	2	General Course	共同教育中心博雅教育組	SDG12、SDG14
2021	Undergraduate	1	A	海洋、漁業與生活(自然)	Ocean、Fisheries and Life	The purpose of this general education course is to provide students who are interested in marine science with some basic knowledge about the ocean, fisheries, and resource utilization and management. The course is designed in a question-and-answer format to integrate the characteristics, utilization, and management of marine resources into everyday life related issues. The course will help beginners to understand the ocean from the perspective of daily life, to understand the importance of fishery resources, and to have a general understanding of how human beings can effectively use and develop these resources. We hope that after taking this course, students will realize the inextricable relationship between human life and the ocean and its resources, and that they will contribute to the sustainable use of the ocean and its resources.	本通識課程的目的是希望提供有興趣於海洋科學的同學，一些基楚的海洋、漁業與資源利用及管理相關知識。課程內容以問答的方式設計，將海洋漁業資源的特性、利用與管理融入生活中的相關議題。幫助同學們從日常生活相關的議題去認識海洋，了解海洋資源，並將探討我們在資源開發及利用上所衍生的種種問題，及人類面對此等問題時應有的思維與對策；個人的期待是: 透過淺顯易懂的口語化表達，傳遞專業訊息，啟發同學對海洋相關議題的興趣。期望同學在修習本課程之後，都能夠體認到人類生活與海洋及資源密不可分的關聯性，並在人類如何有效的利用與開發海洋漁業資源等，有一通識性的了解，並進而能夠對海洋及漁業資源的永續利用盡一份心力!	2	General Course	共同教育中心博雅教育組	SDG12、SDG14
2021	Undergraduate	1	A	永續生活(自然)	Sustainable Living	By understanding the relationship between the environment, energy, and other natural conditions and the laws of life, and by living in a small way, we realize the true meaning of the policy, technology, and life that we must rely on to live in harmony with the beauty of nature.	由認識環境能源等自然條件與生活之間的規律關係著眼、生活小節著手，就由身體力行體認與自然美麗共生必須依賴，從政策面技術面及生活面同時進行的真諦	2	General Course	共同教育中心博雅教育組	SDG7、SDG9、SDG12
2021	Undergraduate	1	A	海洋能源系統導論(自然)	Introduction to Marine Energy System	This course aims to introduce the core topics of marine energy types, marine environment and marine energy systems by school faculty, including fluid mechanics, underwater technology, power grids, and marine engineering, etc. It is complemented by four enterprise professionals who will introduce the policy development trend of marine energy industry, the design & manufacturing of fluid mechanics, engineering construction and creative inventions in the real sea, and the final presentation, so that students can have an integrated system knowledge of marine energy technology.	海洋能源科技的本質是一個跨領域的系統，因而從事相關科技發展工作，必須先有完整的系統架構概念。本課程旨在由學校師資專題介紹海洋能源種類、海洋環境及海洋能源系統的核心主題，包括流體機械、水下技術、電力電網、海洋工程等，並搭配四個企業專業人員介紹海洋能源產業的政策發展趨勢之評估分析，流體機械的設計&製造，實海域的工程施工及創意發明，與期末專題報告，期使學生能對海洋能源科技有整合的系統知識。	2	General Course	共同教育中心博雅教育組	SDG7、SDG9
2021	Undergraduate	1	A	廣告與台灣社會變遷(全球)	Advertising and Social Change in Taiwan	This course is different from the historical chronology of social system changes. I hope to introduce the overall changes of Taiwan society since the Japanese rule era with a more lively advertisement development, which will enhance students' interest in learning.	社會變遷是社會現象發生變化的動態過程及其結果，而廣告可以說是社會變遷的一面鏡子，提供給人們觀看整體社會變化的軌跡。本課程為有別於歷史編年式地介紹社會制度的變遷，爰以較為生動活潑的廣告發展，導入台灣社會自日治時代以來的整體變遷，希望能提高學生學習興趣。	2	General Course	共同教育中心博雅教育組	SDG4、SDG8、SDG12
2021	Undergraduate	1	A	基隆之美(人格)	The Beauty of Keelung City	Through the introduction of Keelung's nature, geography, humanities, and arts, the course not only introduces the history and heritage of the area, but also extends to environmental, religious, and social issues, and focuses on aesthetic concepts. The course is a combination of information and practice, with field trips to experience the teaching content.	透過對學校所在地基隆的自然、地理、人文、藝術等各方面的介紹，除認識當地的歷史文物之外，並引伸至環保、宗教、社會等議題，又著重採用美學觀念呈獻，是門結合鄉土、自然與美學的課程。藉著實地踏查體驗教學內涵，是門結合資料與實務的課程。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	A	基隆之美(人格)	The Beauty of Keelung City	Through the introduction of Keelung's nature, geography, humanities, and arts, the course not only introduces the history and heritage of the area, but also extends to environmental, religious, and social issues, and focuses on aesthetic concepts. The course is a combination of information and practice, with field trips to experience the teaching content.	透過對學校所在地基隆的自然、地理、人文、藝術等各方面的介紹，除認識當地的歷史文物之外，並引伸至環保、宗教、社會等議題，又著重採用美學觀念呈獻，是門結合鄉土、自然與美學的課程。藉著實地踏查體驗教學內涵，是門結合資料與實務的課程。	2	General Course	共同教育中心博雅教育組	SDG4、SDG11
2021	Undergraduate	1	A	漁村學習與公民行動(民主)	Learning and Civic Action of Fishing Viliage	The goals of the course are: 1. To cultivate students' concern and enthusiasm for marine humanities-related issues and public affairs participation 2. To develop students' ability to think independently and translate knowledge into concrete action strategies 3. To develop students' ability to operate in a democratic mechanism 4. to cultivate students to become an action-oriented marine citizen	課程目標為： 1.培養學生對海洋人文相關議題的關注與公共事務參與的態度與熱情 2.培養學生獨立思考及將知識轉化為具體行動策略之能力 3.培養學生具備民主機制操作的能力 4. 培養學生成為一個具有行動力的海洋公民	2	General Course	共同教育中心博雅教育組	SDG14、SDG17
2021	Undergraduate	1	A	漁村學習與公民行動(民主)	Learning and Civic Action of Fishing Viliage	The goals of the course are: 1. To cultivate students' concern and enthusiasm for marine humanities-related issues and public affairs participation 2. To develop students' ability to think independently and translate knowledge into concrete action strategies 3. To develop students' ability to operate in a democratic mechanism 4. to cultivate students to become an action-oriented marine citizen	課程目標為： 1.培養學生對海洋人文相關議題的關注與公共事務參與的態度與熱情 2.培養學生獨立思考及將知識轉化為具體行動策略之能力 3.培養學生具備民主機制操作的能力 4. 培養學生成為一個具有行動力的海洋公民	2	General Course	共同教育中心博雅教育組	SDG14、SDG17
2021	Undergraduate	1	A	環境課題(自然)	Environmental Issues	This course is to seek ways of sustainable coexisting with environment through the discussion of environmental issues that are currently addressed in our society.	藉著針對當前社會所矚目環境相關課題的討論，本課程希望能共同尋求個人與環境永續共生之道。	2	General Course	共同教育中心博雅教育組	SDG12
2021	Undergraduate	1	A	臺灣海洋巡護政策與經驗之永續經營(全球)	Sustainable Development of Marine Patrols Protects Policies and Experience in Taiwan	In addition, the students will be able to understand the changes of the Marine Patrol policy, the various patrol facilities and duties of the Marine Patrol from the past to the present, as well as the actual implementation of the Marine Patrol service and the legal basis, so as to build up their basic knowledge on the implementation of the Marine Patrol, laws and regulations, technology, and service management. In addition, the students will be able to understand the basic marine affairs laws and regulations, as well as the enforcement methods of our country and the International Affairs Office, so that they will be able to understand and apply the basic practical issues and expand the foundation of their future career planning if they want to join the marine patrol-related workplace.	配合時事與海洋巡護案例，使學生能夠初步了解我國海巡署從前至今之海洋巡護政策的變遷、各類巡護設施與任務職責所在，並輔以實際執行海巡勤務的方式與法源依據，堆砌其具備對海巡任務執掌、法規、科技、勤務管理等基本素養；其次，藉由海洋巡護的歷年經典案例之經驗，介紹我國於執行上之永續經營方針，以使學生除認知基礎海洋事務法令智能外，能對我國海洋巡護的執行方式與國際事務處理上能夠有所知悉，使其未來如欲投入海巡相關職場時，能對基礎實務問題有所認知與應用，並拓展未來生涯規劃的基礎。	2	General Course	共同教育中心博雅教育組	SDG11

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	魚文化與文學(美學)	Fish Culture And Literature	This course is designed to help students understand the value of fish and aquatic life in human life and cultural activities through a review of ancient and modern records related to fish and the discussion and study of modern issues related to fisheries and fishing villages.	台灣四面環海，海洋資源豐富，水產品在民眾的飲食中佔有重要的地位，「魚」與相關水中動物看似平凡，卻與人們有密切的關係。然而隨著科技的進步與社會變遷，漁村沒落，海洋資源的日益枯竭，除了針對海洋生態環境的研究復育之外，對於海洋相關文化與人文活動的重視與實踐，更是我們刻不容緩的責任。本課程透過梳理古今典籍中與魚類相關的記載，並結合現代漁業漁村相關議題的討論與探研，有助於修課學生了解魚類、水族在人類的生活與文化活動中的價值意義。	2	General Course	共同教育中心博雅教育組	SDG4、SDG12、SDG13、SDG14
2021	Undergraduate	1	A	氣象與災變天氣(自然)	Meteorology and Severe Weather	Provide student basic concept of meteorology and environment. including climate change , global warming , sustainable development. climate change and severe weather of Taiwan. and then to love earth and Taiwan in final. The teaching objectives: understand the basic concepts of meteorology and the main severe weather in Taiwan(typhoon, drought, cold wave,mud-flow..etc) Talk about the causes and impact of related disasters, Establish disaster prevention concepts from the aspects of usual preparations disaster response, and post-disaster reconstruction；Build risk manage capabilities in the fact of severe crises.	本課程旨在藉由全球環境問題和對策、氣候變遷、全球暖化、臭氧破洞、酸雨、聖嬰現象，環境的衝擊，人與自然之互動（環境保護和生態保育），綠色思想和科技，以及永續發展等課題之導引和探討，使學生瞭解全球變遷乃為跨國性、跨世代和跨領域之科學，地球村公民維護地球環境必備之知識。 工業革命以來，全球的工業化和都市化導致嚴重的環境問題，而全球環境變遷，其原因可能是自然的，亦可能是人為的。本課程旨在藉由全球環境問題和對策、氣候變遷、全球溫暖化、臭氧破洞、酸雨、聖嬰現象，環境的衝擊，人與自然之互動（環境保護和生態保育），綠色思想和科技，以及永續發展等課題之導引和探討，使學生瞭解全球變遷乃為跨國性、跨世代和跨領域之科學，地球村公民維護地球環境必備之知識。同時藉由學生學習目標的建立，環保相關新聞媒體的閱讀和觀賞，環保論壇相關議題的討論，校園、社區、河川和海洋環保議題的分組探索實作，以及環保議題綜合報告，培育現代公民應有之科學、倫理、民主、美學與媒體素養能力，以期邁向地球永續發展。 台灣的各季節，即使在同一時間的不同地區，也可以有很不一樣的天氣。在各個季節裡均有導致人民生命財產損失的災變天氣，如夏秋的颱風、五六月的梅雨和導致的豪雨、冬季的寒流以及春季的乾旱等，是造成災害的罪魁禍首。台灣雖小，但是氣象萬千，因為台灣位在最大海洋太平洋與最大陸地歐亞大陸交界地區，深受海洋和大陸的雙重影響；又位於副熱帶地區，深受由北方而來的中緯度天氣系統和由南方而來的熱帶天氣系統的雙重影響；又位於全球最活躍的季風區，深受冬季東北季風和夏季西南季風的雙重影響；又有縱貫南北且高聳的中央山脈，深受其地形效應的影響。 所以在這麼多重因素的影響和複雜的相互作用之下，四季分明、天氣多變、氣象萬千、災變天氣頻繁，毋寧是極其正常的自然現象，也使得台灣成為大氣科學和災變天氣研究	2	General Course	共同教育中心博雅教育組	SDG1、SDG2、SDG4、SDG7、SDG11、SDG13、SDG15、SDG17
2021	Undergraduate	1	B	氣象與氣候變遷(自然)	Meteorology and Climate Change	provide student basic concept of meteorology and environment. including climate change , global warming , sustainable development. climate change and severe weather of Taiwan. and then to love earth and Taiwan in final.	本課程旨在藉由全球環境問題和對策、氣候變遷、全球暖化、臭氧破洞、酸雨、聖嬰現象，環境的衝擊，人與自然之互動（環境保護和生態保育），綠色思想和科技，以及永續發展等課題之導引和探討，使學生瞭解全球變遷乃為跨國性、跨世代和跨領域之科學，地球村公民維護地球環境必備之知識。 本課程亦重點介紹氣象學概論、包含氣象因子與大氣輻射、大氣的水分、大氣的水平運動、大氣環流、熱帶氣旋、天氣分析與發展和資料觀測以及氣候變遷與災變天氣，兼具基礎性與實用性。特別強調台灣氣候變遷與衝擊，以培養學生立足台灣胸懷世界，以期邁向地球永續發展，屬博雅領域之自然科學課程。 工業革命以來，全球的工業化和都市化導致嚴重的環境問題，而全球環境變遷，其原因可能是自然的，亦可能是人為的。本課程旨在藉由全球環境問題和對策、氣候變遷、全球溫暖化、臭氧破洞、酸雨、聖嬰現象，環境的衝擊，人與自然之互動（環境保護和生態保育），綠色思想和科技，以及永續發展等課題之導引和探討，使學生瞭解全球變遷乃為跨國性、跨世代和跨領域之科學，地球村公民維護地球環境必備之知識。同時藉由學生學習目標的建立，環保相關新聞媒體的閱讀和觀賞，環保論壇相關議題的討論，校園、社區、河川和海洋環保議題的分組探索實作，以及環保議題綜合報告，培育現代公民應有之科學、倫理、民主、美學與媒體素養能力，以期邁向地球永續發展。 台灣的各季節，即使在同一時間的不同地區，也可以有很不一樣的天氣。在各個季節裡均有導致人民生命財產損失的災變天氣，如夏秋的颱風、五六月的梅雨和導致的豪雨、冬季的寒流以及春季的乾旱等，是造成災害的罪魁禍首。台灣雖小，但是氣象萬千，因為台灣位在最大海洋太平洋與最大陸地歐亞大陸交界地區，深受海洋和大陸的雙重影響；又位於副熱帶地區，深受由北方而來的中緯度天氣系統和由南方而來的熱帶天氣系統的雙重影響；又位於全球最活躍的季風區，深受冬季東北季風和夏季西南季風的雙重影響；又有縱貫南北且高聳的中央山脈，深受其地形效應的影響。 所以在這麼多重因素的影響和複雜的相互作用之下，四季分明、天氣多變、氣象萬千、災變	2	General Course	共同教育中心博雅教育組	SDG11、SDG12、SDG13、SDG14、SDG16
2021	Undergraduate	1	A	氣象與氣候變遷(自然)	Meteorology and Climate Change	provide student basic concept of meteorology and environment. including climate change , global warming , sustainable development. climate change and severe weather of Taiwan. and then to love earth and Taiwan in final.	本課程旨在藉由全球環境問題和對策、氣候變遷、全球暖化、臭氧破洞、酸雨、聖嬰現象，環境的衝擊，人與自然之互動（環境保護和生態保育），綠色思想和科技，以及永續發展等課題之導引和探討，使學生瞭解全球變遷乃為跨國性、跨世代和跨領域之科學，地球村公民維護地球環境必備之知識。 本課程亦重點介紹氣象學概論、包含氣象因子與大氣輻射、大氣的水分、大氣的水平運動、大氣環流、熱帶氣旋、天氣分析與發展和資料觀測以及氣候變遷與災變天氣，兼具基礎性與實用性。特別強調台灣氣候變遷與衝擊，以培養學生立足台灣胸懷世界，以期邁向地球永續發展，屬博雅領域之自然科學課程。 工業革命以來，全球的工業化和都市化導致嚴重的環境問題，而全球環境變遷，其原因可能是自然的，亦可能是人為的。本課程旨在藉由全球環境問題和對策、氣候變遷、全球溫暖化、臭氧破洞、酸雨、聖嬰現象，環境的衝擊，人與自然之互動（環境保護和生態保育），綠色思想和科技，以及永續發展等課題之導引和探討，使學生瞭解全球變遷乃為跨國性、跨世代和跨領域之科學，地球村公民維護地球環境必備之知識。同時藉由學生學習目標的建立，環保相關新聞媒體的閱讀和觀賞，環保論壇相關議題的討論，校園、社區、河川和海洋環保議題的分組探索實作，以及環保議題綜合報告，培育現代公民應有之科學、倫理、民主、美學與媒體素養能力，以期邁向地球永續發展。 台灣的各季節，即使在同一時間的不同地區，也可以有很不一樣的天氣。在各個季節裡均有導致人民生命財產損失的災變天氣，如夏秋的颱風、五六月的梅雨和導致的豪雨、冬季的寒流以及春季的乾旱等，是造成災害的罪魁禍首。台灣雖小，但是氣象萬千，因為台灣位在最大海洋太平洋與最大陸地歐亞大陸交界地區，深受海洋和大陸的雙重影響；又位於副熱帶地區，深受由北方而來的中緯度天氣系統和由南方而來的熱帶天氣系統的雙重影響；又位於全球最活躍的季風區，深受冬季東北季風和夏季西南季風的雙重影響；又有縱貫南北且高聳的中央山脈，深受其地形效應的影響。 所以在這麼多重因素的影響和複雜的相互作用之下，四季分明、天氣多變、氣象萬千、災變	2	General Course	共同教育中心博雅教育組	SDG1、SDG2、SDG4、SDG7、SDG11、SDG13、SDG15、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	A	氣象與氣候變遷(自然)	Meteorology and Climate Change	provide student basic concept of me4teorology and environment. including climate change , global warming , sustainable development. climate change and severe weather of Taiwan. and then to love earth and Taiwan in final.	本課程旨在藉由全球環境問題和對策、氣候變遷、全球暖化、臭氧破洞、酸雨、聖嬰現象，環境的衝擊，人與自然之互動（環境保護和生態保育），綠色思想和科技，以及永續發展等課題之導引和探討，使學生瞭解全球變遷乃為跨國性、跨世代和跨領域之科學，地球村公民維護地球環境必備之知識。 本課程亦重點介紹氣象學概論、包含氣象因子與大氣輻射、大氣的水分、大氣的水平運動、大氣環流、熱帶氣旋、天氣分析與發展和資料觀測以及氣候變遷與災變天氣，兼具基礎性與實用性。特別強調台灣氣候變遷與衝擊，以培養學生立足台灣胸懷世界，以期邁向地球永續發展，屬博雅領域之自然科學課程。 工業革命以來，全球的工業化和都市化導致嚴重的環境問題，而全球環境變遷，其原因可能是自然的，亦可能是人為的。本課程旨在藉由全球環境問題和對策、氣候變遷、全球溫暖化、臭氧破洞、酸雨、聖嬰現象，環境的衝擊，人與自然之互動（環境保護和生態保育），綠色思想和科技，以及永續發展等課題之導引和探討，使學生瞭解全球變遷乃為跨國性、跨世代和跨領域之科學，地球村公民維護地球環境必備之知識。同時藉由學生學習目標的建立，環保相關新聞媒體的閱讀和觀賞，環保論壇相關議題的討論，校園、社區、河川和海洋環保議題的分組探索實作，以及環保議題綜合報告，培育現代公民應有之科學、倫理、民主、美學與媒體素養能力，以期邁向地球永續發展。 台灣的各季節，即使在同一時間的不同地區，也可以有很不一樣的天氣。在各個季節裡均有導致人民生命財產損失的災變天氣，如夏秋的颱風、五六月的梅雨和導致的豪雨、冬季的寒流以及春季的乾旱等，是造成災害的罪魁禍首。台灣雖小，但是氣象萬千，因為台灣位在最大海洋太平洋與最大陸地歐亞大陸交界地區，深受海洋和大陸的雙重影響；又位於副熱帶地區，深受由北方而來的中緯度天氣系統和由南方而來的熱帶天氣系統的雙重影響；又位於全球最活躍的季風區，深受冬季東北季風和夏季西南季風的雙重影響；又有縱貫南北且高聳的中央山脈，深受其地形效應的影響。 所以在這麼多重因素的影響和複雜的相互作用之下，四季分明、天氣多變、氣象萬千、災變	2	General Course	共同教育中心博雅教育組	SDG1、SDG2、SDG4、SDG7、SDG11、SDG13、SDG15、SDG17
2021	Undergraduate	1	B	臺灣海洋文化與觀光產業(人格)	Taiwan Oceanic Culture and Tourism Industry	Through the teaching of this course, students will learn about the local characteristics of Taiwan's maritime culture and integrate it with tourism activities in order to enhance the tourism activities with the characteristics of Taiwan's maritime culture.	臺灣是西太平洋上的島嶼，海島的地緣關係、地理條件、海岸港口、洋流潮汐、產業經貿、渡海移民等諸多歷史因素，建構出臺灣海洋文化的特質。但由於自1987年解嚴之後，臺灣本土意識以及臺灣海洋文化才受到重視，海洋觀光休閒活動也在這之後逐漸被國人注意。因此臺灣海洋文化的內涵以及與觀光之間的相互關係，需要瞭解與認識。是以期望能透過本課程的教學，讓學生瞭解臺灣在地的海洋文化特性；並與觀光活動結合，以提振臺灣海洋文化特色的觀光活動。	2	General Course	共同教育中心博雅教育組	SDG3、SDG11、SDG12
2021	Undergraduate	1	A	臺灣海洋文化與觀光產業(人格)	Taiwan Oceanic Culture and Tourism Industry	Through the teaching of this course, students will learn about the local characteristics of Taiwan's maritime culture and integrate it with tourism activities in order to enhance the tourism activities with the characteristics of Taiwan's maritime culture.	臺灣是西太平洋上的島嶼，海島的地緣關係、地理條件、海岸港口、洋流潮汐、產業經貿、渡海移民等諸多歷史因素，建構出臺灣海洋文化的特質。但由於自1987年解嚴之後，臺灣本土意識以及臺灣海洋文化才受到重視，海洋觀光休閒活動也在這之後逐漸被國人注意。因此臺灣海洋文化的內涵以及與觀光之間的相互關係，需要瞭解與認識。是以期望能透過本課程的教學，讓學生瞭解臺灣在地的海洋文化特性；並與觀光活動結合，以提振臺灣海洋文化特色的觀光活動。	2	General Course	共同教育中心博雅教育組	SDG3、SDG11、SDG12
2021	Undergraduate	1	A	法律與生活(民主)	Law and Life	Through learning and discussion, we will learn about common legal issues in daily life and share our insights with family members, relatives and friends, so that we can "know the law" and "respect the law" together and enhance the national concept of the rule of law.	透過學習與討論，認識日常生活常見的法律問題，並與家人、親友共享心得，進而一起「認識法律」、「尊重法律」，提昇國人的法治觀念。	2	General Course	共同教育中心博雅教育組	SDG16
2021	Undergraduate	1	A	法律與生活(民主)	Law and Life	Through learning and discussion, we will learn about common legal issues in daily life and share our insights with family members, relatives and friends, so that we can "know the law" and "respect the law" together and enhance the national concept of the rule of law.	透過學習與討論，認識日常生活常見的法律問題，並與家人、親友共享心得，進而一起「認識法律」、「尊重法律」，提昇國人的法治觀念。	2	General Course	共同教育中心博雅教育組	SDG16
2021	Undergraduate	1	A	優質海洋人系列講座(人格)	Quality Man of NTOU	1. To use the experience of people who have been in the ocean to tell us about themselves, to build up the students' heart for our school, and to cultivate a correct outlook on life, so that they can become happy ocean people. 2. To improve the humanistic temperament and to become a quality marine person. 3. We have invited heavyweight experts from Taiwan who are experts in industry, government, academia and research to come and teach. This course is designed for students who want to take the class, so please cherish the opportunity to take the class and misunderstand the class as a nutrition credit.	1.以海洋過來人的經驗現身說法,建立學生對本校的向心力,進而培養正確 的人生觀,成為快樂的海洋人. 2.提升人文氣質,邁向優質的海洋人. 3.特聘請台灣重量級的產官學研專家，前來授課。因想選的人多，請選上的同學珍惜上課的機會，誤以為本課為營養學分。	2	General Course	共同教育中心博雅教育組	SDG2
2021	Undergraduate	1	A	創業育成實務(全球)	Entrepreneurship Education and Incubators	This course is an industry-academia exchange course in implementation of the "Smart Living Local Innovation and Enterprise Incubation Talent Cultivation Platform Promotion Program" by the Department of Information and Technology Education, Ministry of Education. The main purpose of this program is to help universities develop innovative teaching models and cultivate students' human-centered innovation capabilities by introducing smart life technologies and encouraging innovative teaching methods, emphasizing learning by doing, field experience, service learning, project work, and industrial application field practice through an innovative two-level sandwich curriculum model. On the other hand, through the introduction or innovation of smart life technology and services, the university will promote the development of micro-enterprise and social enterprise talent cultivation mechanism to enhance the potential and capacity of local innovation and entrepreneurship, so as to promote local development and increase employment opportunities and fulfill the university's social responsibility. The university also invites entrepreneurs from the industry to give lectures, so as to effectively integrate marine intelligence with contemporary industrial trends and to develop the unique potential and capacity of marine students in innovation and entrepreneurship in the local industry.	本課程係本校執行教育部資訊及科技教育司「智慧生活在地創新與企業育成人才培育平臺推動計畫」之產學交流課程。主要是透過創新的雙層三明治式課程模式，導入智慧生活科技，鼓勵創新教學方法，強調做中學（learning by doing）、場域體驗、服務學習、專題實作以及產業應用場域實習，協助大學發展創新的教學模式，培養學生以人為本之創新能力；另一方面，則借重大學所具有之專業、研發人才與能量，透過智慧生活科技與服務的導入或創新，推動大學發展微型企業與社會企業的人才培育機制，進而提升在地創新創業的潛力與量能，以帶動地方發展與增進就業機會，實踐大學的社會責任。 培養學生具有創新思維與國際化的就業力和創業力，並邀請產業界企業家授課，有效發揮海洋智能結合當代產業步調，發展海洋大學學生獨特的海洋在地產業創新創業潛力與量能。	2	General Course	共同教育中心博雅教育組	SDG4、SDG8、SDG12、SDG17
2021	Undergraduate	1	A	創業育成實務(全球)	Entrepreneurship Education and Incubators	This course is an industry-academia exchange course in implementation of the "Smart Living Local Innovation and Enterprise Incubation Talent Cultivation Platform Promotion Program" by the Department of Information and Technology Education, Ministry of Education. The main purpose of this program is to help universities develop innovative teaching models and cultivate students' human-centered innovation capabilities by introducing smart life technologies and encouraging innovative teaching methods, emphasizing learning by doing, field experience, service learning, project work, and industrial application field practice through an innovative two-level sandwich curriculum model. On the other hand, through the introduction or innovation of smart life technology and services, the university will promote the development of micro-enterprise and social enterprise talent cultivation mechanism to enhance the potential and capacity of local innovation and entrepreneurship, so as to promote local development and increase employment opportunities and fulfill the university's social responsibility. The university also invites entrepreneurs from the industry to give lectures, so as to effectively integrate marine intelligence with contemporary industrial trends and to develop the unique potential and capacity of marine students in innovation and entrepreneurship in the local industry.	本課程係本校執行教育部資訊及科技教育司「智慧生活在地創新與企業育成人才培育平臺推動計畫」之產學交流課程。主要是透過創新的雙層三明治式課程模式，導入智慧生活科技，鼓勵創新教學方法，強調做中學（learning by doing）、場域體驗、服務學習、專題實作以及產業應用場域實習，協助大學發展創新的教學模式，培養學生以人為本之創新能力；另一方面，則借重大學所具有之專業、研發人才與能量，透過智慧生活科技與服務的導入或創新，推動大學發展微型企業與社會企業的人才培育機制，進而提升在地創新創業的潛力與量能，以帶動地方發展與增進就業機會，實踐大學的社會責任。 培養學生具有創新思維與國際化的就業力和創業力，並邀請產業界企業家授課，有效發揮海洋智能結合當代產業步調，發展海洋大學學生獨特的海洋在地產業創新創業潛力與量能。	2	General Course	共同教育中心博雅教育組	SDG4、SDG8、SDG12、SDG17
2021	Undergraduate	1	A	性別與社會(全球)	Gender and Society	From the interaction of social structures and actions, we hope to deeply consider gender-related issues, strategies, and institutional reform possibilities, and to increase students' observation of the unequal power structures in society, which should be used to review the gender bias of the existing social system. People living in knotted gender relations may be aware of the limitations of social institutions and omnipresent cultural inheritance, and need to deeply reflect on the privileges of gender, class, and ethnicity, and integrate social studies knowledge to critique the relationship between the fine-grained patriarchal system and the mutual shaping of individual actors.	由社會結構與行動之互動，深刻思索性別相關議題、策略與制度改革之可能，也希望能增加同學對社會不平等權力結構的觀察力，並應用于檢討現存社會體制的性別偏見。人們活在打結的性別關係中，或許意識到深受社會制度與無所不在的文化承傳的限制，須對享有的性別、階級與族群特權深刻反省，並融合社會研究知識，批判細密化的父權體制與個人行動者相互形塑的關係。	2	General Course	共同教育中心博雅教育組	SDG5、SDG10

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	B	性別與社會(全球)	Gender and Society	From the interaction of social structures and actions, we hope to deeply consider gender-related issues, strategies, and institutional reform possibilities, and to increase students' observation of the unequal power structures in society, which should be used to review the gender bias of the existing social system. People living in knotted gender relations may be aware of the limitations of social institutions and omnipresent cultural inheritance, and need to deeply reflect on the privileges of gender, class, and ethnicity, and integrate social studies knowledge to critique the relationship between the fine-grained patriarchal system and the mutual shaping of individual actors.	由社會結構與行動之互動，深刻思索性別相關議題、策略與制度改革之可能，也希望能增加同學對社會不平等權力結構的觀察力，並應用于檢討現存社會體制的性別偏見。人們活在打結的性別關係中，或許意識到深受社會制度與無所不在的文化承傳的限制，須對享有的性別、階級與族群特權深刻反省，並融合社會研究知識，批判細密化的父權體制與個人行動者相互形塑的關係。	2	General Course	共同教育中心博雅教育組	SDG5、SDG10
2021	Undergraduate	1	A	海洋科技導覽解說與實習（Ⅰ）(科技)	Guiding Technique of Marine Science and Technology（Ⅰ）	National museum have the functions of exhibition, education, research and collection. Teaching Objective is summaries as follows: 1.Enable students to learn about the museum tour guiding and other related knowledge. 2.To enable students to understand and learn about the museum exhibition hall content, history of NMMST and other related knowledge. 3.To cultivate students to work in groups, carrying out reports and situational stimulation, so that students can understand the whole concept of guiding interpretation and reception servicing. 4.To study the design and evaluation of tour guiding activities. 5.To cultivate students to take part in the exhibition hall tour guide interpreter certified qualification.	國立博物館具有展示、教育、研究、典藏核心價值，亦屬國家科普教育機構一環。本課程之開設，期望達成以下教學目標： 1.學生學習海洋科技博物館歷史及展示內容。 2.學生學習由海洋專業知識轉變為科普知識之過程。 3.學生學習導覽解說的意義及實施方式。 4.培育學生取得海科館展示廳導覽員資格之能力。	2	General Course	共同教育中心博雅教育組	SDG4、SDG14
2021	Undergraduate	1	A	海洋科技導覽解說與實習（Ⅱ）(科技)	Guiding Technique of Marine Science and Technology(Ⅱ)	Teaching Objectives: 1. To enable students to learn about museums and guided tours. 2、To enable students to understand and learn about the contents of museum exhibition halls and the history of the Museum of Ocean Sciences. 3、To cultivate students' cooperation in groups, practical reports and situational simulations, so that students will have an overall concept of interpretation and reception services. 4. To learn the design and evaluation of tour activities. 5. To train students to become certified as a docent in the exhibition halls of the Museum.	一、國立海洋科技博物館（簡稱海科館）為讓更多對海科館有興趣之海洋大學生瞭解本館內各展示廳的專業內容，特別規劃與國立台灣海洋大學（簡稱海大）合作，開設本通識之選修課程，希望藉由修習此課程之學生學習導覽解說技巧、認識海科館及瞭解博物館等知識。本課程提供專業講師群、教材設計及實習場地，讓修習課程的學生在海洋教育及博物館導覽解說上不祇學習專業能力，也可以提升博物館展示解說之公共服務水平。同時亦有助於學生開拓視野，除投身傳統產業、學術研究機構、政府行政部門之外，並可報考相關博物館學研究所，從事博物館科普教育及經營之事業。本課程計畫在通識教育中心（簡稱通識中心）做為一個平台，將本課程安排在通識中心「博雅領域」中，供全校學生選修。 二、教學目標 教學目標簡要分列如下。 1、使學生學習博物館、導覽解說等相關知識。 2、使學生認識及學習博物館展示廳展示內容、海科館歷史等相關知識。 3、培育學生分組合作、實作報告及情境模擬，使學生對解說導覽、接待服務有整體的觀念。 4、學習導覽活動的設計與評估。 5、培育學生取得參加海科館展示廳導覽解說員認證資格	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	西遊記精讀(經典)	Deep Exploration on the Story of "Pilgrimage to the West"	1. Through the appreciation of the text content of "Journey to the West", students will be able to get close to the classics and feel the richness and creativity of the classical Chinese novel. 2. Through reading the text, students will gain an understanding of the techniques and methods of fiction writing, and develop the ability to appreciate and analyze. 3. The content of the book "Journey to the West" will lead students to experience the humanistic spirit of ancient life and internalize it as an energy to enrich their personal lives.	1、通過對《西遊記》文本內容的欣賞，初步能夠親近經典，進而感受中國古典小說名著的豐富性和創意性。 2、透過對文本的閱讀，進而對小說創作的技巧與方法有所理解，並培養同學鑑賞與分析的能力。 3、針對《西遊記》一書的內容，能帶領同學感受古代生活中的人文精神，並進而內化成為厚實個人生命的能量。	2	General Course	共同教育中心博雅教育組	SDG4、SDG16
2021	Undergraduate	1	A	海洋事務概論 (全球)	Introduction to Marine Affairs	The goal of this course is to provide students with a holistic concept of marine affairs, including international marine management laws and regulations, organization and operation, as well as domestic marine patrol policies, marine conservation, and industrial operations, with an emphasis on the integration of theory and practice, and to stimulate students' ability to think, analyze, discuss, and express themselves, in order to develop the ability to participate in national marine affairs in the future.	台灣四面環海，國家安全、經濟發展與民眾福祉都與海洋息息相關，近年來海洋的永續管理逐漸受到重視，本課程的目標，旨在呼應國內外情勢，提供學生對於海洋事務全盤的概念，包括國際間相關海洋管理法規、組織運作，以及國內的海巡政策、海洋保育、產業經營，著重理論與實務的結合，並激發學生思考、分析、討論和表達的能力，以培養未來參與國家海洋事務的能力。	2	General Course	共同教育中心博雅教育組	SDG12、SDG13、SDG14
2021	Undergraduate	1	A	書法藝術〈美學〉	Art of calligraphy	How to understand calligraphy, how to read calligraphy, how to appreciate calligraphy. The combination of calligraphy and literature, the expression of the beauty of words and cultural heritage. The mutual reflection of calligraphy and literature, the perfect form and content of the art of calligraphy, the effect produced, is the connotation of calligraphy.	認識書法，如何看懂書法，如何欣賞書法。書法跟文學的互相結合、表達文字之美與文化之傳承。書法與文學的互相輝映，書法藝術的完美形式與內容，所產生的效果，才是書法的內涵。	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	書法藝術〈美學〉	Art of calligraphy	How to understand calligraphy, how to read calligraphy, how to appreciate calligraphy. The combination of calligraphy and literature, the expression of the beauty of words and cultural heritage. The mutual reflection of calligraphy and literature, the perfect form and content of the art of calligraphy, the effect produced, is the connotation of calligraphy.	認識書法，如何看懂書法，如何欣賞書法。書法跟文學的互相結合、表達文字之美與文化之傳承。書法與文學的互相輝映，書法藝術的完美形式與內容，所產生的效果，才是書法的內涵。	2	General Course	共同教育中心博雅教育組	SDG4
2021	Undergraduate	1	A	原創電影數位音樂音效設計製作〈美學〉	Digital Sound, Music and Film Production	1. To develop students' awareness of digital sound theory. 2. to develop students' awareness of digital music originality concepts. 3. to develop students' professional skills in digital sound. 4. to develop students' digital sound environment production and application simulation skills.	1.發展學生數位音效理論認知。 2.發展學生數位音樂原創概念認知。 3.培養學生數位音效專業技術。 4.培養學生數位音效環境製作應用化模擬技術。	2	General Course	共同教育中心博雅教育組	SDG4、SDG9、SDG12
2021	Undergraduate	1	A	原創電影數位音樂音效設計製作〈美學〉	Digital Sound, Music and Film Production	1. To develop students' awareness of digital sound theory. 2. to develop students' awareness of digital music originality concepts. 3. to develop students' professional skills in digital sound. 4. to develop students' digital sound environment production and application simulation skills.	1.發展學生數位音效理論認知。 2.發展學生數位音樂原創概念認知。 3.培養學生數位音效專業技術。 4.培養學生數位音效環境製作應用化模擬技術。	2	General Course	共同教育中心博雅教育組	SDG4、SDG9、SDG12
2021	Undergraduate	1	B	新能源與環境治理(科技)	New Energy and Environmental Governance	1. This course enables students to understand global climate change, environmental governance, new energy development and technology, new energy development experience and limitations in various countries. Besides, reflecting on Taiwan's development experience, and guide students to explore from the perspective of "social shaping of technology". Interaction and influence between the development of green energy technology and human society. 2. At the end of the semester, student will submit a case reports of the development of new energy in various countries (Japan, Germany, Denmark, the United Kingdom, the United States, China, South Korea, India, France, Brazil, the Netherlands, Sweden, Belgium, Norway, Ireland, etc.) Enhancing students" knowledge and vision of new energy future market, workplace and industrial technology.	1.使學習者了解全球氣候變遷、環境治理、新能源發展與技術、各國新能源發展經驗與限制等知識，並反思台灣的發展經驗，引導學生從「科技的社會形塑」觀點，去探討與思辯綠能科技發展與人類社會的互動影響； 2.使學習者於期末針對各國新能源發展提出個案報告（日本、德國、丹麥、英國、美國、中國大陸、南韓、印度、法國、巴西、荷蘭、瑞典、比利時、挪威、愛爾蘭…等國家），提升學生對於新能源未來市場、職場及產業技術的知識與視野。	2	General Course	共同教育中心博雅教育組	SDG7、SDG13
2021	Undergraduate	1	A	新能源與環境治理(科技)	New Energy and Environmental Governance	1. This course enables students to understand global climate change, environmental governance, new energy development and technology, new energy development experience and limitations in various countries. Besides, reflecting on Taiwan's development experience, and guide students to explore from the perspective of "social shaping of technology". Interaction and influence between the development of green energy technology and human society. 2. At the end of the semester, student will submit a case reports of the development of new energy in various countries (Japan, Germany, Denmark, the United Kingdom, the United States, China, South Korea, India, France, Brazil, the Netherlands, Sweden, Belgium, Norway, Ireland, etc.) Enhancing students" knowledge and vision of new energy future market, workplace and industrial technology.	1.使學習者了解全球氣候變遷、環境治理、新能源發展與技術、各國新能源發展經驗與限制等知識，並反思台灣的發展經驗，引導學生從「科技的社會形塑」觀點，去探討與思辯綠能科技發展與人類社會的互動影響； 2.使學習者於期末針對各國新能源發展提出個案報告（日本、德國、丹麥、英國、美國、中國大陸、南韓、印度、法國、巴西、荷蘭、瑞典、比利時、挪威、愛爾蘭…等國家），提升學生對於新能源未來市場、職場及產業技術的知識與視野。	2	General Course	共同教育中心博雅教育組	SDG7、SDG13

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Undergraduate	1	B	新能源與環境治理(科技)	New Energy and Environmental Governance	1. This course enables students to understand global climate change, environmental governance, new energy development and technology, new energy development experience and limitations in various countries. Besides, reflecting on Taiwan's development experience, and guide students to explore from the perspective of "social shaping of technology". Interaction and influence between the development of green energy technology and human society. 2.Students will present case reports on new energy development in various countries (Japan, Germany, Denmark, UK, USA, China, South Korea, India, France, Brazil, etc.) at the end of the semester to enhance their understanding and knowledge of the future job market and technical practices in the green energy industry.	1.使學習者了解全球氣候變遷、環境治理、新能源發展與技術、各國新能源發展經驗與限制等知識，並反思台灣的發展經驗，引導學生從「科技的社會形塑」觀點，去探討與思辯綠能科技發展與人類社會的互動影響； 2.使學習者於期末針對各國新能源發展提出個案報告（日本、德國、丹麥、英國、美國、中國大陸、南韓、印度、法國、巴西...等國家），提升學生對於未來就業職場及綠能產業技術實務的理解與認識。	2	General Course	共同教育中心博雅教育組	SDG7、SDG13
2021	Undergraduate	1	A	新能源與環境治理(科技)	New Energy and Environmental Governance	1. This course enables students to understand global climate change, environmental governance, new energy development and technology, new energy development experience and limitations in various countries. Besides, reflecting on Taiwan's development experience, and guide students to explore from the perspective of "social shaping of technology". Interaction and influence between the development of green energy technology and human society. 2.Students will present case reports on new energy development in various countries (Japan, Germany, Denmark, UK, USA, China, South Korea, India, France, Brazil, etc.) at the end of the semester to enhance their understanding and knowledge of the future job market and technical practices in the green energy industry.	1.使學習者了解全球氣候變遷、環境治理、新能源發展與技術、各國新能源發展經驗與限制等知識，並反思台灣的發展經驗，引導學生從「科技的社會形塑」觀點，去探討與思辯綠能科技發展與人類社會的互動影響； 2.使學習者於期末針對各國新能源發展提出個案報告（日本、德國、丹麥、英國、美國、中國大陸、南韓、印度、法國、巴西...等國家），提升學生對於未來就業職場及綠能產業技術實務的理解與認識。	2	General Course	共同教育中心博雅教育組	SDG7、SDG13
2021	Undergraduate	1	A	問題分析與解決方法(科技)	Innovation Problem Analysis and Solution Method	1. Using case studies, students will learn how to analyze and solve problems in one to three levels of industry, using the latest trends. 2. Using case studies, students will learn how to solve academic or work-related problems and improvement steps. 3. Through the workshop, students will learn how to combine innovative entrepreneurial methods to achieve problem solving. 4. To enable students to understand and become familiar with the skills of activity improvement, and to solve problems efficiently and obtain improvements.	1.運用案例研討使學生習得常用最新潮流之一到三級產業問題分析與解決之方法。 2.運用案例研討使學生習得學業或工作上問題與改善步驟案例之方法。 3.藉由工作坊使學生習得如何結合創新創業方法達成問題解決。 4.使學生了解、熟練活動改善技能，並能有效率的解決問題並獲得改善。	2	General Course	共同教育中心博雅教育組	SDG4、SDG10、SDG11、SDG12、SDG17
2021	Undergraduate	1	A	問題分析與解決方法(科技)	Innovation Problem Analysis and Solution Method	This course will build students' problem thinking and analysis skills, and help them to have problem solving skills.	面對AI的崛起，企業面臨快速變遷的環境，在追求品質服務至上的競爭環境下，企業要如何達到永續經營，創造合理利潤的目標就是一項重要的管理課題。如何讓企業成員能夠透過問題分析與解決活動的訓練課程，以達到人力素質提昇、全面團隊改善、強化組織能力以致提高競爭力，問題分析與解決方法就很重要。本課程將建構學生問題思考與分析的能力，並協助學生具有解決問題方法的能力。	2	General Course	共同教育中心博雅教育組	SDG4、SDG10、SDG11、SDG12、SDG17
2021	Undergraduate	1	A	創意行銷企劃實務(人格)	Creative Marketing Planning Practice	1. Through lectures, group discussions, industry seminars, fieldwork and presentation of results (or competitions), students will develop knowledge and skills in entrepreneurial planning, marketing planning, inventory of local resources, presentation of marketing plans, and microfilm marketing. 2. This course is based on the analysis and practice of the University's social responsibility practice area. Learners are required to work in teams to produce local marketing projects (e.g., special marketing project presentations, manuals, microfilms, works, etc.) according to the characteristics of the area to help solve local problems and fulfill the University's social responsibility.	1.本課程透過講授、分組討論、業界講座、場域田野調查和成果發表（或競賽）等教學方式，培育學生具備創業企劃、行銷企劃、地方特色資源盤點、行銷企劃成果展示及微電影行銷等知識及技能。 2.本課程以本校大學社會責任實踐場域為分析及實踐對象，學習者須根據場域特色，以團隊方式製作完成依課程規定之地方行銷企劃作品（例如特色行銷企劃簡報、手冊、微電影、作品...等），共同協助地方解決問題，實踐大學社會責任！	4	General Course	共同教育中心博雅教育組	SDG8、SDG12
2021	Undergraduate	1	A	國際生華語(三)	Chinese Language for International Student (III)	This course is suited for the foreign Chinese learners who have no basic knowledge of Chinese. The goal of the course is to help the learners acquire basic language skills for the most common conversation in their daily life. Learners will learn around 200 vocabularies in the course and simple sentence patterns.	本課程主要針對A1程度的初學者所設計，預計能於此課程中習得日常基本語言能力。課程結束後，將學到 約200 個生詞，以及基本生活用語。	3	Required Course	共同教育中心華語中心	SDG4、SDG17
2021	Contiuning Education Master Degree Program	1	A	食品微生物學特論	Advanced Microbiology of Foods	This course is designed for MS students who have taken food microbiology and are interested in the latest microbial biotechnology applications.	本課程針對已修過食品微生物學並對最新的微生物生技研發應用有興趣之碩士班學生而設計。	3	Elective Course	食品科學系碩士在職專班	SDG17
2021	Contiuning Education Master Degree Program	1	A	人工智慧	Artificial Intelligence	To learn techniques of image processing and their applications to industry automations	學習利用影像處理於自動化應用	3	Elective Course	電機工程學系碩士在職專班	SDG9
2021	Contiuning Education Master Degree Program	1	A	無線通訊系統	Wireless Communication System	1.Understand the channel properties and the deploying methods of wireless systems 2.Learn the technologies of wireless systems, including symbol modulation, detection, and coding. 3.Study the specifications of some wireless communications.	1.了解無線通訊系統之通道特性與系統基本佈建方法。 2.熟悉無線通訊系統之調變、偵測、與編碼技術。 3.認識無線通訊系統規範。	3	Elective Course	電機工程學系碩士在職專班	SDG9
2021	Contiuning Education Master Degree Program	1	A	感測元件物聯網工程	IoT Engineering & Sensors	This course aims to familiarize students with the principles and applications of sensing elements in the Internet of Things and to understand the relationship between these technologies and their development trends.	感測元件物聯網工程卻是現在熱門的科技，其發展具有實質和前瞻性，因此本課程之目的再讓學生熟悉感測元件之原理及在物聯網之應用同時了解這些技術的關係及發展趨勢	3	Elective Course	電機工程學系碩士在職專班	SDG9
2021	Contiuning Education Master Degree Program	1	A	工程與防災技術	Engineer Disater and Prevention Techniques	This course introduces the disaster prevention systems, organizational responsibilities, and operational mechanisms in Taiwan, the United States, and Japan, and compares their strengths and weaknesses. The presentation introduces the types, theories, and characteristics of natural, man-made, and engineered disasters, such as earthquakes, typhoons, floods, slope hazards, and landslides. In addition, the course discusses the possible disasters and prevention techniques for geological hazards and land use, disastrous soils, earthquakes, tsunamis, near-shore hazards, slope hazards, and underground engineering, and discusses the contents and key points of the standard operating procedures for disaster prevention and emergency response plans in four time sequences: mitigation, preparation, response, and recovery and reconstruction. The course discusses the application of disaster prevention information, communication, and emerging technologies to disaster prevention and relief, and cultivates students' understanding of engineering disaster prevention and further learning the application of engineering in disaster prevention.	首先介紹我國及美日等國的防災體制、組織權責、運作機制，並比較其優缺點。介紹各類天然、人為災害與工程災的類型、理論及特性，如地震、颱風、淹水、坡地災害、土石流等。並由工程環境探討地質災害與土地利用、災害性土壤、地震、海嘯、近岸災害、坡地災害、地下工程等可能產生災害與防治技術，從減災、整備、應變、復原重建四個時序來探討防災計畫緊急應變計畫標準作業程序的內容與要點。討論防災資訊、通訊及新興科技在災害防救上的應用，培養學生對工程防災之認識，進而學習工程在防災上的應用。	3	Elective Course	河海工程學系碩士在職專班	SDG9、SDG11、SDG13
2021	Contiuning Education Master Degree Program	1	A	河海工程綜論	Comprehensive Study of Harbor and River Engineering	The Department of River and Marine Engineering is a department that combines civil, hydraulic, and marine engineering. In order to meet the educational objectives of the department, faculty members are invited to share their practical engineering experience and research results. The Department of River and Sea Engineering Through lectures and presentations, students will be trained to have the basic knowledge of civil engineering and the professionalism of river and marine engineering, and to become theoretically and practically oriented engineers to support the country's major construction and development of marine technology.	河海工程學系是一個結合土木、水利與海洋工程的系所，本課程為配合本學系教育目標，邀請系上老師分享他們的工程實務經驗及研究成果；並針對海岸海洋工程、結構與材料工程、水資源及環境工程、大地工程與運輸規劃管理等領域，由學生分組製作專題報告，讓學生主動探索河海工程學系的內涵。透過專題演講、專題報告討論，訓練學生具有土木工程基礎素養及河海工程之專業，成為一個理論與實際並重的工程師，以配合國家從事重大建設與發展海洋科技。	3	Elective Course	河海工程學系碩士在職專班	SDG4、SDG6
2021	Contiuning Education Master Degree Program	1	A	工程管理	Engineering Management	This course introduces the current domestic and international environment of the construction industry and helps students understand the importance of construction management, the theoretical basis, and the basic knowledge required for practical application. Throughout the life cycle of a construction project, the basic resources of construction: money, time, manpower, machinery, and materials, are managed in a systematic way to achieve the goal of the construction project with quality and safety on schedule. In addition, this course will introduce the theory and practice of modern business management and general business MBA business management, and discuss and visit excellent engineering management cases, so that students can combine the knowledge of engineering management profession and modern business management.	介紹當前國內外營建工程業之環境，幫助學生瞭解營建工程管理之重要性、理論基礎、以及實務應用上所需的基本知識，工程管理從工程規劃、設計、發包、施工，一直到完工驗收，乃至於營運維護及更新拆除，在整個營建工程的生命週期中，將營建工程之基本資源：金錢、時間、人力、機具、材料，以有系統的管理方式及手段，在品質如期，安全無虞的情況下，達成營建工程之目標。另外，本課程將介紹現代企業管理之概況與一般商業MBA 企業管理之理論與實務，和優良工程管理個案討論與參訪，使同學兼具工程管理專業與現代企業管理之知識。	3	Elective Course	河海工程學系碩士在職專班	SDG8
2021	Contiuning Education Master Degree Program	1	A	海岸環境營造	Construct the Coastal Environment	This course will introduce basic coastal issues, the use and development of Taiwan's coast, coastal ecological environment creation, coastal landscape environment creation, coastal recreation and water-friendly environment creation, and domestic and foreign coastal environment creation operation cases, in order to help students to improve Taiwan's coastal environment related	台灣四面環海，近年來海岸災害時有所聞，海岸侵蝕日趨嚴重，為了防止海岸侵蝕而構築設置之海堤、消波塊等人工設施，可能對海岸潮間帶、潟湖及海灘等生物多樣性最豐富之棲地等造成影響。又台灣海岸環境具有明顯地域特性，在經濟開發與生態景觀環境必須並存的前提下，對海岸生態環境的保育創造且兼顧海岸景觀及提供休閒親水環境之研議，是吾人應努力思考的課題。因此，本課程將介紹海岸基本問題、台灣海岸的利用與發展、海岸生態環境營造、海岸景觀環境營造、海岸遊憩親水環境營造及國內外海岸環境營造操作案例，俾能有助於學生對改善台灣海岸環境相關	3	Elective Course	河海工程學系碩士在職專班	SDG9、SDG11、SDG13、SDG14、SDG15

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Contiuning Education Master Degree Program	1	A	綠建築	Green Architecture	Students will be introduced to the sustainable spirit of green buildings, design proposals and evaluation systems for the exterior shell, air conditioning, lighting, interior environment, building materials, water resources, and green energy, and will be able to understand the content of green building design through the discussion of domestic and international green building design cases.	對綠建築的永續精神，外殼、空調、照明、室內環境、建材、水資源、綠能等設計提案與評估系統，分別作介紹，並經由國內外綠建築設計案例之討論，讓學生了解綠建築設計內容。	3	Elective Course	河海工程學系碩士在職專班	SDG6、SDG11、SDG12
2021	Contiuning Education Master Degree Program	1	A	構造物的維護管理	Inspection and Management of structures	The maintenance management of structures is composed of a series of processes such as inspection, evaluation, repair, and reinforcement. According to domestic and international experience, the cost of regular inspection and maintenance is much lower than the disaster loss caused by neglecting maintenance management. This course introduces the inspection, evaluation, and maintenance methods of structures, as well as the software and hardware structure of the maintenance management system, so that students can understand the maintenance and management of structures.	構造物的維護管理是由檢測、評估、維修、補強等一連串過程所組成，依據國內外經驗，定期檢測及維修所需經費，遠低於因忽視維護管理造成的災害損失。本課程主要是介紹結構物的檢測、評估、維修方式，及維護管理系統之軟硬體架構，使學生瞭解構造物之維護管理工作。	3	Elective Course	河海工程學系碩士在職專班	SDG11、SDG13
2021	Contiuning Education Master Degree Program	1	A	構造物的震害與防制	Seismic Hazard and Prevention Strategy For Strutures	This course focuses on the principles and techniques of seismic hazard prevention for structures. Firstly, the design principles of traditional seismic resistant structures and their earthquake cases and dilemmas are briefly discussed. Then, the course will focus on the prevention techniques and design principles of energy dissipating components, seismic isolation structures, and seismic reduction structures. Finally, the design cases are analyzed to understand the mechanical behavior of various seismic prevention techniques and their applicability during earthquakes.	本課程主要是探討結構物防制地震災害的原理及技術。首先簡述傳統耐震結構設計原理及其震災案例與面臨的困境。接著分別針對消能構件、隔震結構、減(制)震結構等防制技術及設計原理作一完整的探討。最後藉由設計案例的分析，瞭解各種震災防制技術在地震發生時的力學行為及其適用範圍。	3	Elective Course	河海工程學系碩士在職專班	SDG11、SDG13
2021	Contiuning Education Master Degree Program	1	A	學術研究倫理	Academic Research Ethics	The course is an online course. Teachers and students are encouraged to take the course at the website of the Taiwan Academic Ethics Education Resource Center (https://ethics.nctu.edu.tw/).	該課程為線上修習課程，請各教師及學生自行至臺灣學術倫理教育資源中心(https://ethics.nctu.edu.tw/)網站選讀。	0	Required Course	河海工程學系碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	1	A	環境大地工程學	Environmental Geotechnics	The objectives of this course are to teach students to understand the environmental geotechnical problems that occur in the special topography, geology, and hydrology of Taiwan, to develop students' understanding of environmental geotechnical engineering and geotechnical disasters, and to provide students with the ability to grasp the types and knowledge of environmental geotechnical problems and to formulate appropriate countermeasures.	本課程教學目標在教導學生瞭解台灣地區特殊地形、地質與水文情形下所發生環境大地工程之問題，培養學生對環境大地工程與大地工程災害之認識，使學生具有掌握環境大地工程問題種類及知識之能力，並擬定適當之對策。	3	Elective Course	河海工程學系碩士在職專班	SDG11、SDG13
2021	Contiuning Education Master Degree Program	1	A	保險法專題研究	Seminar on Insurance Law	1. Students should be able to correctly present the relevant regulations, basic theories and practices, or doctrinal controversies of the current insurance law in China. 2.When students encounter a relevant factual statement, they should be able to confirm the legal controversy arising from the fact, state the relevant regulations and principles, and explain how the regulations and principles can be applied to the fact, and then resolve the legal controversy.	一、學生應能正確陳述我國現行保險法之相關規定、基礎理論與實務或學說爭議。 二、當學生遭遇相關之事實陳述，應有能力確認該事實所引起之法律爭議，陳述相關法規與原則，並解釋該法規與原則何以能適用於該事實，進而解決該法律爭議。	2	Elective Course	海洋法律研究所碩士在職專班	SDG1、SDG4、SDG8、SDG9、SDG10、SDG11、SDG12、SDG16、SDG17
2021	Contiuning Education Master Degree Program	1	B	海商法專題研究	Seminar on Maritime Law	The student is able to: 1.fully understand the inter-relationships between the domestic Maritime Code and international regimes and their current development. 2. represent accurately and precisely the general principles on which the Maritime Code bases, and issues arised therefrom. 3. apply the law to the facts that come before him, and explain why and how the law shall apply and solve the legal issues.	一、學生應能明瞭並認知我國海商法與相關國際公約、慣例或外國法例之關係，以及國際海商法發展趨勢。 二、學生應能正確陳述我國現行海商法之相關規定、基礎理論與實務或學說爭議。 三、當學生遭遇相關之事實陳述，應有能力確認該事實所引起之法律爭議，陳述相關法規與原則，並解釋該法規與原則何以能適用於該事實，進而解決該法律爭議。	2	Required Course	海洋法律研究所碩士在職專班	SDG1、SDG4、SDG8、SDG9、SDG11、SDG12、SDG16
2021	Contiuning Education Master Degree Program	1	B	憲法	Constitutional Law	This course aims to investigate the constitutional function of protecting individual's human rights and its role in a democratic political system from the perspectives of political philosophy and constitutionalism. The course will discuss values, theories and institutions of constitution law. Finally it will also research on correlation between constitutional institutions and protection of human rights.	憲法之主要規範內容為基本權利與國家組織。本課程將從憲政理論的角度，探討憲法在保障個人基本權利上所能發揮的功能及在民主制度中所能扮演的角色。本課程將引導學生自政治哲學與憲法學切入，探尋出近代民主政治所追求的價值，以作為憲法體制的引導；在掌握憲法基本架構下，檢視我國憲政運作現況，以認識憲法制度與人權	2	Required Course	海洋法律研究所碩士在職專班	SDG1、SDG2、SDG3、SDG4、SDG5、SDG6、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG16
2021	Contiuning Education Master Degree Program	1	A	沿近海漁業資源管理	Management of Offshore and Coastal Fisheries Resource	Through this course, students will learn about the current state of aquatic research in Taiwan and the opportunities for conservation, restoration, management and transformation of offshore fishery resources, and the sustainable use of offshore fishery resources.	藉由本課程瞭解台灣的水產研究現況，沿近海漁業資源保育、復育、管理及轉型契機，永續利用沿近海漁業資源。	2	Elective Course	環境生物與漁業科學學系碩士在職專班	SDG12、SDG14
2021	Contiuning Education Master Degree Program	1	A	學術研究倫理	Academic Research Ethics	For online courses, please visit the "Taiwan Academic Ethics Education Resource Center".	線上修習課程，請至「臺灣學術倫理教育資源中心」選讀。	0	Required Course	環境生物與漁業科學學系碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	1	A	環境科學特論	Advanced Environmental Science	1. To introduce environmental problems and sustainable solutions 2. To provide students with a full understanding of the impact of human beings on the environment and ecosystem and how to respond to them	1.介紹環境面臨的問題與永續之道 2.讓學生充分了解人類對環境與生態系的影響與因應之道	2	Elective Course	環境生物與漁業科學學系碩士在職專班	SDG12
2021	Contiuning Education Master Degree Program	2	A	永續發展理論	Sustainable Development Theory	Students will be able to fully understand the history, theories, domestic and international trends, and indicator systems of sustainable development and its application to important fisheries in our country, and then recognize its importance and practice and promote it.	讓學生能充分瞭解永續發展之沿革、理論、國內外發展趨勢、指標體系及其在我國重要漁業上的應用，進而體認其重要性並身體力行與推而廣之。	2	Elective Course	環境生物與漁業科學學系碩士在職專班	SDG12
2021	Contiuning Education Master Degree Program	2	A	海洋生物多樣性與保育策略	Marine Biodiversity and Conservation Strategies	The purpose of this course is to introduce students to the diversity of marine organisms and the complex issues they face, as well as the current status and possible future directions of conservation management.	海洋生物多樣性的維護，在海洋資源永續利用觀念甚囂塵土的今日，受到了相當的重視。當人類進行海洋資源開發的同時，已無可避免的造成或多或少的傷害，再加上污染、棲地破壞、氣候變遷等的影響，事實上已使得海洋生物遭受空前的浩劫，生物多樣性無時無刻的受到無情的摧殘。本課程的目的即在引領學生瞭解各類海洋生物的多樣性及其所面臨的種種複雜問題，和一些保育管理的現況、及未來可能的發展方向。	2	Elective Course	環境生物與漁業科學學系碩士在職專班	SDG12、SDG13、SDG14、SDG15
2021	Contiuning Education Master Degree Program	1	A	空間決策分析	Spatial Decision Analysts	This course is a practical application of spatial (GIS) information system. It is designed to meet the practical needs of students in the master's program, starting from the construction of GIS maps and various analysis functions, and introducing in detail how to apply GIS, GPS and remote sensing RS related technologies in various fields, together with practical application examples and hands-on operations.	本課程為空間（地理）資訊系統之實務應用課程，係針對碩專班同學之實務需要，由GIS圖資建構及各項分析功能開始，詳細介紹各領域如何應用GIS、全球定位系統GPS與遙測RS相關技術，並配合實例應用說明和上機操作，使同學除可具備基本處理空間資訊之能力外，更能熟悉及瞭解GIS的分析流程與制訂GIS研究方法之程序，以協助解決目前研究、工作或生活中所遭遇的各類型空間決策問題。	2	Elective Course	商船學系碩士在職專班	SDG9、SDG11、SDG14、SDG15、SDG16
2021	Contiuning Education Master Degree Program	1	A	航運產業投產分析	Data Envelopment Analysis for Shipping Industry	Let students be familiar with DEA (Data Envelopement Analysis) so that they can measure efficiencies of decision making uints in areas such as economy, management, engineering, agriculture, education and medicine.	產業績效評估是管理重要課題之一,資料包絡分析為一種無母數的分析方法,本課程主要目標是讓學生熟悉資料包絡分析模式的應用及利用簡單EXCEL內建增益集計算不同的DEA模式,並利用DEA模式評估決策單位的效率,決策單位的範圍可以包含經濟,航運,管理,工程,農業及教育等範疇.	2	Elective Course	商船學系碩士在職專班	SDG2、SDG4
2021	Contiuning Education Master Degree Program	1	A	運輸經濟學(二)	Advanced Transportation Economics(2)	To understand how to analyze the economics of the approach used in transportation issues, and describes the importance of transport economics, the theory and its applications.	旨在使學生瞭解如何將經濟學的分析手法應用在交通運輸之問題上，並介紹運輸經濟學之重要理論及其應用。	2	Elective Course	商船學系碩士在職專班	SDG11
2021	Contiuning Education Master Degree Program	1	A	海難事故與人為因素	The Human and Organisational Factors involved with in Marine Casualties	These HFOs are not limited to the personnel at the scene of the accident, but also include the senior management who make decisions from the company headquarters and the manufacturers who design and manufacture the equipment. Therefore, the main objective of this course is to enable the participants to correctly understand the role played by human factors at all levels of the incident.	資料顯示約80%的海難事故均肇因於人為因素(Human and Organisational Factors, HOFs)，這些人為因素並非僅限於事故現場之工作人員，亦包括遠在公司總部制定決策之高層，及設計製造施作器械之製造商。故，使學員正確認知事故中，各階層之人為因素所扮演的角色為本課程之主要目標。	2	Elective Course	商船學系碩士在職專班	SDG4、SDG14
2021	Contiuning Education Master Degree Program	1	A	空間決策支援系統	Spatial Decision Support System	The Spatial Decision Support System (SDSS) is one of the rapidly developing technologies in recent years, which uses computer tools to integrate various sources of attributes and spatial information through Geographic Information System (GIS) to help decision makers make the best spatial decisions. This course is designed to meet the needs of students in the master's program. The course starts from the basic concepts of GIS, with the introduction of principles, structures, methods, and applications, and the hands-on operation of simple GIS windows software, so that students can have the basic ability to handle spatial data, and then simulate and analyze the applications in different fields to enhance their understanding and familiarity with the construction and application of spatial decision support systems.	空間決策支援系統係運用電腦工具透過地理資訊系統(GIS)來整合各種不同來源的屬性及空間資訊，協助決策者擬訂最佳的空間決策，為近年來快速發展的科技之一。本課程設計係針對碩專班同學之需要，由GIS基本觀念入門，配合原理、架構、方法與應用方向等之介紹，並實機操作簡易之GIS視窗工具軟體，使同學具備處理空間資料之基本能力，再透過不同領域之應用實例模擬分析，以增進同學對空間決策支援系統建構及應用上之瞭解與熟悉。	2	Elective Course	商船學系碩士在職專班	SDG4、SDG8、SDG9、SDG11、SDG17
2021	Contiuning Education Master Degree Program	1	A	商船綜論	Merchant Ship Synthesis	1. Provide broad information on the Merchant ships. 2. Provide students with advanced knowledge of seamanship.	1. 提供廣泛的商船相關資訊。 2. 使學生具備船藝進階知識。	2	Elective Course	商船學系碩士在職專班	SDG4、SDG14、SDG15、SDG17
2021	Contiuning Education Master Degree Program	1	A	路網理論	Network Analysis	To improve efficiency and productivity in the transportation sectors. Through the solution of mathematical model provides a basis for making a decision.	網路是利用線或通路(Channels)，將不同的點連接起來所組成的系統。一般常見的網路有公路、鐵路、海空交通網等，包括以上部份或全體所組成的較複雜網路，俗稱運輸網路。研究運輸網路的目的，就是追求在有限的資源下，獲得最大的滿足，將某種商品或旅客，從出發點運至目的點，改善運輸部門的效率與生產力，藉由解算數學模型	2	Elective Course	商船學系碩士在職專班	SDG11
2021	Contiuning Education Master Degree Program	1	A	運輸經濟學(一)	Advanced Transportation Economics(1)	This course is designed to provide students with an understanding of how economic analysis can be applied to transportation problems and to introduce important theories of transportation economics and their applications.	旨在使學生瞭解如何將經濟學的分析手法應用在交通運輸之問題上，並介紹運輸經濟學之重要理論及其應用。	2	Elective Course	商船學系碩士在職專班	SDG11

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Contiuning Education Master Degree Program	2	A	港埠系統模擬	Port System Simulation	In order to enable students graduating from this department to have a deeper understanding of the use and operation of modern port facilities, technological advances have led to rapid changes in port facilities. However, the complexity of port and harbor facilities often makes the teaching lack of appropriate teaching aids, and only imagination and ideas can be used to show their effectiveness.	科技之進步，使得港埠設施之改變，日新月異，為使本學系畢業之學生，對於現今港埠現代化設施之使用與操作，有更深層之認識與瞭解。然而，港埠設施具有其複雜性，使得教學上常缺乏適當之輔助教具，只能空憑想像與意會而無法具體呈現其成效，藉由此港埠模擬系統的助益，可一目了然複雜實際港埠系統之完整運作流程。	2	Elective Course	商船學系碩士在職專班	SDG9
2021	Contiuning Education Master Degree Program	1	A	人工智慧在海洋之應用	Application of Artificial Intelligence in Marine	This course will introduce the core concepts of artificial intelligence and the basic models of related technologies. Students will be able to apply the latest technologies of artificial intelligence to solve problems related to the marine environment, so that they can enhance their capabilities in artificial intelligence information technology when combining marine science with information science.	本課程將介紹人工智慧的核心概念以及相關技術的基礎模型。運用人工智慧最新技術以解決海洋環境所面臨的相關問題，使學生在海洋科學結合資訊科學時，能提升人工智慧資訊技術的能力。	2	Elective Course	海洋環境資訊系碩士在職專班	SDG9
2021	Contiuning Education Master Degree Program	1	A	資料科學與Python	Data Science with Python	Python is a popular programming language for implementing data science and is currently one of the must-have languages for data scientists both domestically and abroad. Matplotlib, Scikit-Learn, etc. Learning the Python language will provide the foundation for future implementation of advanced data exploration, machine learning, deep learning and artificial intelligence, and natural language processing. The course will also introduce the application of Python to marine environmental data.	資料科學為從資料中獲得洞察進而產生決策、行動及智慧應用。本課程將藉由Python語言學習資料科學，Python是實作資料科學的熱門程式語言，也是目前國內外資料科學家必備的程式語言之一。Python程式是首選的工具是因為它擁有豐富的儲存、操作、以及洞察資料的程式庫，如Ipython、NumPy、Pandas、Matplotlib、Scikit-Learn等。學習Python語言可作為未來實作進階的資料探勘、機器學習、深度學習與人工智慧、自然語言處理等的基礎。課程亦將介紹Python應用於海洋環境資料上。	2	Elective Course	海洋環境資訊系碩士在職專班	SDG9
2021	Contiuning Education Master Degree Program	1	A	全球變遷	Global Changes	The purpose of this lecture is to teach and discuss the issues related to global changes, especially on the marine environmental changes.	全球變遷是指全球環境的變遷，包括氣候變遷，陸地及海洋的變化、水資源變化及生態系統的變遷，造成這些變遷的原因可能是自然的因素，也可能是人為的。本課程的目標是在講授與海洋及環境相關的全球變遷課題，讓修課同學對相關議題擁有在科學	2	Elective Course	海洋環境資訊系碩士在職專班	SDG6、SDG13
2021	Contiuning Education Master Degree Program	1	A	教育心理學研究	Research on Educational Psychology	The purpose of this introductory course in “Research on Educational Psychology” is to help students to explore current theory in Psychology related to Education and also to cultivate students’ research and creative thinking abilities.	增加學生心理學的基本知識並培養學生研究及創意思考能力。	2	Elective Course	教育研究所碩士在職專班	SDG3、SDG4
2021	Contiuning Education Master Degree Program	1	A	教育研究法	EducationalResearchMethods	1. Understand the basic concepts of educational research; 2. Understand and be able to apply various research methodologies to a given research topic in education; 3. Be able to develop, write, and present educational research proposals	1. 了解教育研究的基本概念; 2. 了解並選用適當的教育研究方法; 3. 能夠制定、撰寫並發表教育研究計畫	3	Required Course	教育研究所碩士在職專班	SDG4、SDG11
2021	Contiuning Education Master Degree Program	1	A	論文寫作與評析	ThesisWritingandEvaluation	1.students can understand the contents of dissertation writing. 2.students can get the ability of dissertation writing and evaluating. 3.students can write and present the original dissertation.	一、學生能了解論文寫作的內涵。 二、學生能具有論文寫作與評析的能力。 三、學生能初步撰寫與發表研究計畫。	2	Elective Course	教育研究所碩士在職專班	SDG3、SDG4、SDG5、SDG10
2021	Contiuning Education Master Degree Program	1	A	新興議題與課程革新專題	Emerging topics and curriculum reform	1.understand new trends and issues on education 2.explore the relations between educational issues and curriculum reform 3.analyze problems in current curriculum innovation	1.能了解最近的教育議題與趨勢 2.探討教育議題與課程改革之間的關係 3.能分析課程革新的各項問題	2	Elective Course	教育研究所碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	1	A	人格心理學專題	Special Topic on Personality	The purpose of this introductory course is to help students acquire the basic knowledge in personality theories. Especially, this course will involve reading about and discussing a variety of personality theories.	本課程的目的是幫助學生掌握人格理論的基本知識。特別是將涉及閱讀和討論各種人格理論。	2	Elective Course	教育研究所碩士在職專班	SDG3
2021	Contiuning Education Master Degree Program	1	A	教育社會學研究與實務專題	Issue on practice and research of educational sociology	1.Students can understand the evolution, theory and method of educational sociology. 2.Students can conduct the topic inquiry fro macro and micro opinions. 3.Students can be engaged in doing research of educational sociology and improve the educational revolution.	一、學生能了解教育社會學的發展演變、理論、與研究方法。 二、學生能從鉅觀與微觀的角度，進行專題探究。 三、學生能從事教育社會學研究，促進教育革新。	2	Elective Course	教育研究所碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	1	A	海洋科技與人文實務專題	General Topics on Ocean Technology and Humanity Practice	1.To explore the meaning and possible contents of marine education 2. To improve the professional knowledge of the ocean 3. To strengthen students' marine experience and awareness. 4. To discuss issues related to the policy and practice of marine education.	1.探索海洋教育的意義和可能的內涵 2.充實相關的海洋專業知能。 3.強化學生的海洋體驗和意識。 4.研討海洋教育的政策與實踐之相關議題。	2	Elective Course	教育研究所碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	1	A	海洋科普教育實務專題	Marine Popular Science Education Seminar	(1)Understand the concept of marine popular science. (2)Understand the research of marine popular science. (3)Learn how to do the research of marine popular science. (4)Learn how to apply marine popular science into your teaching filed.	1.了解海洋科普概念 2. 了解海洋科普研究現況 3. 學習設計與操作海洋科普活動 4. 應用海洋科普知識技能在課堂與研究中	2	Elective Course	教育研究所碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	1	A	教育行政管理專題	Special Topic on Educational Administration and Management	1. Understand the meaning, scope, theoretical development and practical knowledge of educational administration. 2. Be familiar with the research history of educational administration. 3. Collect and evaluate literature on educational administration research. 4. Be willing to engage in research on educational administration.	1.瞭解教育行政管理的意義、範圍、理論發展與實務上的知識。 2.熟悉教育行政管理之研究歷程。 3.蒐集與評析教育行政管理研究的文獻。 4.願意從事教育行政管理的研究。	2	Elective Course	教育研究所碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	1	A	高等教育統計	Advanced Educational Statistics	1. Udndertadn the concept of statistic 2. Understand the application of statistic in education field. 3. Understadn the operation of statistic software(excel and spss)	1. 了解統計基本概念 2. 了解統計在教育場域中的應用 3. 了解統計分析軟體操作(excel and spss)	2	Elective Course	教育研究所碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	2	A	創思教學專題	SpecialTopiconCreativityCultivatingTeaching	This course based on human mind, exploring the connotation of creativity and related issues. After that, by views of education to discuss some teaching plan, which involved creative thinking; on the other hand, though watch and experience to develop ourselves creative ability. Students are expected to use the key strategies of creating thinking, use the wisdom of the team, design and appreciate the relevant works, in order to become a creative T-type person. Overall, the objectives of this course are as follows: (一)Understand the basic theory of creative thinking. (二)Understand the basic theory of creative thinking. (三)Use the strategies of creative thinking. (四)Creative Thinking Design and Appreciation	人類文明的發展實際上正是一部創造力的歷史。創造力是高層次思考的表現，亦是教育的重要議題。創造思考是個人心智運作與其動機、人格特質、知識、社會文化等因素互動，形成具獨創性（新穎）和實用性（價值）構想，以解決問題的歷程與能力（張世彗，2013）。 本課程先以人類心智的理論為基礎，探討創造力的內涵及其相關議題。其次，再由教育的視角，探討各種融入創造思考的課程與教學設計，從觀摩與體驗中增進創造力培育的實踐知能。期望同學們能運用創造思考的關鍵策略，發揮團隊智慧，設計並鑑賞創造思考的相關作品，以成為富創造力的T型人才自許。整體而言,本課程的目標如下: (一) 瞭解創造思考的基本理論 (二) 探討創造思考教學的相關案例 (三) 運用創造思考的教學策略	2	Elective Course	教育研究所碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	2	A	教育美學與實踐	Educational Aesthetics and Practice	1. Be able to understand the basic connotations of aesthetics, aesthetics and educational aesthetics. 2. Be able to collect and understand information and report on topics related to aesthetics and aesthetics. 3.To be able to conduct and report on special studies on selected topics in educational aesthetics. 4.Be able to use the aesthetic connotations gained from the study to think about relevant problems in the teaching field.	一、能認識美感、美學及教育美學的基本內涵。 二、能蒐集及理解美感與美學相關議題資料及報告學習心得。 三、能針對選定之教育美學研究主題進行專題研究及報告。 四、能常用學習所得之美學內涵思考教學現場中的相關問題。	2	Elective Course	教育研究所碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	2	A	海洋與教育專題討論	Seminar on Marine Subjects and Education	Two lectures and a forum were held in conjunction with the Marine Education Academic Seminar, with the theme of "Fish Education" and the integration of the United Nations Sustainable Development Goals (SDGs), with the aim of achieving the following teaching objectives. (1) To acquire knowledge related to marine education. (2) To understand the relationship between fish-eating education and sustainable ocean development. (3) To be able to plan their own plans for implementing fish education. (4) To enhance the ability of research through mutual discussion.	結合海洋教育學術講座，以「食魚教育」為主題，融入聯合國永續發展目標（SDGs），舉辦兩場次專題演講及一次論壇，以期達成下列教學目標： （一）能掌握海洋教育相關知能。 （二）能了解食魚教育與海洋永續發展的關係。 （三）能規劃自己實踐食魚教育的計畫。 （四）能透過相互討論，提升專題研究之能力。	1	Required Course	教育研究所碩士在職專班	SDG4、SDG12、SDG14
2021	Contiuning Education Master Degree Program	2	A	海洋與教育專題討論	Seminar on Marine Subjects and Education	Combined with academic lectures on marine education, the lectures are designed to enhance students' understanding of marine education.	結合海洋教育學術講座，以專題演講方式,提升學生對海洋教育的認識	1	Required Course	教育研究所碩士在職專班	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Contiuning Education Master Degree Program	2	A	人力資源管理	Human Resources Management	This course is positioned as an advanced course in human resource management. Since human resource management activities are quite practice-oriented and the course content is very specific, there is no difficulty in reading it by oneself, therefore, the course planning is intended to use a problem-oriented teaching method, and through problem discussions and literature study-related activities instead of course lectures, to achieve 1. establish basic concepts of human resource management. 2. emphasize problem-solving oriented learning actions. 3. application of human resource management knowledge.	本課程定位為人力資源管理進階課程，由於人力資源管理活動相當實務導向，課程內容也十分具體，自行閱讀並無困難，所以課程規劃上，擬以問題導向的教學方式，透過問題討論與文獻研讀相關活動取代課程講解，達到1.建立人力資源管理基本概念；2.強調問題解決導向的學習行動；3.人力資源管理知識的應用三個目標。	3	Elective Course	航運管理學系碩士在職專班航運管理組	SDG8
2021	Contiuning Education Master Degree Program	2	A	決策分析	Decision Analysis	Understand the concepts of decision analysis and further apply decision analysis techniques to research issues related to shipping, air transportation, and transportation management to assist individuals and organizations in conducting optimal decision analysis.	瞭解決策分析的概念，並進一步應用決策分析的技術來探討航運、空運、運輸管理相關研究議題，以協助個人與組織進行最佳決策分析。	3	Elective Course	航運管理學系碩士在職專班航運管理組	SDG9
2021	Contiuning Education Master Degree Program	2	A	資料庫應用與分析	Database Application and Analysis	The purpose of this course is to build students' knowledge of building a complete database and to enhance their ability in database management by understanding related shipping research issues through practical cases.	「資料庫管理與應用」結合資料庫理論與實務，在理論部份說明資料庫原理、關聯式資料庫以及正規化的分析。實務部份介紹資料探勘、大數據分析、人工智慧(AI)、區塊鍊技術用於資料之分析，並介紹相關資料庫於航運管理之應用。此外，介紹資訊安全防護系統對於資料庫安全的重要性。本課程目的建立學生學習建立資料庫的完整知識，並藉由實務案例了解相關航運研究議題，以提升學生在資料庫管理之能力。	3	Elective Course	航運管理學系碩士在職專班航運管理組	SDG9
2021	Contiuning Education Master Degree Program	2	A	物流服務業作業管理	Operation Management for Logistics Service Industry	Students will be able to understand the role of green shipping, ports and supply chain management in today's society. They will also gain an understanding of relevant practical information and develop important concepts that will help to enhance their knowledge and abilities.	使學生能夠了解綠色航運、港口及供應鏈管理在現今社會所扮演的角色。並對相關實務資訊有所了解，並形成重要的觀念，有助於提升相關的知識及能力。	3	Elective Course	航運管理學系碩士在職專班航運管理組	SDG14
2021	Contiuning Education Master Degree Program	2	A	財務管理	Financial Management	Through the study on the real cases, the course helps students understand the real process of financial management, the characteristics of financial markets, and also the main frame of international markets.	1.簡要回顧財務金融的核心觀點，包括風險與報酬之關係，貨幣的時間價值，市場效率，對沖套利，風險管理，代理問題，行為財務學等。 2.複習財務管理的理論與實務，包括資本預算、資本結構、資金成本、公司治理、營運資金管理、股利政策。	3	Required Course	航運管理學系碩士在職專班企業管理組	SDG1、SDG2、SDG4、SDG5、SDG8、SDG9、SDG10、SDG11、SDG12、SDG16、SDG17
2021	Contiuning Education Master Degree Program	1	A	能源材料應用	Applied Energy Materials	Introduce the basic properties of materials structures . Further to teach students in understanding applications of the materials characteristics. Then, the learners will catch the energy materials applied in Taiwan industries and their development.	介紹材料基本結構特性，並教導學生了解材料特性在能源系統之應用，進而讓修習本課程學生了解世界與台灣應用能源材料的產業與發展。	3	Elective Course	輪機工程學系碩士在職專班	SDG7、SDG9、SDG12、SDG13、SDG14
2021	Contiuning Education Master Degree Program	1	A	人工智慧特論	Artificial Intelligence Special topics	AI-Artificial Intelligence (AI), also known as machine intelligence, refers to the intelligence expressed by machines made by humans. Usually artificial intelligence refers to human-like intelligence technology realized by means of ordinary computer programs. The term also refers to the field of science that studies whether and how such intelligent systems can be realized.	AI-人工智慧（Artificial Intelligence）亦稱機器智慧，是指由人製造出來的機器所表現出來的智慧。通常人工智慧是指通過普通電腦程式的手段實現的類人智慧技術。該詞同時也指研究這樣的智慧系統是否能夠實現，以及如何實現的科學領域。	3	Elective Course	輪機工程學系碩士在職專班	SDG9
2021	Contiuning Education Master Degree Program	1	A	氫經濟與航運	Hydrogen Economy and Marine	To understand the current and future challenges of the maritime industry in terms of energy, economic and environmental aspects, and to understand the issues related to improving energy conservation and efficiency, using appropriate alternative energy sources, and embracing the era of hydrogen economy. The aim is to find a way for the maritime industry to meet the realistic operating conditions and to co-prosper with the global environment and economic interests.	了解當前及未來，海運在同時面對能源,經濟及環境層面的挑戰時，逐步從提升能源節約與效率，進而運用適當替代能源，乃至迎接氫經濟時代來臨之相關議題， 藉以為海運界尋求同時符合現實經營條件，以及與全球環境與經濟利益共榮之道。	3	Elective Course	輪機工程學系碩士在職專班	SDG7、SDG9
2021	Contiuning Education Master Degree Program	1	A	電腦輔助分析	Computer Aided Analysis	The main objective of this course is to introduce students to the use of numerical methods or computer-aided software to solve complex mechanical problems encountered in general engineering. The course intends to integrate the theory of the finite element method, a fundamental computational method, and the application of design analysis software developed on its basis, in order to integrate theory and engineering design through computer high-speed computational analysis, so that students can build up the ability of basic theory and design analysis, and then be able to engage in more advanced force analysis and research based on the foundation of computational mechanics.	本課程之主要目標，乃介紹學生如何利用數值方法或電腦輔助軟體，求解一般工程所遭遇複雜力學問題。本課程擬結合基礎計算方法--有限元素法之理論及以其為基礎發展之設計分析軟體之應用，期使將理論與工程設計藉由電腦高速計算分析相結合，使學生建立基礎理論與設計分析之能力，以計算力學之基礎，則得以從事更高深的力學分析與研究。	3	Elective Course	輪機工程學系碩士在職專班	SDG4、SDG9
2021	Contiuning Education Master Degree Program	1	A	研究方法討論	Discussion of Research Method	The purpose of the thesis is to provide students in the master's program with a customized research methodology based on their actual work experience.	專門針對在職碩士班學生，以個人實際工作經驗為主題，量身訂製屬於自己的研究方法，藉以完成屬於碩士在職專班的碩士畢業論文為目的。	1	Elective Course	輪機工程學系碩士在職專班	SDG4、SDG14
2021	Contiuning Education Master Degree Program	1	A	電腦視覺於家庭保全之應用	Computer Vision and Its Application to Home Care Services	The goal of this course is to cover the research fields of visual-based object recognition, face-based gender recognition, advanced viewer counting, expression recognition of human subjects, and their further applications. Students in this course will learn how to integrate these techniques from computer vision for an advanced homecare system according to their genders, facial expressions, and behaviors.	本課程目標在於使學生了解電腦視覺之基礎,進而介紹進階技術之物體辨識,性別辨識以及行為分析等,最後能結合上述技術發展一整合型系統-家庭保全系統,最終使學生能具備開發相關系統之能力.	3	Elective Course	資訊工程學系碩士在職專班	SDG5
2021	Contiuning Education Master Degree Program	1	A	計算機網路	Advanced Computer Networks	Introduction concepts and selected research topics on computer networks.	本課程以現有計算機網路為基礎，使學生了解計算機網路的相關通訊協定與未來研究方向。	3	Elective Course	資訊工程學系碩士在職專班	SDG9
2021	Contiuning Education Master Degree Program	1	A	無線網路	Wireless Networks	This is a fundamental course for Wireless Network courses. With this course, you will learn basic wireless networks concept and principles	本課程以現有無線網路為核心，使學生能夠了解無線網路的基本概念與運作的原理，並熟悉無線網路的相關通訊協定與應用及未來發展。	3	Elective Course	資訊工程學系碩士在職專班	SDG4、SDG8、SDG9
2021	Contiuning Education Master Degree Program	1	A	學術研究倫理	Academic Research Ethics	The goal of the present curriculum is to instill the importance of academic integrity to students in higher education, who have just entered the field of research. Through these lessons, we hope to enhance ethical capabilities of students such as academic integrity reasoning, universal values, and laws and regulations. Additionally, we wish to strengthen the understanding of academic integrity, research ethics, and aspects in practice, as well as implementing honest and responsible research conducts.	本課程旨在培養初踏入研究領域之高等教育學生了解學術倫理重要性，希冀透過課程提升學生之學術倫理思維、普世價值、法律規範等倫理知能，增進對於學術倫理與研究倫理意涵與實務面之理解，並落實誠信且負責任的研究行為。	0	Required Course	資訊工程學系碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	1	A	學術研究倫理	Academic Research Ethics	The goal of the present curriculum is to instill the importance of academic integrity to students in higher education, who have just entered the field of research. Through these lessons, we hope to enhance ethical capabilities of students such as academic integrity reasoning, universal values, and laws and regulations. Additionally, we wish to strengthen the understanding of academic integrity, research ethics, and aspects in practice, as well as implementing honest and responsible research conducts.	本課程旨在培養初踏入研究領域之高等教育學生了解學術倫理重要性，希冀透過課程提升學生之學術倫理思維、普世價值、法律規範等倫理知能，增進對於學術倫理與研究倫理意涵與實務面之理解，並落實誠信且負責任的研究行為。	0	Required Course	資訊工程學系碩士在職專班	SDG4
2021	Contiuning Education Master Degree Program	1	A	食品微生物與食品安全概論	Introduction of Food Microbiology and Food Safety	As the social economy becomes more developed and urbanized, people have to rely on the food industry to supply all kinds of ingredients and processed foods. Some problems are global, and some are local food safety. Among all food safety issues, the most real risk is the infection or poisoning of pathogenic microorganisms.	當社會經濟愈發達，愈來愈都市化後，人們得依賴食品業供應各類食材和加工食品，所衍生的問題愈來愈多，有些是全球性的，有些是本地所獨有的食品安全問題，在所有的食品安全問題中，實際風險最高的是致病性微生物的感染或中毒事件。	3	Elective Course	食品安全管理碩士在職學位學程	SDG11
2021	Contiuning Education Master Degree Program	1	A	國際運輸概論	Introduction to International transportation	Learn about the role and orientation of air transportation, basic concepts of the maritime industry, trends in the development of sustainable international transportation, and explore the sustainable development of rail transportation.	了解航空運輸之角色與面向、海運產業基本概念、國際間永續運輸發展之趨勢，以及探討鐵路運輸永續發展。	3	Required Course	運輸科學系運輸與供應鏈管理碩士在職專班	SDG11、SDG12
2021	Contiuning Education Master Degree Program	1	A	作業管理	Operations Management	Production/operation is the core activity of an enterprise, which includes basic contents such as forecasting, capacity planning, facility layout, quality management, and work scheduling. The objective of this course is to provide students with a basic knowledge of these contents and to develop initial application skills.	生產/作業為企業的核心活動，其包含有預測、產能規劃、設施佈置、品質管理、工作排程等基本內容。本課程目標為使學生對這些內容具備基礎知識，進而發展初步的應用能力。	2	Elective Course	運輸科學系運輸與供應鏈管理碩士在職專班	SDG9
2021	Contiuning Education Master Degree Program	1	A	人工智慧系統個案研究	Case Study in Artificial Intelligent System	1. to understand the past and present development of artificial intelligence 2. to understand the basic concepts and core technologies of artificial intelligence 3. to understand the basic architecture and applications of expert systems 4. concepts related to fuzzy theory, artificial neural networks and genetic algorithms 5. introduction to futurology 6. case studies of related industries 7. Discussion of related papers and technical reports from home and abroad 8. Future development of AI	1. 瞭解人工智慧的發展過去與現況 2. 認識人工智慧基本概念與核心技術 3. 瞭解專家系統之基本架構與應用 4. 模糊理論、人工神經網路及基因演算法相關概念 5. 未來學介紹 6. 相關業界之實例探討 7.國內外相關論文與技術報告研討 8.AI未來的發展	2	Elective Course	運輸科學系運輸與供應鏈管理碩士在職專班	SDG9

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2021	Contiuning Education Master Degree Program	1	A	財務分析與投資計畫評估	Financial Analysis and Project Evaluation	Students will understand the theory and methodology of financial management and the content of financial activities in actual company operations, and develop the ability to apply financial statement analysis and investment plan evaluation.	讓同學瞭解財務管理之理論、方法與實際公司營運中的財務活動內容，並培養學生應用財務報表分析與投資計畫評估的的能力。	2	Elective Course	運輸科學系運輸與供應鏈管理碩士在職專班	SDG1、SDG2、SDG3、SDG4、SDG5、SDG8、SDG9、SDG10、SDG12
2021	Contiuning Education Master Degree Program	1	A	運輸與供應鏈績效評估	Transportation and supply chain performance evaluation	The main focus is on the important concepts of transportation performance evaluation, followed by the performance indicators and performance evaluation methods of various transportation industries, and finally, examples of how to apply appropriate methods for performance evaluation of highways, railways, airlines, maritime transportation, and ports.	主要探討運輸績效評估之重要觀念，其次說明各種運輸產業的績效指標及績效評估方法，最後舉例說明如何應用適當方法於公路、軌道、航空、海運、港口之績效評估。	2	Elective Course	運輸科學系運輸與供應鏈管理碩士在職專班	SDG3、SDG8、SDG9、SDG11
2021	Contiuning Education Master Degree Program	2	A	智慧型論文與專案規劃案例探討	The case study of AI thesis and project writing	Case study of AI (Artificial Intelligent)	人工智慧個案研究	2	Elective Course	運輸科學系運輸與供應鏈管理碩士在職專班	SDG4、SDG8、SDG9、SDG12
2021	Master Program	1	A	食品安全與物聯網	Food Safety and Internet of Things	The objective of this course is to explore how to reduce or eliminate food safety risks through the Internet of Things (IoT) applications developed by information and communication technologies for the production, processing, storage and transportation of food products for sale and consumption.	本課程目標主要探討由食材的產生，食品加工生產，儲存及運送銷售及消費的食品安全相關的問題，如何經由資通訊技術發展出的物聯網應用，以致降低或消除食品安全發生的風險。	3	Elective Course	食品安全與風險管理研究所	SDG9
2021	Master Program	1	A	食品流行病學導論	Introduction to Food Epidemiology	Understand the different roles of epidemiology and risk assessment in risk management decisions	了解在風險管理決策中，流行病學和風險評估的不同角色。	3	Elective Course	食品安全與風險管理研究所	SDG3
2021	Master Program	1	A	食品安全供應鏈特論	Food Safety Supply Chain	In this class, students are expected: 1. To gain the knowledge in food safety and supply including the concept and practice of food supply chain, and food hygiene safety management. 2. To increase the ability of food and ingredients choose and safety exam, including the process of food purchase and sanitation examination. 3. To improve the skills of food supply chain and logistics management, including food fresh-keeping and storage technology.	學生於本課程將學習與探討 (1)食品安全與供應鏈概論：包含食品供應鏈管理基本概念與應用，及食品從業人員之衛生安全管理。 (2)食材與食品選購與驗收：包含說明介紹現代食品採購的特色、功能、策略、作業管理及食材驗收作業，同時介紹各類食材與食品及其選購要點。 (3)食品供應鏈與物流管理：包含食品保鮮技術與貯藏方法、低溫倉儲、存貨與配送管理，使讀者瞭解從事食品採購與供應鏈管理的工作內容與管理重點。	3	Required Course	食品安全與風險管理研究所	SDG9
2021	Master Program	1	A	應用微生物學特論	Advances in Applied Microbiology	This course is designed for students who are interested in the latest research of microbial environmental stress response and application of natural antibacterial agents.	本課程針對微生物於對環境及抗菌劑壓力反應應用研究有興趣之碩士班學生而設計。	3	Elective Course	食品安全與風險管理研究所	SDG3、SDG4、SDG6、SDG7、SDG12、SDG14
2021	Master Program	1	A	食品副產物利用與安全	Food by-products utilization and Safety	Recognize knowledge on Food by-products utilization and Safety	熟悉食品副產物與安全相關知識	3	Elective Course	食品安全與風險管理研究所	SDG9、SDG12、SDG14
2021	Master Program	1	A	永續食品生產與安全	Sustainability and Safety of Food Production	Recognize knowledge on Sustainable Food Production	熟悉永續食品生產相關知識	3	Elective Course	食品安全與風險管理研究所	SDG1、SDG2、SDG3、SDG6、SDG8、SDG9、SDG11、SDG12
2021	Master Program	1	A	食品與疾病	Food and disease	To understand the relationship between food intake and chronic diseases, and the impact of healthy eating habits on the prevention and treatment of chronic diseases	俗話說"病從口入"過去是指吃了不衛生的食物引發疾病,現今"病從口入"的內涵已經發生了變化,由於飲食不合理,吃出了心血管、癌症、高血壓等常見的慢性病,由於人的生命活動離不開從飲食中攝取營養,本課程旨在了解食物攝取與疾病形成的原因,及健康的飲食習慣在慢性病防治上的影響。	2	Elective Course	食品安全與風險管理研究所	SDG2
2021	Master Program	1	A	食品病原菌	Foodborne pathogen	This course primarily covers the general description of foodborne pathogens and their mechanisms of pathogenesis, control and prevention, and detection strategies, with easy-to-comprehend illustrations. This course is an essential resource for food microbiology graduate or undergraduate students, microbiology professionals, and academicians involved in food microbiology, food safety, and food defense-related research.	本課程著重幫助學生了解食品病原菌基本介紹，以及台灣地區食品中毒微生物相關可能致病機制，其中亦包含如何控制及預防，另將介紹新穎食品病原菌快速檢測技術。此課程為深入微生物、食品微生物於食品安全、食品防禦相關研究的一門學問。	3	Elective Course	食品安全與風險管理研究所	SDG3、SDG4、SDG6、SDG7、SDG11、SDG13、SDG14
2021	Master Program	2	A	食品產業管理與投資	Food Industries Management Investment	Promote the insight of Food Industries, business operation and dynamic of global markets	洞悉產業動脈、經營與市場動態	3	Elective Course	食品安全與風險管理研究所	SDG1、SDG9、SDG12、SDG14、SDG17
2021	Master Program	2	A	專題討論(三)	Seminar	The program trains graduate students to collect, organize, and present literature, and to enhance interdisciplinary learning and interaction.	訓練研究生文獻收集、整理與演講表達之能力，加強跨領域的學習及互動。	1	Required Course	食品安全與風險管理研究所	SDG3、SDG4、SDG5、SDG7、SDG10
2021	Master Program	1	A	國際談判實務	Case Studies in International Negotiations	To avoid wars, states often resolve disputes through negotiation and then seek to reach an agreement so that all parties concerned can ensure safety and share peace and prosperity. However, international issues are extremely complex, countries have different negotiation styles, and there are wide gaps in core interests and considerations under various issues. It often leads to stagnant negotiation progress, resulting in a no-win situation and even endangering international peace. This course will guide students to understand the true face of international negotiations through the study and analysis of negotiation cases. In 2021, the main topic is WTO negotiations on fisheries subsidies.	國際間經常透過談判解決爭端，避免干戈，進而尋求達成協議讓相關各方可因此獲得保障，共享和平與繁榮。然而，在現實上國際間議題極為複雜，各國談判風格各異，核心利益及各項議題下的考量因素差距甚大，常常導致談判進展停滯不前，形成皆輸局面甚至危及國際和平。本課程將透過對談判案例的研討與分析，引導修習者認識國際談判的真實面貌。本年度將以世界貿易組織（WTO）漁業補貼談判為研討主題。	2	Required Course	海洋政策碩士學位學程	SDG2、SDG3、SDG10、SDG11、SDG12、SDG14、SDG16、SDG17
2021	Master Program	1	A	國際漁業管理及合作	International Fisheries Management and Cooperation	In the 1970s, countries all over the world expanded their economic waters by 200 miles, resulting in a substantial reduction in the area of the high seas, and relatively limited space for offshore fisheries operations. Taiwan's fishing boats spread across the three oceans of the world. Under the concept of fishery resource conservation and sustainable fishery management, the International Fisheries Organization has become more stringent in the management of high seas fishery resources. The cooperation between my country's offshore fisheries and various coastal countries and international fisheries organizations is even more important. . This course teaches the negotiation and strategy of international fishery cooperation with actual cases, so that students can understand the importance of sustainable fishery management.	1970年代世界各國紛紛擴張200浬經濟海域，使得公海面積大幅縮減，遠洋漁業作業空間亦相對受到限制。臺灣漁船遍及世界三大洋，在漁業資源保育及永續漁業經營的觀念下，國際漁業組織對公海漁業資源的管理更趨嚴格，我國遠洋漁業與各沿岸國及國際漁業組織之合作就更顯重要。本課程係以實際案例講授國際漁業合作的談判及策略，俾使學生能了解漁業永續經營之重要性。	2	Elective Course	海洋政策碩士學位學程	SDG1、SDG2、SDG4、SDG13、SDG14、SDG15
2021	Master Program	1	A	海洋行政法規	Marine administrative regulations	The purpose of the course is to guide students in understanding the laws and regulations of ocean administration. This course is designed to familiarize students with the current international and domestic framework. The students will understand related the concepts, principles, and the lawful basis of ocean administration. As a result of completing this course, students will be able to draft legislative plan for an issue or a policy campaign.	本課程的目的在於帶領學生系統地學習海洋行政法規的基礎，同時熟悉相關國際規範及我國現行法規，讓有志於海洋事務的學生能更為具體地掌握相關概念、原則及法源依據。本課程將訓練學生應用所學，撰寫法規修正說明與政策推動方案。	2	Elective Course	海洋政策碩士學位學程	SDG7、SDG9、SDG10、SDG11、SDG13、SDG14、SDG16、SDG17
2021	Master Program	1	A	東海議題專題研究	Seminar on East China Sea Issues	The objectives of this course are to understand the disputes in the East China Sea as well as perspectives on the area's demarcation.	從東海之海域劃界進而瞭解台灣主權地位	2	Elective Course	海洋政策碩士學位學程	SDG8、SDG10、SDG16
2021	Master Program	1	A	世界海洋遺產政策與法律	World Heritage in the Sea and Law	The Convention Concerning the Protection of the World Cultural and Natural Heritage (CCPWCNH) aims to protect cultural and natural sites of outstanding universal value. The CCPWCNH is one of the most influential treaties, with 193 States Parties in 2019. Although Taiwan is unable to formally participate in the CCPWCNH, all sites of outstanding universal value are not excluded from the scope of the CCPWCNH. This is not only grounded in Article 12 of the CCPWCNH but also supported by empirical practices. In addition, the practices of the World Heritage Committee and the research projects sponsored by the United Nations Educational, Scientific and Cultural Organization show the expansion of the scope of CCPWCNH to the places extending seaward from the outer limit of the territorial sea. This course begins with the definition of World Heritage in the sea, then goes on to the international regime of it.	《保護世界文化和自然遺產公約》（Convention Concerning the Protection of the World Cultural and Natural Heritage，CCPWCNH），就締約國數量而言，乃國際上影響力最大的條約之一（193國締約，2019年數據），旨在保護具有「傑出普遍價值」（outstanding universal value）的場址。雖然礙於國際政治現實，我國遲遲未能正式參與，但依CCPWCNH第12條規範，未列入世界遺產名冊的場址，如具傑出普遍價值，仍未被排除適用範疇，此有世界遺產委員會的實際執行案例可稽。此外，不論世界遺產委員會的實踐，抑或聯合國教育科學文化組織（United Nations Educational, Scientific and Cultural Organization）的研究報告，多支持擴大CCPWCNH適用範圍至國家主權所不及海域。職是，我國做為CCPWCNH的準適用國，仍應以未雨綢繆的正面心態，遴選具有傑出普遍價值的適格場址，並賡續推廣之，為奠定海洋立國基石而努力。 本課程首先定義世界海洋遺產，續而由淺入深地從國際建制闡述至我國制度，激發修課學生的學習興趣，並冀望修習本課程的學生，得以通入宏觀而又務實的世界海洋遺產法政領域。	2	Elective Course	海洋政策碩士學位學程	SDG4、SDG8、SDG11、SDG13、SDG14、SDG16、SDG17
2021	Master Program	1	A	水下文化遺產政策與法律	Underwater Cultural Heritage, Policyand Law	Since the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage was adopted, the legal issues arising from the protection of underwater cultural heritage have been attracting increasing attention. The island of Taiwan has been ruled by many countries, such as Netherlands, Portugal, Japan, the United States and other sea powers states, and its surrounding waters contain important maritime traffic junctions. As a result, many underwater cultural heritage sites are scattered across large areas of the sea bed. Taiwan should take appropriate measures to protect underwater cultural heritage in its surrounding waters. While the protection of underwater cultural heritage is one of basic national marine policy in Taiwan, the lack of relevant specialists is believed to be a problem. This course is designed to provide the theoretical and practical knowledge regarding the protection of underwater cultural heritage in order to train more specialists to become experts in this couse	自西元2001年《聯合國保護水下文化遺產公約》訂立以來，水下文化遺產保護所衍生的法律問題，業已引起越來越多國家的重視；而台灣本島歷經荷蘭、葡萄牙及西班牙等海權強國的殖民地統治，周遭水域向為古代海上交通輻輳的樞紐，迨至海權更迭後的日本和美國，亦頻繁通過包括台灣海峽在內的萬噸海域，自有許多水下文化遺產散落周遭海域。職是，長期以來自許海洋立國的台灣，不宜獨排眾外，尚有針對沉沒於前揭海域的水下文化遺產，採取適當保護措施的必要。本課程旨在積極協助此一基本國策，培育有心研習的新新學子，致使彼等了解保護水下文化遺產相關法規及其實踐，以收為國篤才之效。	2	Elective Course	海洋政策碩士學位學程	SDG4、SDG6、SDG11、SDG14、SDG16、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	A	原住民與海洋文化政策與法律	indigenous culture and the law of the sea	This course is designed to provide a different perspective on Aboriginal law and policy, as it is both a legal and a political-philosophical field, and is intended to stimulate students' interest in Aboriginal law and policy, and to enhance their critical thinking skills in order to draw concrete learning outcomes.	鑑於原住民議題既屬法學領域，亦屬政治哲學領域，本課程旨在兼顧二者，提供一面不一樣的視野，期能導引修業學生對於原住民法與政策的研討興趣，進而提升深度思辨能力，俾以汲取具體學習效果。	2	Elective Course	海洋政策碩士學位學程	SDG4、SDG10、SDG14、SDG16、SDG17
2021	Master Program	1	A	海洋文化政策與法律	Sea and Culture: Policy and Law	The combination of marine policy and cultural policy seem to be emerging as a new research area of independent interest. While there is no conclusive definition, the research area mainly covers issues referring to underwater cultural heritage, intangible marine cultural heritage and marine cultural industry. This course starts with a comprehensive overview of the theory and development of marine policy and cultural policy, and then discusses the aforementioned three major areas from both a domestic and international point of view. The course aims to provide students with enough background knowledge to undertake their academic development, hoping that students have a complete picture of controversial topics.	海洋文化政策與法律屬於一門正在發展中的新興研究課題，目前尚無公認的嚴格定義，但其涉及之領域眾多，是以洵有深究並延伸探討的必要；主要論述關涉以下三大類別：（一）水下文化遺產法政領域（有關水下考古、水下博物館、水下文化遺產保護區及世界海洋文化遺產等政策與法律）；（二）海洋非物質文化遺產法政領域（例如：原住民海洋文化政策與法律、人類與海洋之關係解構與建構議題）；（三）海洋文化產業法政領域（例如：海洋文化觀光、海洋文創產業等政策與法律）。 本課程嘗試從海洋政策與文化政策的理論與發展奠基，接著進階至前揭海洋文化政策與法律之三大領域；授課內容除包括國際法體制面外，亦將分析國內法相關規範。期望修業學生研習之後，能從整體脈絡觀察本門課程，而非僅側重某方面的探討，庶免偏定而影響學習效果。如此按部就班、循序漸進地汲取新知，相信必能獲其旨趣，並有所得益，終致盈溢入寶山而滿載歸的充實感。	2	Elective Course	海洋政策碩士學位學程	SDG8
2021	Master Program	1	A	海洋政策	Ocean Policy	Since marine policy generally applies to all affairs as far as marine activities are concerned, this course aims to provide an introduction to various disciplines involved in marine policy. In addition, it is also proposed to introduce Taiwan's marine administrative framework and policy objectives.	對於海洋政策的定義，迄今尚無確定性的說法。一般認為，凡凡和海洋事務有關的政策，均是。換句話說，海洋政策涵蓋範圍之寬廣，可能是所有學科之最。由於海洋政策涉及的領域橫跨文理，故在英國及美國，除法政科目外，海洋政策學程通常亦提供經濟學、管理學及海洋學的相關議題討論，藉以博采眾長，進而達到兼收並蓄的效果，合先敘明。 本課程定位為導論，希望能為學習者，盡可能地簡介海洋政策所涉及的各學科。除此之外，擬亦介紹我國海洋事務主管暨附屬機關、職掌，以及海洋政策面向暨其目標，俾為彼等後續修選具關聯性的其他專業課程，奠定穩固的基礎。	2	Required Course	海洋政策碩士學位學程	SDG1、SDG2、SDG3、SDG4、SDG5、SDG6、SDG7、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG14、SDG16、SDG17
2021	Master Program	1	A	國際公法	International Law	This course aims to teach the theory, practice, and application of various topics of public international law through lectures, presentations, case reports, and discussions. The course will introduce the sources and subjects of international law and some branches of international law, in the hope that students will learn through lectures and discussions, and expand their knowledge of international law.	本課程希望透過教師授課、時事介紹、案例報告及討論等方式，教授國際公法各主題的理論、實踐及運用。課程中將針對國際法之法源、主體及部分國際法之分支作介紹，希望修課同學能經由聽講及討論過程中學習，並擴展其對國際法認識之深度及廣度。	2	Elective Course	海洋政策碩士學位學程	SDG3、SDG5、SDG10、SDG13、SDG14、SDG16
2021	Master Program	1	A	國際海洋法	International Law of the Sea	This course aims to teach the theory, practice and application of various topics of international law of the sea through lectures, presentations and discussions. In addition to an introduction to the general issues of international law of the sea, the course will provide a more in-depth analysis of the sub-topics that are more closely related to our country and our practice. In addition to lectures and classroom discussions, classroom presentations will also be used to enable students to apply their knowledge and to develop skills in data collection and information	本課程希望透過教師授課、報告及討論的方式，教授國際海洋法各主題的理論、實踐及運用。課程中除就國際海洋法之一般性議題作介紹外，將就與我國較密切相關子主題和我國實踐進行更深入的分析。除講授和課堂討論外，也將透過課堂報告介紹的方式，讓修課學生能活用所學並訓練蒐整資料及傳達資訊之技巧。	2	Required Course	海洋政策碩士學位學程	SDG7、SDG13、SDG14
2021	Master Program	2	A	國土安全與國境執法	Homeland Security and Law Enforcement at Border	This course aims to cover theories, international and domestic rules, and practice concerning homeland security and law enforcement at border. In addition to basic principles and normative frameworks, important challenges faced by the international community and Taiwan will also be addressed. While this course consists of lectures, accompanied with discussions, research presentations are also required in order to allow students to apply what they have learned and sharpen their skills of compiling research materials and delivering their findings.	本課程希望透過教師授課、報告及討論的方式，教授與國土安全及國境執法之相關理論及國內外規範及實踐。課程中除就基礎原則和規範架構作介紹外，將就與當代國際間及我國所面臨之重要挑戰進行更深入的分析。除講授和課堂討論外，也將透過課堂報告介紹的方式，讓修課學生能活用所學並訓練蒐整資料及傳達資訊之技巧。	2	Elective Course	海洋政策碩士學位學程	SDG16
2021	Master Program	2	A	海洋環境保護法	Law of Marine Environment Protection	This course aims to teach the theory, practice, and application of marine environmental protection law through lectures, presentations, and discussions. In addition to introducing international norms and systems, the course will also provide a more in-depth analysis of domestic law and practice in China. In addition to lectures and classroom discussions, group presentations will also be given to enable students to apply their knowledge and to develop skills in data collection and information dissemination.	本課程希望透過教師授課、報告及討論的方式，教授海洋環境保護法各主題的理論、實踐及運用。課程中除介紹國際間的規範與體系外，將就我國國內法及相關實踐進行更深入的分析。除講授和課堂討論外，也將透過分組報告介紹的方式，讓修課學生能活用所學並訓練蒐整資料及傳達資訊之技巧。	2	Elective Course	海洋政策碩士學位學程	SDG7、SDG13、SDG14
2021	Master Program	1	A	農業食品生技法規與實務	Regulatory Practice of Agricultural and Food Biotechnology	The goal of this course is to understand the regulations related to the production and supply chain of agricultural products and foodstuffs. In order to be in line with international standards, this course also provides the basic regulations and import and export management of agricultural products and foodstuffs in the EU and the US, as well as international regulations for the agricultural and foodstuffs biotechnology industry, in order to enhance international competitiveness.	本課程為配合本校執行教育部「生醫產業與新農業跨領域人才培育計畫」，開設暑期核心課程學分班。 生物科技已導入農產品及食品產業。在強化創新與研發，優化農業及食品產業，藉以提升國際市場競爭力的同時，提高農漁畜產品之安全，增進國人健康，發展永續農業，是現今我國農業及食品生技產業之重要課題。從雞蛋含戴奧辛及芬普尼事件可知，農產品及食品之生產與加工過程均可能產生健康風險，除了政府透過高密度法規確保從農場到餐桌之安全外，並應落實源頭管理，從最原始之農業初始階段，甚至從種子及土壤開始進行安全性管控。為強化農產品及食品產業自主管理能力，降低遵循法規成本，減少法規障礙，促使業者熟悉國際規範以增加產業國際競爭力，有必要培養跨領域人才，瞭解並完善農業與食品生技產業之法規環境。本課程目標為瞭解農產品及食品產銷供應鏈相關法規。為與國際接軌，本課程亦提供歐盟及美國農產品及食品基本規範及進出口管理、農產品及食品生技產業國際規範等內容，以提升國際競爭力。	2	Elective Course	生命科學院(碩)	SDG2、SDG4、SDG12、SDG17
2021	Master Program	1	A	新世代前瞻生物經濟產業鏈	New-generation of Foresight Bioeconomy Industry Chain	Lecturers will be arranged for those in charge of aquaculture-related biotechnology companies or senior management professionals to focus on emerging agricultural bio-economic technologies such as genomics applications in breeding, bioenergy, functional feed development and application, and disease control technologies, so that participants will have a complete understanding of the current aquaculture bio-economy. The training of high-level innovative agricultural industry biotechnology talents in this program will accelerate the upgrade of Taiwan's new agricultural industry and make Taiwan's new generation animal and plant industry more competitive internationally.	安排水產相關生物科技公司負責人或高階經營管理專業人士擔任講師，針對新興農業生物經濟技術如基因體學應用在育種、生質能源、機能性飼料開發與應用、疾病防治技術等，使學員對現今水產生物經濟有完整的認識。本計畫中培養出高階創新農業產業生物科技人才，可加速台灣新農業產業升級，使台灣新世代動植物產業更具國際競爭力。	2	Elective Course	生命科學院(碩)	SDG2、SDG7、SDG9
2021	Master Program	1	A	智能化精準水產養殖與數位化產銷管理	Smart, Precision Aquaculture and Digital Production and Marketing Management	Focusing on new agricultural intelligent management industry and e-system, we will establish "Intelligent Aquaculture Technology", which includes creative marketing and economic model of internet and operation, industrial upgrading business model of international biomedical brand products, key development technology of biological agent, and feed fish meal substitution strategy and technology. The training of high-level innovative agricultural industry biotechnology talents in this program will accelerate the upgrade of Taiwan's new agricultural industry and make Taiwan's new generation animal and plant industry more competitive internationally.	以新農業智能管理產業及e化系統為主，將開設「智慧化水產養殖科技」，內容包含互聯網與營運之創意行銷經濟模式、國際生醫品牌產品之產業升級經營模式、生物製劑關鍵開發技術、飼料魚粉替代策略與技術。本計畫中培養出高階創新農業產業生物科技人才，可加速台灣新農業產業升級，使台灣新世代動植物產業更具國際競爭力。	2	Elective Course	生命科學院(碩)	SDG2
2021	Master Program	1	A	海洋遙測影像處理與可視化應用	Image processing of oceanic satellite-derived data	To study image processing of satellite-derived data by using software, including data capture, composite of image, and signal enhancement. Then to display the environmental information of the ocean, and applying on the physical oceanography and marine biology.	學習如何應用 視覺化軟體進行海洋遙測影像處理與分析，包含程式語言教學、原始衛星資料擷取、影像合成、特徵訊號強化，呈現遙測影像中隱含的海洋資訊，並應用於海洋物理與海洋生態等研究範疇。	2	Elective Course	環境生物與漁業科學學系碩士班	SDG14
2021	Master Program	1	A	水產生物學特論	Advanced Fisheries Biology	Students will be introduced to the characteristics of representative aquatic organisms of various ecological lineages and their unique adaptation mechanisms in their life histories, so that they can understand the role of these organisms in the presentation and role of aquatic biological resources and explore their diverse relationships.	講授各種生態系代表性水產生物的特性，以及生活史中獨特的適應環境機制，使學生了解該生物在水產生物資源所呈現及扮演的角色為何，並探討其多樣的關係。	3	Elective Course	環境生物與漁業科學學系碩士班	SDG14
2021	Master Program	1	A	國際漁業規範與海域執法制度	International Fishery Regulations and Regimes of Maritime Law Enforcement	This course introduces various international documents to enable students to understand the current status and future trends of international fisheries management, and at the same time provide students with an understanding of each country's maritime enforcement system, relevant maritime enforcement agencies and maritime enforcement priorities.	漁業資源是人類重要的蛋白質來源之一，為了合理使用海洋生物資源，讓漁業資源永續利用，國際間陸續制定各項公約、協定、準則、宣言等國際文件，具體落實漁業資源的養護與利用。臺灣雖非聯合國會員國，但身為國際捕魚大國，並為地球村的一份子，仍應遵守相關國際文件，以符合世界潮流與趨勢。因此，本課程在介紹各式國際文件，使學生瞭解國際漁業管理現況與未來趨勢，同時讓學生瞭解各國海域執法制度、相關海域執法部門及海域重點執行項目。	2	Elective Course	環境生物與漁業科學學系碩士班	SDG12、SDG14
2021	Master Program	1	A	海洋環境化學特論	Special Topics in Marine Environmental Chemistry	This course focuses at the distribution and cycle in the marine environmental chemicals and the changes of marine primary production and nutrients. This course will let students understand the marine environment and chemicals.	本課程主要研討海洋環境化學物質分佈及通量，以及海洋基礎生產力與營養鹽變化，使研究所學生更進一步瞭解海洋環境及化學物質。	3	Elective Course	環境生物與漁業科學學系碩士班	SDG4、SDG6、SDG11、SDG13、SDG14

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	A	海洋生態學特論	Advanced Marine Ecology	This course will introduce the four aspects of marine environment types, ecological processes, ecosystems (including estuaries, reefs, oceans, deep sea, coral reefs, etc.), and impacts (including important fishery organisms) to enhance students' understanding of the processes and impacts of marine ecology and its relevance to the fishery industry.	海洋生態學是研究海洋生物及其與海洋環境間相互關係的科學，它是生態學的一個分支，主要內容為探討生物個體、種群、群落以及整個海洋生態系，故關於各類海洋生物的繁殖生長、棲息營養、數量分佈及其與有機、無機環境因子之間的相互關係，海洋生物群落的自然組合的特點和規律，不同生態類群（浮游生物、游泳生物、底棲生物等）的組成、分佈、數量變化及其與海洋環境的關係等均屬海洋生態學特論的範疇。據此本課程將依海洋環境類型、生態過程、生態系統(含河口域、礁岩、大洋、深海、珊瑚礁等)及衝擊(含重要漁業生物)等四個面向加以介紹，以增進學生對海洋生態	3	Elective Course	環境生物與漁業科學學系碩士班	SDG13、SDG14
2021	Master Program	1	A	海洋學特論	Advanced Oceanography	To introduce environment and resources of ocean, and understand how environment control and influence the distribution and abundance of living organisms in oceans. To lead students utilizing multidisciplinary drawing on knowledge of biology from physics, chemistry, and ecology.	介紹海洋環境之物理、化學及生態特性，同時瞭解氣候變遷與海洋環境之耦合效應，引導學生思考如何應用各種海洋科學知識，探究氣候變遷下海洋環境變化及生態因子對海洋資源影響。	3	Elective Course	環境生物與漁業科學學系碩士班	SDG13
2021	Master Program	1	A	海洋甲殼類生物多樣性特論	Advanced Biodiversity of Marine Crustacean	To enable students to understand the species diversity, morphological diversity, conservation adaptation diversity and behavioral diversity of marine crustaceans	使學生瞭解海洋甲殼類生物的物種多樣性、形態多樣性、保護適應多樣性和行為多樣性	3	Elective Course	環境生物與漁業科學學系碩士班	SDG14、SDG15
2021	Master Program	1	A	魚群測定特論	Advanced Detection of Fish School	The main objective of this course is to grasp the dynamics of fish distribution by using the techniques and information of advanced fisheries science and theoretical analysis as the basis for fisheries management.	以尖端漁業科學之技術與資訊，配合學理之研析，來掌握魚群之分佈動態，以做為漁業管理之基礎依據，是本課程主要之教學目標。	3	Elective Course	環境生物與漁業科學學系碩士班	SDG4、SDG12、SDG14
2021	Master Program	1	A	蔬果加工特論	Advanced Fruits and Vegetables Processing	The purpose of this course is to provide students with a thorough understanding of the characteristics of traditional foods and fruits and their processing principles and techniques, and to introduce new vegetable and fruit processing techniques in order to promote the promotion of refined processed agricultural products on the one hand, and to create high value-added and beneficial agricultural products on the other.	本課程目的在於讓學生充分瞭解傳統食品蔬果的特性及其加工的原理和技術，並介紹新穎蔬果加工技術，一方面促進精緻加工農產品的推廣，以期創造高附加價值及對人體有益的農產品。	3	Elective Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	保健食品研發職能實務	Accountability Practice for R&D of Health Food	This course is expected to provide students with a practical understanding of the fundamentals and practices of health food research and development, which will be of great benefit to their future work in the society. In addition, the course will also cover food (including health food) health and safety regulations, food safety assessment methods, health and safety management and assessment methods for food factories, and validation and laboratory certification of food inspection and analysis methods.	保健食品的研究與開發在近代食品科學上佔有重要的一席地位，隨著老齡化社會的發展，人們的保健觀念也從過去的疾病治療演化成為保健預防為主流。美國NIH於1999年成立NCCAM的專責機構來負責輔成及代替療法的研究，正是因為各國漸漸步入老年化社會，原有的治療保險體系逐漸無法負荷龐大的醫藥費用支出而造成過度的社會負擔，導致各國健康保險體系瀕臨破產。因此如能透過保健食品的開發與使用來提升人類的健康將可有效降低醫藥品的使用並減少健康保險體系的負擔。本課程透過保健食品研發與行銷，了解保健食品相關技術、原料、研究開發等基礎知識，加上產品製作流程企劃及討論，再配合產品研發設計概念及通路模式探討，本課程實施後預計可使學生實際了解保健食品研究與開發的基礎與實務，對於未來進入社會後之工作將有極大的助益。此外亦將講授食品 (包括健康食品 衛生安全與管理之相關法規，食品安全之評估方法，食品工廠之衛生安全管理與評核方法及食品檢驗分析方法之確效與實驗室認證等。	3	Elective Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	保健食品研發職能實務	Accountability Practice for R&D of Health Food	This course is expected to provide students with a practical understanding of the fundamentals and practices of health food research and development, which will be of great benefit to their future work in the society. In addition, the course will also cover food (including health food) health and safety regulations, food safety assessment methods, health and safety management and assessment methods for food factories, and validation and laboratory certification of food inspection and analysis methods.	保健食品的研究與開發在近代食品科學上佔有重要的一席地位，隨著老齡化社會的發展，人們的保健觀念也從過去的疾病治療演化成為保健預防為主流。美國NIH於1999年成立NCCAM的專責機構來負責輔成及代替療法的研究，正是因為各國漸漸步入老年化社會，原有的治療保險體系逐漸無法負荷龐大的醫藥費用支出而造成過度的社會負擔，導致各國健康保險體系瀕臨破產。因此如能透過保健食品的開發與使用來提升人類的健康將可有效降低醫藥品的使用並減少健康保險體系的負擔。本課程透過保健食品研發與行銷，了解保健食品相關技術、原料、研究開發等基礎知識，加上產品製作流程企劃及討論，再配合產品研發設計概念及通路模式探討，本課程實施後預計可使學生實際了解保健食品研究與開發的基礎與實務，對於未來進入社會後之工作將有極大的助益。此外亦將講授食品 (包括健康食品 衛生安全與管理之相關法規，食品安全之評估方法，食品工廠之衛生安全管理與評核方法及食品檢驗分析方法之確效與實驗室認證等。	3	Elective Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	冷凍食品加工技術特論	Advanced Frozen Food Technology	This course is a group discussion on the principles of low-temperature preservation of food products, various methods of freezing and defrosting, and the quality changes during freezing and defrosting. Students are expected to understand the current status of new food freezing research and the application of food freezing technology.	以小組討論方式，針對數種新穎冷凍食品加工技術，探討低溫保存食品的原理，各種食品凍結和解凍方法及其冷凍或解凍中的品質變化。期望學生認識新的食品冷凍研究現況及食品冷凍技術的應用。	3	Elective Course	食品科學系碩士班	SDG2、SDG9、SDG12
2021	Master Program	1	A	總膳食研究		This course introduces the methods for estimating exposure parameters, such as exposure dose, food intake, water intake, respiration, and lifestyle time, to estimate the daily dose of chemical substances (EDI) and to explore the uncertainty and variability of the parameters. The Total Diet Study (TDS) is the main axis of the course. The purpose of this method is to detect the concentration of nutrients and food contaminants in representative foods consumed by the public, and to estimate the intake of contaminants in foods consumed by the national population in conjunction with the National Diet Change Survey (NDCS), and to assess the dietary exposure and risk of different groups. TDS can provide a scientific basis for food safety risk assessment and food supply regulation, as well as provide national food safety warning information.	本課程闡述各暴露參數推估方法，例如：暴露劑量、攝食量、飲水量、呼吸量、及生活型態時間等，估算每日攝入化學物質之劑量(EDI)，並探討參數不確定性(Uncertainty)與變異性(Variability)。並以總膳食調查(Total Diet Study, TDS)為本課程主軸，此方法目的在偵測民眾攝食代表性食品中營養成分與食品污染物濃度，並結合國民飲食變遷調查，進而估算國人攝食食品中污染物之攝食量，評估不同族群的膳食污染暴露量及風險。總膳食調查特色在於檢驗之食品為經過烹調成可食狀態(Table-Ready)後再進行食品污染物分析。TDS可為食物安全風險評估和食物供應規管提供科學基礎，亦可提供國家食品安全預警資訊。	3	Elective Course	食品科學系碩士班	SDG2
2021	Master Program	1	A	風險評估實務	Risk Assessment Practice	This course introduces the methods for estimating exposure parameters, such as exposure dose, food intake, water intake, respiration, and lifestyle time, to estimate the daily dose of chemical substances (EDI) and to explore the uncertainty and variability of the parameters. The Total Diet Study (TDS) is the main axis of the course. The purpose of this method is to detect the concentration of nutrients and food contaminants in representative foods consumed by the public, and to estimate the intake of contaminants in foods consumed by the national population in conjunction with the National Diet Change Survey (NDCS), and to assess the dietary exposure and risk of different groups. TDS can provide a scientific basis for food safety risk assessment and food supply regulation, as well as provide national food safety warning information.	本課程闡述各暴露參數推估方法，例如：暴露劑量、攝食量、飲水量、呼吸量、及生活型態時間等，估算每日攝入化學物質之劑量(EDI)，並探討參數不確定性(Uncertainty)與變異性(Variability)。並以總膳食調查(Total Diet Study, TDS)為本課程主軸，此方法目的在偵測民眾攝食代表性食品中營養成分與食品污染物濃度，並結合國民飲食變遷調查，進而估算國人攝食食品中污染物之攝食量，評估不同族群的膳食污染暴露量及風險。總膳食調查特色在於檢驗之食品為經過烹調成可食狀態(Table-Ready)後再進行食品污染物分析。TDS可為食物安全風險評估和食物供應規管提供科學基礎，亦可提供國家食品安全預警資訊。	3	Elective Course	食品科學系碩士班	SDG2
2021	Master Program	1	A	高壓食品加工	High Pressure Food Processing	High pressure processing (HPP) causes minimal changes in the “fresh” characteristics of foods by eliminating thermal degradation. Compared to thermal processing, HPP results in foods with fresher taste, and better appearance, texture and nutrition. High pressure processing can be conducted at ambient of refrigerated temperature, thereby eliminating thermally induced cooked off-flavors. Technology is especially beneficial for heat-sensitive products. We will combine HPP technology principles and hurdle technology, to teach students to understand new product development process involved in the processing of products such as meat, fish, fruits and vegetables.	相較於目前食品業界所採取的各種殺菌方法，超高壓非熱加工特性對食材鮮度維持及營養成分的保留是表現最為突出的技術。由於多數業者仍侷限於傳統的熱殺菌法，這使得不適合熱加工的食材未能有效突破製程瓶頸以創新產品。在課程中結合了超高壓加工技術原理和欄柵技術之應用，讓學生瞭解超高壓技術於水產品、肉製品及蔬果加工的新產品的開發流程。	2	Elective Course	食品科學系碩士班	SDG2
2021	Master Program	1	A	新農業供應鏈管理	New agricultural supply chain management	This course aims to bring intelligence to the food supply system in the health industry and apply it to the farm-to-table food safety supply chain. By integrating upstream and downstream and cross-disciplinary innovation elements, it is expected to develop great value in cross-disciplinary industry-academia collaboration.	這是暑期開設課程: 確保健康飲食乃至關重要的議題，近年來隨著食品安全風險意識、產銷履歷物流監控及企業誠信永續發展受到消費者極高重視，除了目前加強既有的生產製造檢驗登記追蹤管理外，如何透過新高科技提供一個有效加值管理機制，又能被信賴的精準健康分享平台應是全民的期待。人工智慧與物聯網區塊鏈已經是是實際產業中的熱門話題，其應用將是無遠弗居，預計將成為下一個重量級的時代變革，舉凡各健康相關領域都將扮演重要的關鍵點，快速檢測、大數據精準醫學、物流冷鏈管理與飲食健康的智慧結合更是影響深遠。本課程旨在將食品供應系統在健康產業導入智能化，應用於從農場到餐桌食安供應鏈，透過整合上下游及跨領域創新元素，預計將	2	Elective Course	食品科學系碩士班	SDG2、SDG3、SDG9、SDG12
2021	Master Program	1	A	免疫藥理學	Immunopharmacology	Objective is to provide students with an understanding of how immune-active drugs and natural substances act on the immune system and to improve organizational and logical thinking skills through lectures, discussions, and paper reading.	透過授課、討論及論文閱讀讓同學瞭解具免疫活性藥物及天然物如何作用於免疫系統，並藉此提升同學組織和邏輯思考能力。	2	Elective Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	食品產業減廢與節能實務		The main objective of this course is to introduce the current trend of energy saving and waste reduction in the food industry and to share practical examples. The course covers a variety of perspectives, including hot topics such as food and beverage processes, innovation and value-added of agricultural by-products, the development of mass energy from waste, energy saving and waste reduction in innovative industries and sustainable management, and circular economy.	本課程主旨在於介紹目前食品產業節能減廢的趨勢與實例分享，切入的角度多元，其中涵蓋食品飲料製程、農業副產物創新與加值、廢棄物中開發生質能、創新產業節能減廢並永續經營、循環經濟等熱門議題，並於課末安排實地參訪，期望學生能夠有最優化的學習。	2	Elective Course	食品科學系碩士班	SDG2、SDG11、SDG12

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	A	毒物學(二)	Food Toxicology (Ⅱ)	To enable students to understand the multiplicity of toxic substances and their related toxicological effects	使學生認識毒物之多元性及相關毒理作用	3	Elective Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	食品品評學	Sensory Evaluation	This course introduces the principles, methods, and applications of food quality assessment, and provides students with an understanding of the establishment of a quality assessment system, its components, and the methods used in laboratory research, industry development, and analysis of the functional properties of products.	介紹食品品評學的原理,方法與應用,使學生了解品評制度的建立,構成要項,在實驗室研究與業界研發及解析產品的官能性質等使使用的各項品評方法	3	Elective Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	食品危害分析實務	HACCP Theory and Application		無	3	Elective Course	食品科學系碩士班	SDG3、SDG6、SDG12
2021	Master Program	1	A	疾病營養學	Nutrition and Diseases	This course introduces the relationship between the occurrence of disease and nutritional factors. In particular, it provides an overview of the impact of changes in the quality and quantity of dietary content on the occurrence and treatment of disease.	本課程主要介紹疾病的發生與營養因子之間的關係。特別是飲食內容的質、量變化對疾病的發生及治療方面作一概括性的介紹。	3	Elective Course	食品科學系碩士班	SDG2
2021	Master Program	1	A	產品製程設計與開發	Produce/Process Design and Development	The main objective of this course is to develop students' ability to develop new products and process design, so as to enhance their future research and development ability when working in the industry.	本課程之主要目的在培養學生進行新產品開發與製程設計之能力，以增進未來在產業界工作時之研發能力。	2	Elective Course	食品科學系碩士班	SDG17
2021	Master Program	1	A	統計資料分析	Statistical data analysis	The purpose of this course is to provide students with an understanding of how to use statistical software to solve biostatistical problems.	本課程的教學目的在於讓學生了解如何利用統計軟體解決生物統計的問題。	2	Elective Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	酵素工程特論	Advanced Enzyme Engineering	Students will have a deeper understanding of enzyme engineering by using real-life examples.	利用實例解說方式，使學生對於酵素工程有更深入的瞭解。	3	Elective Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	免疫毒理學		Objective is to provide students with an understanding of the influence of various environmental substances and natural active ingredients on the immune system and the immunotoxicological mechanism caused by these	透過授課及討論讓同學瞭解各種環境中之物質及天然物活性成分對免疫系統之影響及探討該物質導致免疫毒性之機制。	2	Elective Course	食品科學系碩士班	SDG4
2021	Master Program	1	D	專題討論(加工組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG3
2021	Master Program	1	B	專題討論(加工組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	專題討論(化學組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG3、SDG4、SDG17
2021	Master Program	1	C	專題討論(化學組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG8、SDG9
2021	Master Program	1	C	專題討論(生技組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG3、SDG4、SDG9、SDG10、SDG12、SDG16、SDG17
2021	Master Program	2	D	專題討論(加工組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG3
2021	Master Program	2	B	專題討論(加工組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	2	C	專題討論(化學組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG3、SDG4、SDG9、SDG10、SDG12、SDG16
2021	Master Program	2	A	專題討論(化學組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG3、SDG4、SDG9、SDG17
2021	Master Program	2	C	專題討論(生技組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG8、SDG9
2021	Master Program	2	D	專題討論(生技組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	2	A	畢業論文	Thesis	The students will learn how to write essays.	使同學習得論文的寫法.	3	Required Course	食品科學系碩士班	SDG4
2021	Master Program	1	B	專題討論(加工組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	1	D	專題討論(加工組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	專題討論(加工組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	專題討論(化學組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	1	B	專題討論(化學組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	1	C	專題討論(化學組)	Seminar	To train graduate students having the capabilities to collect, to manage, and expressing research papers that distributed in various topics. And provide the opportunities to let students have the chancesto dicuss with other graduate students.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	1	C	專題討論(生技組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG8、SDG9
2021	Master Program	1	D	專題討論(生技組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	2	D	專題討論(加工組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	2	B	專題討論(加工組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	2	A	專題討論(加工組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	2	C	專題討論(化學組)	Seminar	To train graduate students having the capabilities to collect, to manage, and expressing research papers that distributed in various topics. And provide the opportunities to let students have the chancesto dicuss with other graduate students.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	2	A	專題討論(化學組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	2	B	專題討論(化學組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	2	C	專題討論(生技組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG8、SDG9
2021	Master Program	2	D	專題討論(生技組)	Seminar	Training of gradute student, literature search, survey, integrate, and present ability in different issue, as well as participate interaction each other.	訓練研究生在不同研究主題文獻收集、整理與表達之能力。同時提供學生參與各項不同研究主題討論互動的機會。	1	Required Course	食品科學系碩士班	SDG4
2021	Master Program	2	A	畢業論文	Thesis	The students will learn how to write essays.	使同學習得論文的寫法.	3	Required Course	食品科學系碩士班	SDG4
2021	Master Program	1	A	魚類模式動物學	Special Topics on Fish as a Model Animal	This course introduces the important genetic tools and methods for zebrafish research, allowing students to understand that zebrafish can be used not only as a model animal for research on cultured fish, but also as a model animal for human diseases to accelerate drug development. After reading the report and discussing the important literature on related research, students will have a better understanding of the important properties of fish as model animals.	斑馬魚已經成為新興的脊椎動物遺傳系統，本課程先經由介紹斑馬魚研究之重要遺傳工具與方法，讓修課同學認識斑馬魚不僅可做為研究養殖魚類的模式動物，亦可做為人類疾病的模式動物以加速藥物開發。經由研讀報告及討論相關研究之重要文獻，對於魚類做為模式動物的重要性能有更深入的瞭解。	3	Elective Course	水產養殖學系碩士班	SDG1、SDG2、SDG4、SDG9、SDG14
2021	Master Program	1	A	水產品藥物檢測與儀器分析	Principle and Technology of Test for Veterinary Drug Residues in Foods	Courses related to inspection applications are offered to increase students' professional knowledge, enhance food safety concepts, and strengthen laboratory management knowledge to nurture professional aquatic food safety inspection talents.	開設檢驗應用相關課程，增加學生專業知能，提升食品安全觀念，加強實驗室管理知識，培育專業水產食品安全檢驗人才。	3	Elective Course	水產養殖學系碩士班	SDG1、SDG2、SDG3、SDG7、SDG8、SDG9、SDG11、SDG12、SDG14、SDG16、SDG17
2021	Master Program	1	A	重金屬儀器分析	Instrumental Analysis of Heavy Metal	Practical-related courses to enhance students' professional knowledge and ability in the inspection and instrumental analysis of Heavy Metal	檢驗應用相關課程增加學生重金屬檢測及儀器分析之專業知能	3	Elective Course	水產養殖學系碩士班	SDG1、SDG2、SDG3、SDG4、SDG8、SDG9、SDG11、SDG14、SDG16、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	A	SGS講座-水產食品安全管理暨實驗室認證系統	System of Food Safety Management and Laboratory Accreditation	This course was designed through seminar presentation, that will extend the basic knowledge of Food Safety and general requirements for the competence of testing. To cultivate domestic talents with aquaculture.	增加學生水產養殖認驗證及食品安全觀念，並加強實驗室管理知識，培育水產專業相關人才。	2	Elective Course	水產養殖學系碩士班	SDG1、SDG2、SDG3、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG16、SDG17
2021	Master Program	1	A	比較生殖生物學	Comparative Reproduction	This lecture has a broadly-based introduction to the exciting and interdisciplinary field of reproduction and has designed it to be of used to advanced graduate student in biology and physiology. In addition, the comparative approach that I have discusses the difference of initial sex determination and in later sexual fate determination in the gonochorism and hermaphroditism.	本課程從比較生物學的角度探討演化上初級性別決定基因與次級性別分化基因的異同，組織學上的異同，並進一步從神經內分泌的層級探討生殖腺的發育與成熟，期使學生對水生動物的生殖生理有全盤性概念，並瞭解生殖調控之機制與原理。	3	Elective Course	水產養殖學系碩士班	SDG12、SDG14
2021	Master Program	1	B	海鮮品質導論	Introductory of Sea Food Quality	The quality of farmed fish depends not only on its intrinsic characteristics such as species, age and gender, but also on environmental factors such as feed regime, capture method and composition of diet. Fishes are different from land-based animals by their highly spoiled nature due to the postmortem chemical changes. Without proper refrigeration, the fast autolysis of muscle produce biogenic amines that are toxic to consumer. Farmed products are generally recognized much easily to maintain fresh than wild by their land based nature and also can be carefully manipulated to avoid toxic compounds accumulation. However, in aquaculture practice, most of the nutritious components are needed to supplement through formulated feed. The unique nature of postmortem changes in fish are needed to introduced to aquaculture major students.	養殖水產品品質取決於內在因素，如魚種、性別、年齡，以及外在養殖條件，如環境因素、飼養策略、飼料成份…等。水產品有別於陸上動物具有營養價值高卻容易腐敗的特性。養殖水產品一般比野生捕撈更容易掌控新鮮度，也能儘量避免有害物質蓄積，但食用的生物營養成份有賴於人為飼料中的添加。因此與野生水產品各有其利弊，期盼經由本學科的介紹以便使同學們在相關領域有更進一步了解與認識。	3	Elective Course	水產養殖學系碩士班	SDG2、SDG5
2021	Master Program	1	A	水生生物學特論	Advanced Aquatic Biology	Teaches about the diversity of aquatic organisms and how to study them.	教導認識多樣的水生生物,及研究它們的方法.	3	Elective Course	水產養殖學系碩士班	SDG14
2021	Master Program	1	B	國際漁業與養殖合作特論	Seminar on International Fisheries and Aquaculture Cooperation	This curriculum is aim to instruct students to understand the current status, implementation, challenges and future prosperity of International Fisheries and Aquaculture Cooperation.	本課程目標在於指導學生瞭解國際漁業與水產養殖之國際合作之現況、執行、問題及未來展望。	3	Elective Course	水產養殖學系碩士班	SDG17
2021	Master Program	1	B	水產營養與飼料學	Fish Nutrition and Feedstuffs	This course will aim to provide a ground understanding through a holistic view to nutrition in aquaculture. It will approach the subject with due consideration of basic utilization and metabolism of finfish and ontogenetic, and their physiological features of importance to nutrition in aquaculture. This course also introduces the nutrition requirements of individual finfish species.	本課程的目的是通過對水產養殖中營養的整體觀點，提供一個基礎的理解。它將適當考慮長鬚鯨的基本利用和代謝，以及對水產養殖中營養的重要性的生理特徵。本課程還介紹了個別鰭魚物種的營養需求。	2	Elective Course	水產養殖學系碩士班	SDG2
2021	Master Program	1	C	農業生技產業法規實務	Regulation of Agriculture Biotechnology	The course covers the following two major topics. (1) Overall agricultural technology industry economic analysis: domestic and foreign agricultural development trends, industry analysis methods, market research and survey methods, agricultural products marketing strategies, agricultural business models and cases, technology foresight and efficiency assessment, etc.. (2) Individual agricultural industries and case studies: Agrogenic technology, food crops, cash crops (fruits, vegetables, flowers), functional foods, aquaculture, ornamental fish and peripherals, livestock and poultry breeding, companion animals, agricultural materials, microbial agents, intelligent agriculture, facility agriculture, circular agriculture, and sharing economy, etc. Students who are interested in agricultural industry analysis and technology management are welcome to take this course.	使學生了解農業科技趨勢、產業發展現況，課程內容涵蓋以下兩大主題： (一)總體農業科技產業經濟分析：國內外農業發展趨勢、產業分析方法、市場研究與調查方法、農產品行銷策略、農業營運模式與案例、科技前瞻與效益評估等； (二)個別農業產業與案例分析：包括農業基因體科技、糧食作物、經濟作物（水果、蔬菜、花卉）、機能性食品、水產養殖、觀賞魚及週邊、畜禽養殖、伴侶動物、農用資材、微生物製劑、智慧農業、設施農業、循環農業、及共享經濟等。 歡迎對農業產業分析與科技管理有興趣者選修。	2	Elective Course	水產養殖學系碩士班	SDG2、SDG9
2021	Master Program	1	C	農業科技創新與產業分析	Agricultural Technology Management and Industry Analysis	The course covers the following two major topics. (1) Overall agricultural technology industry economic analysis: domestic and foreign agricultural development trends, industry analysis methods, market research and survey methods, agricultural products marketing strategies, agricultural business models and cases, technology foresight and efficiency assessment, etc.. (2) Individual agricultural industries and case studies: Agrogenic technology, food crops, cash crops (fruits, vegetables, flowers), functional foods, aquaculture, ornamental fish and peripherals, livestock and poultry breeding, companion animals, agricultural materials, microbial agents, intelligent agriculture, facility agriculture, circular agriculture, and sharing economy, etc. Students who are interested in agricultural industry analysis and technology management are welcome to take this course.	使學生了解農業科技趨勢、產業發展現況，課程內容涵蓋以下兩大主題： (一)總體農業科技產業經濟分析：國內外農業發展趨勢、產業分析方法、市場研究與調查方法、農產品行銷策略、農業營運模式與案例、科技前瞻與效益評估等； (二)個別農業產業與案例分析：包括農業基因體科技、糧食作物、經濟作物（水果、蔬菜、花卉）、機能性食品、水產養殖、觀賞魚及週邊、畜禽養殖、伴侶動物、農用資材、微生物製劑、智慧農業、設施農業、循環農業、及共享經濟等。 歡迎對農業產業分析與科技管理有興趣者選修。	2	Elective Course	水產養殖學系碩士班	SDG2、SDG9
2021	Master Program	1	C	水產生物安全管理與健康養殖科技	Aquatic animal safety management and healthy culturing technology	Through the development and application of novel biotechnology, we can achieve the purpose of disease control. The content includes novel virus-like monitoring technology, application of complex probiotics and antimicrobial peptides to aquaculture, development of aquatic vaccines, and other new control strategies.	經由新穎性生物科技的研發與應用，達到疾病防治之目的。內容包含新穎於類病毒監測技術、複合式益生菌與抗菌肽應用於水產養殖、水產疫苗的開發等新型防治策略等。	2	Elective Course	水產養殖學系碩士班	SDG17
2021	Master Program	1	A	人工智慧與生物影像辨識	Biological Image Analysis with AI	With the declining cost in digital image acquisition, labor force and human bias is the new bottleneck in image processing nowadays. This course is the application level of the three-stage AI courses, aiming to apply AI image analysis to aquaculture challenges, and to elevate students from the level of “knowing” to the level of “au fait”. This course will teach students with life science background who would like to comprehend the principles of image processing algorithms. In addition, machine learning algorithms will be used to track and analyze the image of aquatic animals. This course is designed for biologists to focus on more details of biological image processing, automation plugins/marco coding with ImageJ and cloud AI sever.	影像擷取成本不斷下降，現今的瓶頸已經轉變為該如何分析影像數據以取代人力的耗時與偏誤。本課程為人工智慧三階段課程之應用課程，目標為將人工智慧影像分析應用於水產養殖相關課題之探討，讓同學從「知道有這樣的東西」的程度提升一步到「理解運作的原理並能設法應用」。課程將帶領同學更深入理解數位影像分析原理，並結合機器學習演算法對水生生物影像進行追蹤以及分析。本課程將協助生科背景的同學使用ImageJ與雲端AI分析網站操作進階數位影像處理、自動化定量分析套件及製作小型自動化巨集。	3	Elective Course	水產養殖學系碩士班	SDG8、SDG9
2021	Master Program	1	A	藻類機能性產品開發特論	Development of Functional Products with Algae	Focus on the application of algae resources in biotechnology or food, and then introduce its active substances, understand its application and development.	著重於藻類資源於生物科技或食品之應用，進而介紹其活性物質，瞭解其應用與開發。	3	Elective Course	水產養殖學系碩士班	SDG1、SDG4、SDG8、SDG9、SDG11、SDG12、SDG14、SDG17
2021	Master Program	1	B	浮游生物養殖技術	Cultivation Techniques of Plankton	Based on the international industrial and research trends, this course aims to introduce the biology, isolation, cultivation and nutritional analysis technologies of planktonic organisms. The course could enhance student’s knowledge on the latest industrial and academic developments in plankton cultivation. Demonstrations of live feed cultivation technique are included in this course, and is aimed to established students’ capacity to develop plankton cultures and their application as live feed in aquaculture. The course aims to allow the students to contribute to aquaculture industry and research activities.	依據國際間水產養殖產業的脈動及研究潮流，此課程的教學目標為介紹浮游生物的生物學特徵、採集分離技術、培養技術及其營養分析方法，提升學生對於浮游生物之學術研究和產業運用上最新發展的認知，配合操作演示課程，使學生具有開發不同浮游生物培養物種之技術及將其運用在水產養殖上作為飼料生物的能力，對於相關產業及研究領域能有所貢獻。	3	Elective Course	水產養殖學系碩士班	SDG1、SDG2、SDG3、SDG4、SDG7、SDG9、SDG11、SDG12、SDG13、SDG14、SDG15、SDG17
2021	Master Program	1	B	國際餌料生物產業	International Live Feed Industry	Based on the international trends of aquaculture industry and research, the course introduces specific live feed aquaculture industry in different regions worldwide. The training is designed to enhance the student’s understanding on live feed aquaculture and aspects of regional industry, it aims to enhance student’s capacity to establish live feed production that contributes to regional aquaculture industry and research activities.	依據國際間水產養殖產業的脈動及研究潮流，此課程的教學目標為介紹世界各地區水產養殖產業常用的餌料生物特性及培養技術，提升學生對於國際各區域間，新興餌料生物學術研究和特色產業最新發展的認知，使學生具有開發新興餌料生物培養技術的能力，對於發展區域性餌料生物產業及研究領域能有所貢獻。	3	Elective Course	水產養殖學系碩士班	SDG1、SDG3、SDG4、SDG7、SDG8、SDG9、SDG11、SDG12、SDG14、SDG17
2021	Master Program	1	C	養殖生物技術實習	Practice of Aquaculture Biotechnology	The teaching objectives of this practical course are 1. To cultivate basic talents in aquaculture biotechnology practice. 2. To impart professional knowledge and skills in aquaculture biotechnology. 3.To cultivate the spirit of professionalism and self-development. 4. To cultivate the interest and ability of further education. 5. To improve the knowledge of aquaculture genetic breeding, nutritional feed, health and intelligent management. 6. To cultivate a diligent, active and dedicated work attitude. 7. To develop good safety work habits. 8. To train students with the spirit of university social responsibility and moral ethics. 9. To demonstrate the ability to start a business or serve related industries.	配合執行教育部「生醫產業與新農業學產研鏈結人才培育計畫－動植物農業產業創新領域」之產業就業專業人才培育目標，所規劃之此門校外產業實習課程，除可培育學生具有水產繁養殖、遺傳與育種、水族營養與飼料、產銷經營管理、資源保育與永續利用等專業知識與應用技能及專業素養外，亦能供學生即時掌握國內外水產養殖與生物技術相關產業界脈動。 本實習課程教學目標： 一、培育水產養殖生物技術實務操作之基礎人才。 二、傳授有關水產繁養殖生物技術之專業知識與技能培養。 三、敬業樂群的精神及自我發展的能力。 四、培養再進修之興趣與能力。 五、提升水產養殖遺傳育種、營養飼料、健康及智能化等經營管理之知能。 六、涵養勤儉、積極及敬業之工作態度。 七、養成良好的安全工作習慣。 八、訓練學生具有大學社會責任與道德倫理之精神。	2	Elective Course	水產養殖學系碩士班	SDG2、SDG4、SDG8、SDG12、SDG14
2021	Master Program	1	C	觀賞水族創新與產業	Innovation and Industry in Ornamental Fish	Ornamental aquarium is a high value-added and sophisticated aquaculture industry that can be applied to a wide range of fields such as ornamental, ecological conservation, and biomedical industries. The course includes ornamental and harvesting, packaging, transportation and breeding techniques, management of the ornamental aquarium industry, and development techniques for special strains of ornamental aquariums.	觀賞水族為高附加價值與精緻的水產養殖產業，可應用於觀賞、生態保育、生醫產業等廣泛領域。授課內容包含觀賞與採集、包裝、運輸及養殖技巧、觀賞水族業之經營管理、特殊品系的觀賞水族發展技術等。	2	Elective Course	水產養殖學系碩士班	SDG14

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2021	Master Program	1	A	魚類分類學特論	Advanced Fish Taxonomy	This course provides an introduction to the world's fish species, nomenclature, scientific name recitation, database and atlas application, and geographic distribution of fish groups.	教導認識世界魚類種群，命名法規，學名的記誦，資料庫及圖鑑的查詢應用，魚族的地理分布。 2021-9-28，14:10起，魚類分類學特論 以GOOGLE MEET 遠距上課，請選課同學點擊下列鏈結，以進入課程。https://meet.google.com/fsn-xaxv-rjm	3	Elective Course	水產養殖學系碩士班	SDG4、SDG14、SDG15
2021	Master Program	1	A	實驗生物學	Experimental Biology	To introduce the application molecular biology and genetic engineering and to discuss the recent papers	1. 本課程介紹分子生物及遺傳工程之應用 2. 培養學生分子生物及遺傳工程相關技能，以便應用於未來的工作。	3	Elective Course	水產養殖學系碩士班	SDG1、SDG2、SDG3、SDG4、SDG6、SDG7、SDG12
2021	Master Program	1	A	養殖經濟學特論	Advanced Aquaculture Economics	The ultimate goal of the R&D of farmed fishery technology is to generate profits. Through the principles of economics, this course presents analyses on production economics, marketing economics and case studies, and teaches students to analyze the factors that affect industry profits, and assess the feasibility of industrial inputs or moderately revise.	養殖漁業除生產技術研發，最終目的就是創造利潤，因此，本課程透過經濟學原理，針對生產經濟、運銷經濟、市場經濟及案例分析，教導學生分析影響產業獲利之關鍵，以期評估產業投入之可行性或是進行適度之修正。	3	Elective Course	水產養殖學系碩士班	SDG17
2021	Master Program	1	A	遺傳工程	Genetic Engineering	To explain a new and rapidly growing technology and to present the principles of gene manipulation, and its associated techniques	1. 本課程介紹基因操作的基本知識與基本理論，進而了解細胞的奧妙 2. 培養學生基因操作相關技能，以便應用於未來的工作。	3	Elective Course	水產養殖學系碩士班	SDG1、SDG2、SDG3、SDG4、SDG6、SDG13、SDG14、SDG17
2021	Master Program	1	A	水生遺傳保育書報討論	Discussions of Aquatic Biological Conservation Genetics	This course is based on a discussion of aquatic genetic conservation books and newspapers as the core of the course. Selected key academic topics and articles will be presented	本課程以水生遺傳保育書報討論，為課程核心。 選定重要學術主題及文章後進行。	1	Elective Course	海洋生物研究所碩士班	SDG14
2021	Master Program	1	A	氣候變遷生物學書報討論	Paper Discussions of Climate Change Biology	Students will discuss the phenomenon and causes of climate change over the past century, and the impact on individual life and ecosystems. They will also discuss the impact on individual life and the ecosystem, as well as the ways of human response, such as the formulation of international conventions, the development of new energy sources, carbon markets and low-carbon economies. Through this book, we hope to guide students to understand the overall picture of global environmental change.	帶領學生討論過去百年來的氣候變遷現象和造成之原因，並論述對個體生以至於生態系統的影響。以及人類的因應之道，比如制訂國際公約、開發新能源、碳市場與低碳經濟。希望藉由本書，逐步引導學生了解全球環境變遷的全貌。	3	Elective Course	海洋生物研究所碩士班	SDG7、SDG9、SDG13、SDG14
2021	Master Program	1	A	海龜生物學	Biology of Sea Turtle	Sea turtles are the only conservation wildlife. It has also received a lot of media coverage. The goal of this class is to provide students with a correct understanding of the biology of sea turtles.	海龜唯一保育類野生動物.也受到媒體的大量報導.本課的目標是讓學生有正確的海龜生物學方面的概念.	2	Elective Course	海洋生物研究所碩士班	SDG14
2021	Master Program	1	A	分子生態學	Molecular Ecology	This course is for introducing how molecular techniques can be used to tackle various ecological questions.	本課程旨在探討不同生態議題時可使用之不同的分子生物技術。	2	Elective Course	海洋生物研究所碩士班	SDG7、SDG13、SDG14、SDG15
2021	Master Program	1	A	無脊椎動物學	Invertebrate Zoology	This course is for introducing the systematic classification of invertebrates, their anatomy, physiology and ecological relationships in the environment.	此課程旨在進一步了解無脊椎動物的分類類群、解剖、生理及與生態環境之關聯。	3	Elective Course	海洋生物研究所碩士班	SDG14、SDG15
2021	Master Program	1	A	環境微生物專題討論	The Seminar of Environmental Microorganisms	We will introduce the definition and ecology of microbes, the existence of microorganisms in life and the role-played on the environments and the related application of microorganisms. Core learning outcomes: 1. The students should be conversant with basic microbial ecology and the related knowledge. 2. The students should be able to use basic knowledge of microbial ecology for further scientific reports reading and writing.	介紹微生物之生態，微生物在生活中的存在、扮演的角色、以及相關的應用。核心能力：1. 了解如何分析微生物生態、2. 了解微生物菌群分析基本知識來進行學術文章的閱讀與撰寫。	3	Elective Course	海洋生物研究所碩士班	SDG6、SDG14
2021	Master Program	1	A	島嶼海洋生態系統調查方法	Research Methods for Island Marine Ecosystem	This course will introduce the marine ecosystem of mainland islands and will accompany by an internship course on the ecological survey of top-level consumers - cetaceans and dolphins	本課程簡介大陸島嶼之海洋生態系，並輔以高階消費者鯨豚之生態調查為實習課程	1	Elective Course	海洋生物研究所碩士班	SDG14
2021	Master Program	1	A	海洋生物多樣性	Marine Biodiversity	This course is designed to introduce the diversity and conservation priorities of native marine organisms and ecology, and to understand the diversity of ecosystems in various waters in order to understand the meaning of biodiversity.	本課程教學目標，由國內各類海洋生物及生態專家依其專長共同合開，主要介紹本土海洋生物及生態之多樣性和保育重點，並瞭解各水域生態系之多樣性，以瞭解生物多	2	Elective Course	海洋生物研究所碩士班	SDG14、SDG15
2021	Master Program	1	A	海洋生物資源保育	Conservation of Marine Living Resources	By lecturing the relevant knowledges, this course teach the basic theories and the importance of conservation biology to the nature and whole society.	藉由相關知識的講授,讓學生了解生態保育的基礎理論及其對自然及社會的重要性	3	Elective Course	海洋生物研究所碩士班	SDG14
2021	Master Program	1	A	海洋生態學	Marine Ecology	This course is taught by the entire faculty and introduces the branches of marine environment and marine ecology, the food chain of the oceans, estuaries, coasts, and coral reefs, nutrients in the ecosystem - the carbon, hydrogen, and nitrogen cycle, the southern marine ecosystem, benthic ecosystems, bacteria and benthic mud environment, humans and the marine environment - pollution, atmospheric changes, and biodiversity.	本課程由全所教師共同上課，分別介紹海洋環境與海洋生態的分支，大洋的食物鏈，河口、海岸、珊瑚礁，生態系中營養元—碳氫氧的循環，南方海洋生態系，底棲生態系，細菌與海底底泥環境，人類與海洋環境—污染、大氣的改變及生物多樣性。	2	Required Course	海洋生物研究所碩士班	SDG2、SDG14、SDG15
2021	Master Program	1	A	海洋生物學特論	Advanced Marine Biology	This course is designed to enhance the basic knowledge and latest research results and trends of marine biology for our students. All of our teachers will take turns to introduce marine filter viruses, marine bacteria, fungi, protozoa, phytoplankton, zooplankton, benthic algae, invertebrates, fish, and other marine vertebrates according to their respective expertise. We will introduce their taxonomy, ecology, life history, physiology, behavior, distribution, evolution and relationship with humans.	加強本所學生海洋生物之基礎知礎與最新研究成果與潮流。由本所全體老師依各自專長，輪流介紹海洋濾過性病毒、海洋細菌、真菌、原生動物、浮游植物、浮游動物、底棲海藻、無脊椎動物、魚類及其它海洋脊椎動物。介紹其分類、生態、生活史、生理、行為、分佈、演化與人類之關係等等。	2	Required Course	海洋生物研究所碩士班	SDG14
2021	Master Program	1	A	魚類適應與演化特論	Special Issues of Fish Adaptation and Evolution	The objectives of this course are to build students' understanding of fish species diversity, to analyze the environmental biology and habitat adaptations of fish ecology in different waters, as well as the evolution of different taxonomic classes, speciation characteristics and related research methods, and to guide graduate students in the study of related papers.	本課程教學目標旨在建立學生對魚類物種多樣性之瞭解，並解析不同水域魚類生態的環境生物學與棲所的適應特性，以及不同分類階層的演化、種化特性與相關研究的方法，並指導研究生學習相關論文。	3	Elective Course	海洋生物研究所碩士班	SDG14
2021	Master Program	1	A	海洋生態及保育專題討論	Special Topics on Marine Ecology and Conservation	Let the students to learn the true meanings of marine ecology and conservation ecology	讓學生學習海洋生態及生態保育的真正意義	1	Elective Course	海洋生物研究所碩士班	SDG14
2021	Master Program	1	A	海洋生物調查技術	Marine Biological Research Methods	The objective is to provide students with an initial understanding of common marine biology research techniques and to gain first-hand experience. The main topics include: identification and counting of various marine organisms, analysis and determination of physical and chemical factors in the environment, observation of animal behavior, computer simulation of ecology, and introduction to electron microscopy.	本科目為配合本所「海洋生物學特論」、「海洋生態學」所開設的示範及實作課程，由本所全體老師任教。目的在使學生對於常用的海洋生物研究技術有初步的了解，並能獲得第一手的操作經驗。主要內容包括：各類海洋生物的識別與計數方法，環境中物理化學因子的分析與測定，動物行為的觀察法，生態學上的電腦模擬，以及電子顯	1	Required Course	海洋生物研究所碩士班	SDG14
2021	Master Program	1	A	專題討論	Institute Seminar	The two main goals of the program are for students to develop and practice scientific communication skills and presentation skills, and to develop interaction within the program. The other goal for this year is to have a high level of presentation skills for all students at the end of the semester.	本課程主要包括兩個目標，一為讓學生培養與練習科學溝通技巧與表達能力，再者為發展所內的互動。今年另一目標為讓參與課程的學生在學期結束後都具有高水準的表達能力。	1	Required Course	海洋生物研究所碩士班	SDG14
2021	Master Program	2	A	專題討論	Institute Seminar	The two main goals of the program are for students to develop and practice scientific communication skills and presentation skills, and to develop interaction within the program. The other goal for this year is to have a high level of presentation skills for all students at the end of the semester.	本課程主要包括兩個目標，一為讓學生培養與練習科學溝通技巧與表達能力，再者為發展所內的互動。今年另一目標為讓參與課程的學生在學期結束後都具有高水準的表達能力。	1	Elective Course	海洋生物研究所碩士班	SDG14
2021	Master Program	1	A	海洋生物調查技術	Marine Biological Research Methods	The objective is to provide students with an initial understanding of common marine biology research techniques and to gain first-hand experience. The main topics include: identification and counting of various marine organisms, analysis and determination of physical and chemical factors in the environment, observation of animal behavior, computer simulation of ecology, and introduction to electron microscopy.	本科目為配合本所「海洋生物學特論」、「海洋生態學」所開設的示範及實作課程，由本所全體老師任教。目的在使學生對於常用的海洋生物研究技術有初步的了解，並能獲得第一手的操作經驗。主要內容包括：各類海洋生物的識別與計數方法，環境中物理化學因子的分析與測定，動物行為的觀察法，生態學上的電腦模擬，以及電子顯	1	Required Course	海洋生物研究所碩士班	SDG14
2021	Master Program	1	A	海洋經濟學	Marine Economics	Understanding of ocean and ocean resources. Discussion on economic efficiency of marine resource use and its management. Among various marine resource, this course will focus on the part of fishery resources.	認識海洋及海洋資源，探討海洋資源利用的經濟效率與方法， 海洋資源永續利用的管理規範。在本課程將以漁業資源的利用與管理為重心。	3	Elective Course	應用經濟研究所碩士班	SDG12、SDG14
2021	Master Program	1	A	能源經濟與永續發展	Energy Economics and Sustainable Development	The aim of this course is to give students an overview of the demand for and supply of energy, price efficiency, sustainable development and environmental and policy issues. The topics covered may change slightly, due to time constraints and interest, but typical topics to be covered include: policy experience in energy and climate policies, energy demand and energy efficiency issues, power market systems.	本課程讓同學們了解能源與電力的經濟面與環境面的影響，以及與永續發展的關係。經濟面如大家所知，包括能源需求面、能源供給面、能源價格與效率、電力市場、環境與能源相關國際與國內政策、氣候變遷與現在發展、碳稅與能源稅等環境稅制與影響，最後是各種能源尤其是再生能源與新能源之介紹。可以提供同學對能源與環境與永續發展的理論與概念，未來可以應用在論文中。課程內容預計為環境經濟與資源管理的進階課程，先修習環境經濟與資源管理課程為佳。	3	Elective Course	應用經濟研究所碩士班	SDG1、SDG3、SDG4、SDG7、SDG9、SDG11、SDG12、SDG13、SDG14、SDG15
2021	Master Program	1	A	實證個體經濟分析	Applied Microeconomic Analysis	The purpose of the course is to introduce to students the research process for conducting empirical studies on special topics in economics.	本課程的目的為討論消費者選擇及廠商的生產績效分析。討論衡量消費偏好及決策者(decision maker) 將投入(input) 轉換為產出(output) 之績效(performance)。除了回顧個體經濟理論外，將討論四種目前常見的需求體系及生產函數及指標的方法。	3	Elective Course	應用經濟研究所碩士班	SDG1、SDG2、SDG3、SDG9、SDG12、SDG14
2021	Master Program	1	A	時間數列分析	Time Series Analysis	The aim of this course is to provide participants with the knowledge necessary to handle modern time series techniques. Both univariate and multivariate models are considered with and without the stationary assumption. The estimators are found, their asymptotic distributions derived, and relevant regularity conditions analyzed. On this course we always attempt to provide simple examples that illustrate how the theoretical results are used and applied in practice.	本課程是研究所計量經濟學的進階課程，所要學習的是社會科學實證研究所必需的時間序列分析方法。內容以單變數，多變數時間序列模型為主，並包含恆定與非恆定資料之處理及各模型在應用到經濟資料時所可能遇到的各種問題。本課程之目的為實證計量分析。	3	Elective Course	應用經濟研究所碩士班	SDG1、SDG3、SDG9、SDG12

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	A	海洋休閒與管理	Marine Leisure and Management	To enable students to understand the development trend of the marine leisure industry, and through teaching courses, group discussions, seminars, field trip and other teaching methods to enhance the students on the marine leisure industry management and business understanding.	海洋是生命與文化的起源地，也是人類糧食、運輸、能源與生計所需的重要元素，並提供人們許多觀光休閒的遊憩機會。近代，由於科技進步與休閒意識的抬頭，海洋觀光休閒的安全性與可及性不斷提高，參與這類活動的人數急遽上升，使其成為全球新興的重要產業之一。雖然海洋觀光休閒的發展為人類帶來不少實質的正面意義，然而認識不足、規劃不當或管理不善，都可能為海洋環境帶來不小壓力，值得吾人加以重視。本課程內容將介紹有關海洋觀光休閒的特徵、機會、發展、影響與管理，剖析有關休閒理論及觀光休閒效益之評估方法，並探討台灣在發展這項產業的潛力與限制。另外，本課程也將邀請該領域專家學者分享或透過戶外參觀教學，使同學能實際瞭解台灣發展海洋觀光休閒的概況，並希望透過結合學理分析與個案問題的探討，使同學能瞭解海洋休閒與管理的理論與應用。	3	Elective Course	應用經濟研究所碩士班	SDG2、SDG7、SDG8、SDG9
2021	Master Program	1	A	產業經濟學	Industrial Economics	Industrial economics is an important branch of applied economics that focuses on the relationship between market structure and the behavior of firms. The course covers four types of markets: exclusive, oligopolistic, exclusive competition, and perfect competition. The topics discussed include the relationship between the interactions of firms' pricing behavior, how firms use vertical mergers, price cutting competition, and technological advances to eliminate potential (or existing) competitors' behavior from social welfare, and how to develop regulatory or industrial policies to improve production efficiency and increase social welfare. In addition, this course provides students with case studies to enhance their understanding of the current state of Taiwan's economy and industries.	產業經濟學,是應用經濟學領域的重要分支,主要討論市場結構與廠商行為間的關係。課程主題包括市場的四種型態:獨占、寡占、獨占性競爭及完全競爭。探討的議題包括廠商訂價行為互動的關係、廠商如何利用垂直合併、削價競爭、技術進步等方法來排除潛在(或已存在)競爭者廠商的行為對社會福利的影 響,並進而探討如何制定管制或工業政策以提高生產效率、增加社會福利。此外,本課程透過個案分析方式,以加強學生對於台灣經濟與產業現況的了解。	3	Elective Course	應用經濟研究所碩士班	SDG10
2021	Master Program	1	A	管理數學	Management Mathematics	To provide a comprehensive presentation of the basic mathematical methods which have become indispensable for a proper understanding of the current economic, financial and management literature	管理數學為研讀各種進階經濟學以及計量經濟之數學基礎 作為本所多元入學同學各種背景 之經濟學數理基礎 內容為數理經濟學、線性規劃與管理數學主題 EX:指派問題 存貨問題等等 110學年度學校規定前兩週為遠距上課，預計以非同步方式，上課開始前時上傳影片檔。	3	Elective Course	應用經濟研究所碩士班	SDG3、SDG4、SDG5、SDG8、SDG9、SDG10
2021	Master Program	1	A	線性規劃及其應用	Linear Programming and its Application	The purpose of this course is to introduce the theoretical background of Linear Programming and its characteristics as a tool for economic analysis, with special emphasis on various applications in the field of agricultural economics. The course will focus on problem formulation, operation of GAMS, and analysis of model results, and will be supplemented by various economic theoretical foundations.	本課程之目的在於介紹線性規畫（Linear Programming）之理論背景及其作為經濟分析工具之特性，並特別強調農業經濟領域內的各種應用。教學內容將以問題之啟發整理、電腦程式（GAMS）之操作、及模型結果分析為重點，同時輔以有關的各種經濟理論基礎。	3	Elective Course	應用經濟研究所碩士班	SDG2
2021	Master Program	1	A	環境經濟與資源管理學	Environmental Economics and Resource Management	This course introduces environmental energy and economic related issues, property rights and externalities, as applied to the design and implementation of environmental policies and institutions, discusses the economic analysis of environmental policies and institutions, and the impact of overall economic development policies and sectoral development policies on environmental quality. Environmental issues discussed include various types of pollution, global change, and sustainable development. Includes the latest environmental policy issues in the world. Important domestic and international case studies are discussed. Introduction to new energy issues such as algae biofuel, marine mechanical energy and marine biomass.	請見TRONCLASS最新版大綱 環境與資源經濟是目前國際極受重視的領域 本課程希望帶給同學環境經濟與資源經濟的經濟理論基礎以及世界最新的相關趨勢 在能源(Energy)環境(Environment)與經濟(Economics)3E平衡觀點中學習經濟理論與模型在最新領域的應用 本課程大綱如下：介紹環境能源與經濟相關議題，財產權與外部性，應用於環境政策與制度之設計與執行，討論環境政策與制度的經濟分析，以及總體經濟發展政策與各部門發展政策對環境品質的影響。所討論的環境課題包括各種汙染、全球變遷以及永續發展等課題。包括世界最新的環境政策議題。國內外重要案例討論。介紹藻類biofuel、海洋機械能與海洋生質能等新能源議題。	3	Elective Course	應用經濟研究所碩士班	SDG1、SDG3、SDG4、SDG6、SDG7、SDG8、SDG9、SDG11、SDG12、SDG13、SDG14、SDG17
2021	Master Program	2	A	漁業政策	Fisheries Policy	This course will discuss the development of Taiwan's fisheries industry, fisheries management policies, and the development of marine policies to enhance the effective management of marine resources and the sustainable development of marine industries.	1992年6月在巴西里約熱內盧召開的「聯合國環境與發展大會」通過的「二十一世紀議程」（Agenda 21），形容海洋為「地球維生系統不可分割的一部分，也是人類永續發展機會所在的重要資產」。2015年WWF的研究報告也指出，全球海洋產業的GDP約達2.5兆美元，占全球國家排名的第七位，同時海洋蘊藏豐富的礦產，包括石油、金屬、天然氣之外，也蘊藏許多替代能源，如風力、潮汐、溫差和甲烷水合物等，整體海洋資產超過24.2兆美元。此外，海洋猶如天然屏障，更具有戰略價值，而我們臺灣位於西太平洋第一島鏈，戰略地位極為重要，加以黑潮經過，漁源豐富，足見臺灣海洋發展的重要性。過去台灣享有優越自然條件發展海洋漁業，漁業經營對台灣經濟發展的貢獻甚大。然而，近年來傳統漁業經營因漁業資源變動、貿易自由化、氣候變遷等而面臨挑戰，也顯示對海洋漁業事務管理與政策研究人才的需要與急迫性。 台灣過往涉及海洋事務的管理，多分散在各部會，其中以管理海洋漁業的漁業署，以及管理海域安全的海巡署為主。近年來台灣對海洋事務政策層級之行政組織頗為重視，先後於2004年設「行政院海洋事務推動委員會」、2008年改設「行政院海洋事務推動小組」，為行政院層級之協調及決策機構。專責海洋政策的機關部分，亦先後擬議成立海洋事務部或海洋委員會，並於2015年通過成立海洋委員會的海洋四法，並於2018年4月28日揭牌，實為我國海洋事務發展之重要里程碑。基此，本課程將以台灣漁業發展沿革、漁業管理政策，到海洋政策的發展進行討論，以增進海洋資源有效管理與海洋產業永續發展。	2	Elective Course	應用經濟研究所碩士班	SDG7、SDG9、SDG12、SDG13
2021	Master Program	2	A	環境與資源管理政策專題	Topics in Environmental and Resource Management Policy	Graduate Student Master's Thesis Discussion and Case Study	研究生碩士論文討論與個案研究	3	Elective Course	應用經濟研究所碩士班	SDG1、SDG3、SDG4、SDG6、SDG8、SDG9、SDG10、SDG11、SDG12、SDG13、SDG16
2021	Master Program	1	A	國際漁業管理實務	The Implementation of International Fisheries	This course aims to provide senior students with the legal basis of international fisheries management, scientific research framework, major fisheries management organizations related to Taiwan, and important high seas fisheries management systems, as well as basic competency training in international conference operations and conference English, in order to familiarize students with important international fisheries management organizations and their research and management concepts, current status and trends, and to develop the ability to participate in international affairs in the future.	漁業發展已從早期的「開發型漁業」，轉向以保育、合理利用為重的「管理型漁業」，特別是公海漁業資源之保育管理責任係由區域性國際漁業組織負責，因此，如何因應國際漁業管理需求，規範我國公海漁業作業與發展，是為重要管理精神。 本課程目的在於提供高年級學生有關國際漁業管理之法源基礎、科學研究架構、與我國有關之主要漁業管理組織、以及重要公海漁業管理系統，並佐以國際會議運作與會議英文等基本能力訓練，期使修習者能熟悉重要國際漁業管理組織及其研究與管理概念、現況與趨勢，培養未來參與國際事務之能力。	3	Elective Course	海洋事務與資源管理研究所碩士班	SDG14
2021	Master Program	1	A	海洋資源總論	General Topics on Marine Resources	The aims of this class are to introduce types of marine resources, their characteristics, and interactions with human exploitations. The class emphasis on the biological parts - the renewable resources. The sustainability of these resources will be closely related to their characteristics and the exploitation patterns of human being, as well as the environmental changes. Thus, by understanding these interactions and possible outcomes will be essential for an effective management of these resources.	本課程教授之主要目的乃在使同學了解到海洋生物資源(特別是魚蝦類資源)的特性及其開發與管理的複雜性;生物資源乃一可更新(re-newable)的資源,其存在與再生產的潛力與海洋環境及人為的開發與利用均有極為密切的關聯;不了解生物資源的特性(如生活史、族群結構與生物量生產特徵等)將使資源的存續受到威脅,而了解到資源的生產與再生的特徵卻也無法確保其永續,除非人類的開發與利用均能維持在一合理的水平,使生物資源本身得以在外在衝擊之後能有生息與更新的機會;因此,本課程將就海洋生物資源的特性、生產與更新,及其與海洋環境變動及人類開發等相互之關聯做一綜合性的概觀介紹與討論,以建立同學對海洋再生性資源開發與永續利用的基本觀念	2	Required Course	海洋事務與資源管理研究所碩士班	SDG12、SDG14
2021	Master Program	1	A	海洋事務總論	General Topics on Marine Affairs	Taiwan is surrounded by ocean. The national safety, economic development and public welfare are highly related to the Ocean. The sustainability of ocean governance attracted attentions in recent years. Objectives of this class are to introduce the international and domestic situation, provide the overview of marine affairs, including the international ocean laws and regulations, organizations management, and national policy of coast guard, marine conservation, industries management, etc.	台灣四面環海，國家安全、經濟發展與民眾福祉都與海洋息息相關，近年來海洋的永續管理逐漸受到重視，本課程的目標，旨在呼應國內外情勢，提供學生對於海洋事務全盤的概念，包括國際間相關海洋管理法規、組織運作，以及國內的海巡政策、海洋保育、產業經營，著重理論與實務的結合，並激發學生思考、分析、討論和表達的能力，以培養未來參與國家海洋事務的能力。	2	Required Course	海洋事務與資源管理研究所碩士班	SDG12、SDG14、SDG15
2021	Master Program	1	A	自然資源經濟學	Natural Resource Economics	The objective of this course is for students understand how to incorporate economics in nature resource management.	使學生能理解自然資源與經濟學的關係，以及如何應用經濟學原理幫助自然資源管理。	3	Elective Course	海洋事務與資源管理研究所碩士班	SDG7、SDG12、SDG14、SDG15
2021	Master Program	1	A	海洋政策與行政	Ocean Policy and Administration	1.To understand the three major aspects of our ocean policy, namely, ocean legislation, ocean administration and ocean law enforcement, and to master our ocean policy system 2.Understand the application of public policy to ocean affairs 3.Understand important documents related to domestic and international maritime policies 4.Think critically about our national policies 5.Master the content of national examinations	了解我國海洋政策中海域立法、海洋行政與海洋執法三大面向，並掌握我國海洋政策體系 •了解公共政策在海洋事務上的應用 •了解國內與國際社會海洋政策相關重要文件。 •對我國政策提出批判思考 •掌握國家考試內容	3	Elective Course	海洋事務與資源管理研究所碩士班	SDG14、SDG16

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	A	氣候變遷與漁業	Climate Change and Fisheries	This course is designed to introduce the influence of climate change on fisheries, particularly in cephalopod. Students will learn the knowledge of oceanography, ecology of cephalopod, and introductory to the population ecology, recruitment dynamics and fisheries management. The current research on such topics will be learned by published papers.	本課程以專題討論方式探討氣候變遷於漁業之效應，並以頭足類物種為主要探討對象。 學生將習得海洋環境之基本概念，頭足類族群及其他漁業資源之族群量變化與環境變化之探討，對族群生態及漁業資源評估與管理等領域之基本知識亦稍有介紹。 並藉由文獻選讀瞭解氣候變遷對漁業資源效應之研究現況。	3	Elective Course	海洋事務與資源管理研究所碩士班	SDG13
2021	Master Program	1	A	海洋保護與保育專題	Special Topics on Marine Protection and Conservation	Facing the human utilization on the oceans, it's cased the marine pollution, marine debris, overfishing, lower biodiversity and endangered species. This course will select specific topics, teaching students to review references, data collection, analysis to analyses the question and try to find solutions. It's expected that students could learn to identify questions and find resolutions for marine conservation issues.	因應人類對於海洋的利用，對海洋造成海洋污染、海洋廢棄物、過度捕撈、物種生物多樣性降低、物種瀕危的狀況。本課程將針對特定海洋保育議題，利用文獻蒐集與回顧、演講、實習等多樣化方式，分析特定主題的問題並嘗試提出解決方案的方式，訓練學生界定問題與提供解決方案的練習。	3	Elective Course	海洋事務與資源管理研究所碩士班	SDG11、SDG12、SDG14、SDG15
2021	Master Program	1	A	海洋生態系變動機制	Special Topic on Dynamics of Marine Ecosystem	Changes in the marine ecosystem are closely related to natural events and human activities. This class aims to discuss the composition of marine ecosystems, understanding the mechanisms and processes that drive ecosystem changes over both short and long-term temporal and spatial scales. Human perturbations to the changes of the marine ecosystem will be emphasized, and some thoughts on the management and protection of these systems will also be shared and discussed.	海洋生態乃探討海洋生物與其週遭環境(生物與非生物環境)相互關係之學門;海洋生態系的變動與人類的活動具有密切之關聯;本課程教授之主要目的在使同學了解到海洋生態系之組成及其變動機制，以及天然或人為環境變動(特別是人類利用如漁業開發及其他活動等)對海洋生態系所造成之影響；課程除對生態機制做一探討外,也將針對如:優氧化，生物多樣性，海洋保護區，漁業開發以及溫室效應等議題作一介紹，並將進一步討論生態系變動與管理之因應對策	3	Elective Course	海洋事務與資源管理研究所碩士班	SDG14、SDG15
2021	Master Program	1	A	國際海洋法	International Law of the Sea	This course provides students a good understanding of the United Nations Convention on the Law of the Sea (UNCLOS), including relevant rights and obligations of States in various maritime zones. By reading and interpreting legal materials, students are able to provide critical thinking on the legality of activities on the sea and give insights into ocean policy.	培養學生認識國際海洋法之規範，了解國家於各個海域之權利與義務，並思考相關海上行為之適法性。	3	Elective Course	海洋事務與資源管理研究所碩士班	SDG14、SDG17
2021	Master Program	1	A	國際海洋法	International Law of the Sea	This course provides students a good understanding of the United Nations Convention on the Law of the Sea (UNCLOS), including relevant rights and obligations of States in various maritime zones. By reading and interpreting legal materials, students are able to provide critical thinking on the legality of activities on the sea and give insights into ocean policy.	培養學生認識國際海洋法之規範，了解國家於各個海域之權利與義務，並思考相關海上行為之適法性。	3	Elective Course	海洋事務與資源管理研究所碩士班	SDG14、SDG17
2021	Master Program	1	A	漁業科學與管理	Fishery Science and Management	This class aimed to give a broad discussion on the scope and the complexities of the fishery science, characteristics of fishery resources and possible influences of environmental changes and human exploitation on them. Some biological, social and economical considerations on the utilization and management of these resources will be examined, and methods commonly used for the assessment of these resources also will be introduced. A balance between an effective management and sustainable use of the fishery resource are expected to be learned for the students attended.	目的: 本課程教授之主要目的乃在使同學了解到漁業科學之範疇與複雜性，漁業資源之特性，人類開發及環境對漁業資源之影響、以及族群評估與開發管理利用上生物及社會或經濟層面等應有之考量;課程內容除針對台灣與世界漁業、漁業資源之特性與漁業資源常見之評估方法做一介紹外,也將對漁業資源之管理與國際漁業管理趨勢做一討論,以期建立學生在漁業資源有效開發與永續利用上求取平衡之觀念	3	Elective Course	海洋事務與資源管理研究所碩士班	SDG12、SDG14
2021	Master Program	2	A	溼地與島嶼特論	Special Topic on Wetlands and Islands	The goal of this course is to provide students with a complete understanding of wetlands and islands, and at the same time to stimulate their ability to observe, think, analyze, discuss and express themselves through the integration of theory and practice, in order to cultivate their awareness of the importance of conserving wetlands and islands and promoting sustainable development.	「濕地（Wetlands）」的類型和功能極多，包括各種自然與人為的河川、湖泊、水庫、埤塘、稻田、河口、紅樹林、沼澤和水深不及六公尺的淺海域及珊瑚礁，被認為是地球上最重要的生物棲息環境和最具生產力的敏感地區。島嶼也是地球上特殊的地理環境和重要的資源，因為生態環境特殊與敏感，島嶼和島國的永續發展受到聯合國「二十一世紀議程（Agenda 21）」高度的重視。因此，本課程的目標，在提供學生對於濕地與島嶼完整的認知，同時藉由理論與實務之結合，激發學生觀察、思考、分析、討論和表達的能力，以培養其保育濕地和島嶼，促成永續發展的意識之普	3	Elective Course	海洋事務與資源管理研究所碩士班	SDG12、SDG14
2021	Master Program	1	A	英文文法與習作	English Grammar and Exercise	The course aims to help students acquire the ability to read and write college-level reading materials fluently. In class, the instructor will introduce a variety of sentence combining and expanding techniques—including grammar, usage, and punctuation; then, students, provided with follow-up exercises, will be asked to apply these techniques to produce more specific, concise and fluent sentences. By the end of this course, through abundant sentence-combining practice, students are expected to be able to use a variety of ways to express their ideas out onto the page in clear and coherent English.	教學目標在於幫助學生在英文的寫和閱讀方面能順暢。課堂上，由老師講解各種句子方法，包括標點的使用，課後，學生必須用課堂所學做句子組合練習。透過充分的練習，預期學生完成課程後，不但閱讀能力提升，而且能有精確、簡潔、流暢的文字表達能力。	2	Elective Course	生命科學暨生物科技學系碩士班	SDG1、SDG4
2021	Master Program	1	A	進階生物科技管理實務	Advanced Biotechnology Management	This course is designed to provide students with an in-depth understanding of business plan writing skills and presentation application skills along with the foundation learned in the beginning of the summer course, to create distinctive advantages, and to gradually guide students to grasp the key elements of entrepreneurship with the analysis of real-life cases, so as to cultivate their future entrepreneurial and business management skills.	此門課旨在使學生沿續暑期初階課程所學基礎，深入了解營運計畫書撰寫技巧和簡報應用技巧，創造出特色優勢，結合實際案例的分析，逐步引導學生掌握創業知各項關鍵因素，進而培養學生未來創業及經營管理能力。	2	Elective Course	生命科學暨生物科技學系碩士班	SDG8
2021	Master Program	1	A	藻類活性物質暨生醫概論	Seaweed bioactive substance and its medical research	In this course, we focus on marine resources applied to biotechnology. From the beginning, we introduce the marine source, especially Taiwan surrounding area. Further, we descript the extracting process of marine bioactive substances, finally to understand its application. We wish students can have deep self-understanding about their marine knowledge and career readies.	聚焦藻類資源應用於生物科技之發展。從藻類資源開始認識，特別是台灣周邊地區，進而介紹其活性物質之萃取方式，最後瞭解其應用面。將產業應用與學術理論做串聯，使學生得以瞭解自身所學之特色及可應用方向。	2	Elective Course	生命科學暨生物科技學系碩士班	SDG8、SDG9
2021	Master Program	1	A	無機化學導論 (一)	Introduction to Inorganic Chemistry (Ⅰ)	This course included the basics of inorganic chemistry, bonding theory, acid-base chemistry, solid-state chemistry, coordination chemistry, and bio-inorganic chemistry. A foundational understanding of inorganic chemistry also allows students to begin research and prepare for the upper-level research subjects and courses.	課程除了說明無機化學的基本知識外，也會介紹分子鍵結與酸鹼理論及基礎的固態化學、配位化學及生物無機化學觀念。無機化學知識的授與也提供學生在相關課程及研究的瞭解。	2	Elective Course	生命科學暨生物科技學系碩士班	SDG4
2021	Master Program	1	A	生技醫藥產業導論	Introduction of Biotechnology and Pharmaceutical Industry	This course will provide students with an introduction to the three major biotechnology and pharmaceutical industries, including the pharmaceutical industry, the medical device industry, and the emerging biotechnology industry. The course covers the concepts of biotechnology new drug development process, chemistry of drug development, manufacturing and control (CMC), regulations, patents, and project management, and invites practical experience sharing from industry professionals. Students will be able to understand the nature of work and future development of the biotechnology industry.	本課程將讓學生瞭解三大生技醫藥產業，包含製藥產業、醫療器材產業及新興生技產業介紹，課程涵蓋生技新藥開發流程、藥物開發之化學、製造與管制 (CMC)、法規、專利及專案管理等概念，並邀請業師實務經驗分享。讓學生可以了解生技產業的工作性質與未來發展。	2	Elective Course	生命科學暨生物科技學系碩士班	SDG3
2021	Master Program	1	A	工程實務與決策分析	Engineering Practice and Decision Making Analysis	This course will introduce the whole life cycle of a engineering project. The life cycle including planning and design, project bidding, project performance, operation and maintenance, etc. This course will introduce the analytical method of decision-making. Students can have the concept of a complete project life cycle, and use decision-making methods to determine decision-making issues in current research, future work or life.	本課程將就工程全生命週期包含規劃設計、工程招標、工程履約、營運維護等階段進行介紹，並講解決策分析方法。同學可具備完整工程全生命週期之概念，並藉由決策方法決定目前研究、未來工作或生活中之決策問題。	3	Elective Course	系統工程暨造船學系碩士班	SDG4、SDG8、SDG9、SDG11、SDG17
2021	Master Program	1	A	船用流體力學	Ship Hydrodynamics	The teaching objectives are 1. To familiarize students with the relevant physical theories and mathematical models. 2. To familiarize students with current research trends in fluid mechanics and their relevance to classroom content. 3. To provide students with a complete basic training in fluid mechanics by continuing and integrating with the secondary fluid mechanics courses in the university department.	這個課程延續大學部的"中等流體力學"，進入到較艱深的三個流力主題："非定常勢流效應"(unsteady potential flow effects)、"紊流模式"(turbulence modeling)以及"波浪力學"(water wave mechanics)。這三者不僅是與船舶運動相關的重要流體力學主題，也在更廣義的海洋流體力學課題上為重要的基礎且有許多的應用，例如船舶減阻以及海洋波浪能源，與現今的流力研究趨勢息息相關。其教學目標為： 1.使學生熟悉相關的物理理論與數學模式。 2.使學生了解目前流體力學的研究趨勢以及與課堂內容的關聯性。 3.延續並結合大學部的中等流體力學課，使學生獲得完整的基礎流力訓練。	3	Elective Course	系統工程暨造船學系碩士班	SDG7、SDG9
2021	Master Program	1	A	結構動力學	Structural Dynamics	To understand the structural dynamic response analysis of multi-degree-of-freedom systems with vibration sources including impact loading, periodic loading, irregular loading and random loading. Analytical methods include modal superposition, subspace iterative method and stepwise integration method.	認識多自由度系統之結構動態反應分析，振源包括衝擊負荷、週期性負荷、不規則負荷及隨機負荷。分析方法包括模態疊加法，次空間迭代法及逐步積分法。	3	Elective Course	系統工程暨造船學系碩士班	SDG3、SDG9、SDG11
2021	Master Program	1	A	電腦輔助工程概論	Computer Aided Introduction of Engineering	Establishing students' basic knowledge of CAE awareness/CAE software operation/CIM framework/Internet of Things	建立同學對於CAE認知\CAE軟體操作\CIM架構\物聯網基礎認知	3	Elective Course	系統工程暨造船學系碩士班	SDG9
2021	Master Program	1	A	整數與組合問題最佳化	Integer and Combinatorial Optimization	In the real world, many problems are of integer programming or combinatorial problems, such as problems of investment, management, production, planning and R&D etc. How to optimize such problems for maximizing profits, minimizing cost or significantly promoting efficiency are the most important to decision makers. To teach students how to formulate these problems and how to properly optimize them is the objective of the class. Especially, when combinatorial problems are encountered, how to search the solutions that satisfying you the most by meta-heuristic methods is one of the course objectives. Thinking of not all students familiar to computer programming languages, the teaching goal is to let students know how these optimization or searching methods work one step by one step.	其實世界中所面臨的問題，舉凡產品設計、製造、或研發等，許多是屬於整數規劃問題或組合性問題，面對這類問題如何獲得最佳解以最大化獲利、最小化成本或是大幅提升效能就是決策者最在意的。本課程教導學生如何知道所面對這類問題，如何數學模式化，以及有哪些適用方法可獲得最佳解，並詳細介紹如何應用這些方法。尤其是面對組合性問題時，當問題規模稍大，是無法達成最佳化目標，只能以搜尋法盡量搜尋令人滿足的解，因此還會介紹幾種較常用的元啟發式搜尋法。這些方法，最終應該由電腦來運算，但考量學生對程式設計不一定熟習，所以本課程以讓學生了解這些方法的步驟以及如何運作為主。	3	Elective Course	系統工程暨造船學系碩士班	SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	A	土壤動力學	Soil Dynamics	Students will learn the basic principles and methods of soil dynamics transmission, surface seismic response and its application to seismic hazard analysis, soil liquefaction and engineering, as well as to explain the nature of soil dynamics and its evaluation methods, in order to let students understand the importance of soil dynamics, and then integrate and apply to geodynamic engineering-related dynamics topics to prevent or reduce the generation of seismic engineering hazards.	使同學學習相關土壤動力波傳之基本原理、方法，地表震動反應及其在相關地震危害度分析、土壤液化與工程之應用，並說明土壤動力性質及其評估方式，以期讓同學了解土壤動力之重要性，進而整合應用到大地工程相關動力課題，以預防或減少耐震工程災害之產生。	3	Elective Course	河海工程學系碩士班	SDG11、SDG13
2021	Master Program	1	A	混凝土材料創新與應用	Application and Innovation of Concrete Materials	The goal of this course is to introduce the most advanced concrete technology and engineering applications, as well as innovative concrete thinking to students, so that they can meet the needs of the engineering industry in their future career on the one hand, and combine energy saving, carbon reduction, sustainable use and innovative concepts in concrete professional knowledge on the other hand, in order to train graduate students to think independently and enhance their competitiveness in the society.	混凝土為營建工程上廣為使用之材料，然隨著科技的日新月異，混凝土技術亦一日千里，傳統混凝土之知識對研究生而言，已不敷使用。緣此，本課程教學目標主要為透過課程的介紹，將最先進的混凝土技術與工程應用，以及具創新的混凝土思維傳達學生，一方面使其未來就業上能滿足工程界需求，另一方面結合節能減碳、永續利用與創新理念應用於混凝土專業知識上，以訓練研究生獨立思考之能力與提昇其在社會上	3	Elective Course	河海工程學系碩士班	SDG12、SDG14
2021	Master Program	1	A	海岸環境監測與管理	The Coastal Environment Monitoring and Management	The course is focused on the process and mechanism of coastal environmental change, and the techniques relevant to environmental governance and management.	本課程主要在於介紹海岸區域水邊環境之變化機制以及目前海岸開發所引起的問題，進而利用海岸水力學以及生態學等理論探討海岸區域開發時，各項設施應注意事項。	3	Elective Course	河海工程學系碩士班	SDG9
2021	Master Program	1	A	水資源及環境工程專題討論(三)	Seminar (Water Resources and Environmental Engineering) (III)	Training graduate students to listen , see , think , and do more.	訓練研究生多聽, 多看, 多想, 多做.	1	Elective Course	河海工程學系碩士班	SDG6
2021	Master Program	1	A	水資源及環境工程專題討論(四)	Seminar (Water Resources and Environmental Engineering) (IV)	Training graduate students to listen , see , think , and do more.	訓練研究生多聽, 多看, 多想, 多做.	1	Elective Course	河海工程學系碩士班	SDG6
2021	Master Program	1	A	水文地質實務	Applied Hydrogeology	Students will understand how the geology guides the flow behavior of water between strata, explore aquifer properties, and learn the methods of field hydrogeological investigations and apply them to solve practical hydrogeological problems (slope hazards, rock engineering problems, site characterization, emerging geological resources exploration, etc.)	使學生瞭解地質如何主導水於地層間之流動行為、探索含水層特性、學習現地水文地質調查方法並運用至解決實際水文地質問題(坡地災害,岩盤工程問題,場址特徵描述,新興地質資源探勘等)	3	Elective Course	河海工程學系碩士班	SDG11、SDG13
2021	Master Program	1	A	水資源系統分析	Water Resource System Analysis	In the face of water resources problems (too much water, too little water, too dirty water), we can find a complete plan for water development, conservation, control, utilization and management activities in a systematic and effective way.	面對水資源問題時(水太多,水太少,水太髒), 能以系統分析有效方式, 對水之開發、保育、控制、利用及管理等活動, 竟致完整之計劃.	3	Elective Course	河海工程學系碩士班	SDG15
2021	Master Program	1	A	水泥質材料	Advanced Cement-based Materials	This course introduces the concept of the basic composition of cementitious materials, the factors affecting various types of cementitious materials and their advantages and disadvantages, and the applicability of various types of cementitious materials to different environments and projects, so as to develop new cementitious materials to adapt to projects of different nature, and to explore their durability for the sustainable development of both projects and the environment.	介紹水泥質材料基本組成之概念，認識影響各類水泥質材料之因素及其優劣點，及各類水泥質材料於不同環境與工程之適用性，進而研發水泥質新材料以適應性質不同之工程，並探討其耐久性以兼顧工程與環境之永續發展。	3	Elective Course	河海工程學系碩士班	SDG12、SDG17
2021	Master Program	1	A	海洋能源資源評估	Resources Evaluation of Ocean Energy	This course aims at introducing resource investigation, analysis and evaluation schemes on ocean energy, particularly at the ocean energy around Taiwan including Kuroshio current, wave and ocean thermal energies. The student shall learn and practice the investigation methodologies, data analysis models and evaluation schemes.	本課程將介紹海洋能源的資源調查、分析與評估。針對台灣海域的海洋能源，包含洋流、黑潮能源資源、波浪能源資源、海洋溫差發電資源，讓修習學生了解資源調查方法、成果分析與可行性評估。	3	Elective Course	河海工程學系碩士班	SDG7、SDG9
2021	Master Program	1	A	高等海岸水力學	Advanced Coastal Hydraulics	This course further discusses the small amplitude waves theory, the overview of Boussinesq equations, surface gravity waves, and the characteristics of wave propagation and deformation over the coastal structures and beaches, second-order wave loads and their responses in random sea, free surface tracking methods and their applications in wave hydrodynamics application, and also the numerical methods of nonlinear waves. The content includes related mechanical properties of waves, currents, and terrain changes, coastline change patterns, port basin oscillations and the mechanical performance of tides on coastal structures. This course is planned to be completed in 18 weeks and 3 hours a week.	本課程為研究所碩士班之課程，針對波浪理論中微小振幅波作進一步討論。內容進一步探討表面重力波的Boussinesq型方程式之綜述，海灘和沿海結構的波浪上升和越波特性，不規則海中的二階波浪載荷及其響應，自由表面跟踪方法及其在波浪流體動力學中的應用以及非線性波的數值方法。內容包括波浪、流、地形變化之相關力學特性、海岸線變化模式、港池振盪與潮汐對海岸結構物之力學表現，本課程規劃以18週及每周3小時之時間完成。	3	Elective Course	河海工程學系碩士班	SDG9、SDG11
2021	Master Program	1	A	遙測於防災及減災工程之應用	Remote Sensing in disaster prevention and mitigation	1.Basic remote sensing theory and concept 2.Learn how to monitor disaster with remote sensing techniques 3.Learn how to apply Design Thinking tool to disaster prevention and mitigation 4.Develop academic report writing and independent thinking abilities	1.教授遙測原理與概念 2.了解有關遙測如何監測災害 3.學習創新設計思考如何應用於防災及減災工程 4.培養報告撰寫以及獨立思考能力	3	Elective Course	河海工程學系碩士班	SDG11、SDG13
2021	Master Program	1	A	物流管理	Logistics Management	Reviewing the development trend of supply chain; and practicing freight transportation demand forecasting, inventory management, warehouse management, facility location programming, and transportation (distribution) programming methodologies and its application.	掌握供應鏈的發展趨勢，熟習貨物運輸需求預測、存貨管理、倉儲管理、設施區位規劃、運輸配送計畫等方法及其運用。	3	Elective Course	河海工程學系碩士班	SDG9
2021	Master Program	1	A	海洋測量學	Marine Surveying	This course introduces the principles and methods of oceanographic (waves, tides, currents, etc.), geomorphological (shoreline, bathymetry, substrate, etc.) and meteorological (wind, pressure, etc.) observation systems related to ocean and coastal development and disaster prevention and protection.	海洋測量主要是為了提供船舶航行安全、航道疏浚、港灣工程建設、海疆宣示主張、漁場開發、海洋(岸)開發利用與防災保護規劃設計及海洋科學研究(海底地質、海流、鹽度、營養成分、海底地震)等需要，故本課程主要在介紹海洋、海岸開發利用與防災保護有關之海象（波、潮、流等）、地象（岸線、水深測量及底質等）及氣象（風、氣壓等）等觀測系統之原理與方法。	3	Elective Course	河海工程學系碩士班	SDG2
2021	Master Program	1	A	海洋測量學	Marine Surveying	This course introduces the principles and methods of oceanographic (waves, tides, currents, etc.), geomorphological (shoreline, bathymetry, substrate, etc.) and meteorological (wind, pressure, etc.) observation systems related to ocean and coastal development and disaster prevention and protection.	海洋測量主要是為了提供船舶航行安全、航道疏浚、港灣工程建設、海疆宣示主張、漁場開發、海洋(岸)開發利用與防災保護規劃設計及海洋科學研究(海底地質、海流、鹽度、營養成分、海底地震)等需要，故本課程主要在介紹海洋、海岸開發利用與防災保護有關之海象（波、潮、流等）、地象（岸線、水深測量及底質等）及氣象（風、氣壓等）等觀測系統之原理與方法。	3	Elective Course	河海工程學系碩士班	SDG2
2021	Master Program	1	A	資料探勘	Data mining	This course aims to introducing the techniques of data mining and the students will learn data collecting, cleaning, processing, and statistically analyzing and extract useful information.	本課程旨在介紹資料蒐集、分析、統計等方法，教導學生如何在大量數據中，整理資料並找出需要的資訊。	3	Elective Course	河海工程學系碩士班	SDG10、SDG11、SDG13
2021	Master Program	1	A	學術研究倫理	Academic Research Ethics	The course is an online course. Teachers and students are encouraged to take the course at the website of the Taiwan Academic Ethics Education Resource Center (https://ethics.nctu.edu.tw/).	該課程為線上修習課程，請各教師及學生自行至臺灣學術倫理教育資源中心(https://ethics.nctu.edu.tw/)網站選讀。	0	Required Course	河海工程學系碩士班	SDG4
2021	Master Program	1	A	數值分析於大地工程之應用	Numerical Methods in Geotechnical Engineering	The objective of this course is to teach students how to use computers and related analytical methods to solve geotechnical problems. The course content starts from the basic soil index properties and classification procedures, then finite difference numerical methods to solve groundwater infiltration problems, then stress analysis and transformation, then slope stability analysis, subsidence analysis, and pressure density analysis, etc. Finally, the course teaches students the more complex rock mechanics analysis procedures, so that students can have the ability to use the computer for analysis and design, and enhance their competitiveness in related research and future employment. This course will provide students with the ability to use the computer for analysis and design, and enhance their competitiveness for future research and employment.	本課程教學目標在教導學生如何使用電腦及相關分析方法以解決大地工程之相關問題。課程內容從基本土壤指數性質與分類之程式開始，至以有限差分數值方法求解地下水滲流問題，之後探討應力分析與轉換，而後講解邊坡穩定分析、沉陷分析、與壓密分析等，最後再教導學生較為複雜之岩石力學分析程式，使學生具有使用電腦進行分析設計之能力，並提昇學生相關研究與未來就業之競爭力。	3	Elective Course	河海工程學系碩士班	SDG9
2021	Master Program	1	A	再生能源與儲能系統導論	Introduction to Renewable Energy and Energy Storage	Introduction on renewable energy sources and battery storage systems.	介紹可再生能源和電池儲存系統。	3	Elective Course	電機工程學系碩士班	SDG7、SDG9
2021	Master Program	1	A	高等微控軟體與硬體設計	Advanced Micro Hardware and Software Design	This course will instruct and inspire students on integrating computer science, material science, optics, and electric engineering discipline to create special purpose devices that can be seen daily. Students should have a solid understanding of basic knowledge including computer programming, electronics and circuits, digital logics, and embedded systems since this is a one semester course covering a very broad range and assuming that basic understanding is present. A final project must be completed, including both software and hardware components, at the end of this course to receive credit.	本課程將指導和啟發學生整合計算機科學、材料科學、光學和電氣工程學科，以創造日常可見的特殊用途設備。學生應該對基本知識有紮實的了解，包括計算機編程、電子和電路、數字邏輯和嵌入式系統，因為這是一個學期的課程，涵蓋的範圍非常廣泛，並假定有基本的了解。在本課程結束時必須完成一個最終項目，包括軟件和硬件部分，以獲得學分。	3	Elective Course	資訊工程學系碩士班	SDG9、SDG11、SDG14
2021	Master Program	1	A	最佳化理論與應用	Optimization Theory and Applications	The goal of this course is to give students advanced knowledge of numerical optimization algorithms and computational experience using these algorithms in programming. Applications to different research areas are also learned through completing term projects.	此課程授予學生各種進階數值最佳化演算法，亦讓學生於實作中，了解其最佳化方法之精神與應用。	3	Elective Course	資訊工程學系碩士班	SDG4、SDG5
2021	Master Program	1	A	物聯網核心技術	Core Technologies of IoT	This course introduces the core technologies and advanced research topics of the Internet of Things and equips students with the ability to design and analyze Internet of Things application systems.	介紹物聯網核心技術及進階研究課題，使學生具備設計和分析物聯網應用系統能力。	3	Elective Course	資訊工程學系碩士班	SDG9
2021	Master Program	1	A	深度學習社群媒體分析	Deep Learning Social Media Analytics	1. Understand the concepts and research topics of Deep Learning Social Media Analytics. 2. Conduct the project research in the context of Deep Learning Social Media Analytics.	1. 瞭解深度學習社群媒體分析的基本概念與研究議題。 2. 進行深度學習社群媒體分析相關專題研究。	3	Elective Course	資訊工程學系碩士班	SDG4
2021	Master Program	1	A	人工智慧在生物醫學上的應用	AI in biology and medicine	Artificial Intelligence (AI) has advanced modern biology and medicine. The goal of this course is to teach computational scientists and biomedical scientists the AI methods used in modern biomedicine. This course primarily focuses on the fundamentals of machine learning methods, which can be applied to biological and medical data.	人工智慧使現今的生物醫學更上層樓。本課程目的是針對電腦科學家與生醫科學家，教導現今生物醫學上的人工智慧。本課程主要著眼於可用於生物醫學資料上的基本機器學習方式。	3	Elective Course	資訊工程學系碩士班	SDG9

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	A	下世代網路切片應用服務	The services and applications of network slicing for next-generation networks	The objective of this course is to cultivate students with 5G and network slicing technologies, and cultivate talents for Taiwan"s information and communication technology (ICT) industry.	本課程之教學目標為培育學生具備5G及網路切片實務技術，養成台灣通訊產業界所需要之人才。	3	Elective Course	資訊工程學系碩士班	SDG9
2021	Master Program	1	A	高等無線通訊協定	Advanced Wireless Communication Protocols	This course is mainly targeted at graduate-level students to study and discuss academic and practical research topics related to wireless protocols. Through literature surveys and paper discussions, students can understand the latest developments of various wireless protocols.	本課程主要在提供研究所階段的學生學習並探討無線通訊協定相關學術上及實務上的研究議題，藉由論文研討，瞭解目前各種無線通訊協定的最新進展。	3	Elective Course	資訊工程學系碩士班	SDG9
2021	Master Program	1	A	學術研究倫理	Academic Research Ethics	The goal of the present curriculum is to instill the importance of academic integrity to students in higher education, who have just entered the field of research. Through these lessons, we hope to enhance ethical capabilities of students such as academic integrity reasoning, universal values, and laws and regulations. Additionally, we wish to strengthen the understanding of academic integrity, research ethics, and aspects in practice, as well as implementing honest and responsible research conducts.	本課程旨在培養初踏入研究領域之高等教育學生了解學術倫理重要性，希冀透過課程提升學生之學術倫理思維、普世價值、法律規範等倫理知能，增進對於學術倫理與研究倫理意涵與實務面之理解，並落實誠信且負責任的研究行為。	0	Required Course	資訊工程學系碩士班	SDG4
2021	Master Program	1	A	學術研究倫理	Academic Research Ethics	The goal of the present curriculum is to instill the importance of academic integrity to students in higher education, who have just entered the field of research. Through these lessons, we hope to enhance ethical capabilities of students such as academic integrity reasoning, universal values, and laws and regulations. Additionally, we wish to strengthen the understanding of academic integrity, research ethics, and aspects in practice, as well as implementing honest and responsible research conducts.	本課程旨在培養初踏入研究領域之高等教育學生了解學術倫理重要性，希冀透過課程提升學生之學術倫理思維、普世價值、法律規範等倫理知能，增進對於學術倫理與研究倫理意涵與實務面之理解，並落實誠信且負責任的研究行為。	0	Required Course	資訊工程學系碩士班	SDG4
2021	Master Program	1	A	工程分析	Engineering Analysis	Establish knowledge of advanced engineering analysis and learn how to solve Calculus of variation, synergy principle, ordinary differential equations,partial differential equations and Inverse method. Understand real meaning of physical parameters by mathematical training.	建立工程分析的知識，學習如何去解有關物理的數學問題，例如變分學、協同理論、常微分方程式或偏微分方程式、逆運算法。藉由數理分析訓練去理解物理變量的真實意義。	3	Elective Course	輪機工程學系碩士班	SDG4
2021	Master Program	1	A	FPGA數位邏輯系統設計	FPGA-Based Digital Logic System Design	This course is designed to replace ASIC circuit design with large programmable logic gates (FPGAs) and to learn the hardware description language (VHDL) from the examples. Starting from the most basic combinatorial logic and sequential logic, we will finally understand the planning and design of the control chip, and implement the hardware control circuit with the design examples and FPGA hardware for digital logic system design.	以大型可程式邏輯閘(FPGA)取代ASIC電路設計,由專題範例中學習硬體描述語言(VHDL).從最基本的組合邏輯和順序邏輯開始,到最後能瞭解控制晶片的規劃設計,並配合設計範例和FPGA硬體進行數位邏輯系統設計,實現硬體控制電路.	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	通訊系統電腦模擬與量測	Simulations and Measurements of Communication Systems	With the self-designed teaching materials and measurement system, students will understand the performance of various communication technologies and system simulation framework in the communication system.	配合自行設計之教材與量測系統，使同學瞭解通訊系統中，各種通訊技術效能及系統模擬架構。	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	智慧化航行專題研討	Special Topics in e-Navigation	This course will explore the latest developments and applications of core technologies in spatial information, positioning navigation, and information and communication integration under the international e-navigation framework. The objective of this course is to enable students to recognize the relevance of their professional skills in the context of practical application requirements and international development trends, and to build up the ability to interpret international standard technical documents, collect and analyze the latest developments, and to continue independent learning and international integration.	國際海事組織正積極推動的「e-化航行」,或國內所稱「智慧化航行」,是使資通訊創新科技得以協調應用於海事領域的策略計畫，擬從船端、岸端以及船岸之間的資訊蒐集、整合、交換、呈現與分析等，全面引領海上航行進入電子化與智慧化的新世代。本課程將探討在國際e-化航行架構下，空間資訊、定位導航與資通訊整合等核心技術的最新發展與應用。教學目標是讓同學能體認其專業能力在實務應用需求與國際發展趨勢中的定位與關聯性，建立解讀國際標準技術文件、蒐集分析最新發展、持續自主學習並與國際接軌的能力。	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	智慧化航行專題研討	Special Topics in e-Navigation	The " E-Navigation", which is continuously promoted internationally, is called "intelligent navigation" in Taiwan; its definition is to coordinate the collection, integration, exchange, presentation and analysis of maritime information between ship, shore and shore by electronic means to enhance navigation and related services from berthing to departure, in order to improve maritime safety, security and protection of the marine environment; with the E-Navigation The international framework of E-Navigation will enable the introduction of new technologies to promote comprehensive digital automation and even unmanned/autonomous navigation, so that various navigation and communication technologies and services can be integrated to maximize the benefits; to avoid the development of new technologies that may lead to risks due to lack of coordination.	國際持續推動的"E-Navigation"，在國內以「智慧化航行」稱之;其定義是以電子的方法調和船上、岸上與船岸之間海事資訊的蒐集、整合、交換、呈現與分析，強化從離泊到靠泊之航行與相關服務，以提昇海上安全、保安與海洋環境的保護;期以E-Navigation的國際架構,使得在引進新技術推動全面數位化自動化甚至無人/自主航行的過程中,各種導航通訊技術及服務能相容整合，發揮最大效益；避免新技術的發展因為缺乏協調反而導致風險. 此課程的教學目標在於引導同學進入智慧航行的領域	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	量子資訊概論	Introduction to Quantum Information	This course focuses on quantum communication, quantum measurement and computation, and the necessary core mathematical tools, including linear algebra and probability.	量子資訊科學是近幾年來一個熱門的研究領域，該依據物理的量子效應存在的理念而延伸出來之資訊科學。量子資訊涵蓋的問題很廣泛，本課程的重點是介紹量子通訊、量子量測與計算，以及必要之核心數學工具，包括線性代數以及機率等。	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	正交分頻多工無線通訊	Orthogonal Frequency Division Multiplexing Wireless Communications	Students will be familiar with the system specifications, modulation techniques, interference countermeasures and the actual system architecture of orthogonal frequency division multiplexed wireless communication systems.	使同學瞭解熟悉正交分頻多工無線通訊系統中，系統規範、調變技術、干擾對策等運作原理及實際系統架構。	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	個人通訊系統	Personal Communication Systems	To help students understand the complete knowledge of personal communication systems	幫助學生了解個人通信系統的完整知識	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	訊息與編碼理論	Information and Coding Theory	How to measure information capacity How to compress information How to efficiently transmit information over noisy channels	信息理論可被應用於計算機資訊，通訊，熱力學和其他科學。課程介紹數位信號和序列、編碼、壓縮、雜訊和機率、可逆和不可逆操作、生物系統信息、通道容量、最大熵形式，相關基礎應用與量子計算之連結。	3	Elective Course	通訊與導航工程學系碩士班	SDG4、SDG8、SDG9
2021	Master Program	1	A	無線寬頻通訊技術	Wireless Broadband Communications Techniques	This course is to provide various broadband techniques in the future wireless communication systems.	使同學瞭解未來無線通訊系統中，各種寬頻技術。	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	智慧型系統概論	Intelligent Systems	Introduction to the basic principles and applications of fuzzy systems, genetic algorithms, neural-like networks, and hybrid intelligent systems	介紹模糊系統,基因演算法,類神經網路及混合式智慧型系統之基本原理及應用	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	學術研究倫理	Academic Research Ethics	This course aims to enhance students' ethical knowledge of academic ethics, universal values, and legal regulations, and to improve their understanding of the meaning and practical aspects of academic ethics and research ethics, as well as to implement honest and responsible research behavior.	培養初踏入研究領域之高等教育學生了解學術倫理重要性，希冀透過課程提升學生之學術倫理思維、普世價值、法律規範等倫理知能，增進對於學術倫理與研究倫理意涵與實務面之理解，並落實誠信且負責任的研究行為	0	Required Course	通訊與導航工程學系碩士班	SDG4
2021	Master Program	1	A	學術研究倫理	Academic Research Ethics	This course aims to enhance students' ethical knowledge of academic ethics, universal values, and legal regulations, and to improve their understanding of the meaning and practical aspects of academic ethics and research ethics, as well as to implement honest and responsible research behavior.	培養初踏入研究領域之高等教育學生了解學術倫理重要性，希冀透過課程提升學生之學術倫理思維、普世價值、法律規範等倫理知能，增進對於學術倫理與研究倫理意涵與實務面之理解，並落實誠信且負責任的研究行為	0	Required Course	通訊與導航工程學系碩士班	SDG4
2021	Master Program	1	A	數位控制	Digital Control	Classical controls approach to the analysis and design of digital control systems. Design by frequency response and root locus methods. Use of MATLAB and a controls laboratory for controller design, implementation and system analysis.	以離散時間的觀念來分析系統，建立模式及達成控制器設計，並探討其實際應用上的問題。以狀態空間表示法及多項式方法分別設計並探討其最佳設計。	3	Elective Course	通訊與導航工程學系碩士班	SDG4、SDG9
2021	Master Program	1	A	數位通訊	Digital Communications	The functional characterization of digital signals and transmission facilities, band-limited and time-limited signals, modulation and demodulation techniques for digital signals, error probability, inter-symbol interference and its effects, equalization and optimization of baseband binary and M-ary signaling systems. Carrier recovery methods and symbol synchronization techniques for bandpass systems will be presented. Applications to radio and satellite communication systems will be emphasized.	學習如何有效設計及分析數位通訊系統。瞭解完整數位通訊系統：數位信號與傳輸設備的功能、頻寬限制及時間限制型信號的特性、數位信號的調變與解調、錯誤率、符碼間干擾及其影響、等化器、以及基頻二位元或多位元信號系統的最佳化；探討旁通帶系統的載波重建方法及符碼同步技術。並強調數位通訊系統在無線通訊與衛星通訊系統的應用。	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	數位調變技術	Digital Modulation Techniques	Understanding the performance analysis of various modulation technologies in digital communication systems	瞭解數位通訊系統中，各種調變技術效能分析	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	適應控制	Adaptive Control	Introduction to the principles of adaptive control system and analysis of design issues.	介紹適應控制系統的構成原理及分析設計問題.	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	隨機過程	Stochastic Processes	To understand basic probability and stochastic processes with applications toward communications.	瞭解基本的機率與隨機過程, 並應用於通訊系統之設計與分析.	3	Elective Course	通訊與導航工程學系碩士班	SDG4、SDG9
2021	Master Program	1	A	類神經網路理論及應用	Neural Network Theories and Applications	Understand the structure and learning patterns of neural-like networks and apply them to real systems.	瞭解類神經網路結構及學習模式，並能應用於實際系統上。	3	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	2	A	專題討論	Seminer	Introduce the knowledge / technology in the area of the communication, navigation, and control,and other applications of science.	介紹"通訊與導航控制"領域相關之知識技術,及其他科學應用。	1	Elective Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	專題討論	Seminar	Introduce the knowledge / technology in the area of the communication, navigation, and control,and other applications of science.	介紹"通訊與導航控制"領域相關之知識技術,及其他科學應用。	1	Required Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	1	A	專題討論	Seminar	To introduce the latest knowledge in the field of communication systems and navigation control technology.	介紹有關通訊系統與導航控制技術領域內相關之最新知識.	1	Required Course	通訊與導航工程學系碩士班	SDG9
2021	Master Program	2	A	專題討論	Seminar	Introduction of the latest technologies in the field of communication, navigation and control systems	介紹通訊,導航與控制系統領域最新之相關技術	1	Elective Course	通訊與導航工程學系碩士班	SDG9

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	A	自動化海洋運輸系統專論	An Introduction to Automatic Marine Transportation Systems	This course will introduce the concept of automated marine transportation system, including the development of marine transportation service automation, the scheduling of ship terminal seats and how to automate them, how to apply automation to cargo loading and container loading/unloading scheduling operations to improve their efficiency. It will cover the related maritime logistics service automation, maritime supply chain information automation, and how maritime related warehousing can integrate automation and information flow concepts to bring convenience to the industry. It will introduce how to apply intelligent system design methods, automation concepts and information in marine transportation engineering and conduct a case study of related applications.	本課程將介紹自動化海洋運輸系統概念，內容包含海洋運輸服務自動化之發展，船舶碼頭席位排程及如何自動化，貨物裝載、貨櫃裝卸排程等作業如何應用自動化來提高其效率。將涵蓋相關之海運物流服務自動化、海運供應鏈資訊自動化以及海運相關倉儲如何結合自動化及資訊流概念等所帶來之產業便利性。介紹如何以智慧系統設計方法、自動控制概念及資訊應用於海洋運輸工程並進行相關應用之實例探討。	3	Elective Course	運輸科學系碩士班	SDG11
2021	Master Program	1	A	物聯網智慧系統-理論與應用	IoT Intelligent Systems-Theory and Applications	This course will introduce the concept, technical framework, basic artificial intelligence theory, and the latest development of CPS in industry and academic research. The IoT devices and computer classroom software in the Department's IoT lab will also support this course with system operation demonstrations and case studies. Upon completion of this course, students should be able to understand and master the basic theories of IoT intelligent systems, read academic journals in the field, and apply them to their own research areas.	物聯網(IoT)是一龐大的技術架構，近年來更與人工智慧(AI)密切的結合成為AIIOT。但IoT與AI兩者有何區別，更精確地說IoT-enabled AI與廣義的AI有何不同。其主要的差異在於IoT-enabled AI是一種Cyber Physical System (CPS, 網宇實體系統)；CPS必須緊密整合諸多硬體感測器與即時分析判斷的軟體演算法與系統，而一般的AI不一定會與硬體或物聯網感測裝置結合。因本課程將介紹物聯網智慧系統(含CPS)之概念、技術架構、基本人工智慧理論，以及CPS在工業與學術研究上的最新的發展。本系物聯網實驗室之IoT設備與計算機教室相關軟體也將支援本課程系統操作示範與案例分析之教導。在完成本課程後，學生應該能夠理解與掌握物聯網智慧系統之基本理論、閱讀此領域的學	3	Elective Course	運輸科學系碩士班	SDG9
2021	Master Program	1	A	空運經營管理專題	Airline Operation and Management	The course introduces the academic expertise of the six civil aviation industries and the practical management of the industry. It also integrates the development of the air transportation market, such as air service agreements and open skies, airline costs and sustainable growth operations, airline strategic alliances and low-cost airline operating models, and other market trends.	介紹民航六業中學術面的專業知識與業界實務面的經營管理，並結合航空運輸市場發展之相關課題，如航空運輸服務協定與開放天空、航空公司成本與永續成長經營、航空公司策略聯盟和低成本航空公司營運模式等市場趨勢，透過課堂講解和相關論文與時事的討論，培養學生具備基本的空運經營管理概念。	3	Elective Course	運輸科學系碩士班	SDG12
2021	Master Program	1	A	貨櫃運輸專論	Container Transport Management	This subject is designed to provide professional study of the container transport management of liner shipping with respect to the international maritime business environment. This subject provides students with a full understanding of current developments in the liner shipping, and to enable them to understand the application of quantitative techniques in container transport management decision making. Studying this subject will also help develop students' global outlook, critical and creative thinking, entrepreneurship and leadership.	讓學生瞭解貨櫃運輸之基本要素、定期航運實務與產業，培養蒐集分析資料製作專業報告與簡報能力。	3	Elective Course	運輸科學系碩士班	SDG1、SDG3、SDG4、SDG8、SDG9、SDG14、SDG16
2021	Master Program	1	A	運輸計量方法	Measurement of Transportation	This course is a basic course with the main objective of deepening students' basic concepts of statistical analysis and introducing quantitative analysis methods that are often applied in the field of traffic and transportation. Through the use of statistical software packages, students will understand the process of model parameter estimation, inference, and prediction to strengthen their data analysis and model construction skills.	本課程屬基礎學科，主要的目標在於加深學生統計分析的基本觀念，介紹經常應用在交通運輸領域的計量分析方法。藉由統計套裝軟體的使用，使學生了解模式參數校估、推論、及預測的過程，以加強學生資料分析與模式構建的能力。	3	Elective Course	運輸科學系碩士班	SDG11
2021	Master Program	1	A	空間決策方法論	Spatial Decision Making Methods	Methodology of the Spatial Decision Support (Spatial decision methodology) Methods of using space and time axis to discuss decision-making include multi-criteria decision-making (MCDM), fuzzy theory (FT), marine geographic information system (MGIS), artificial intelligence system development (AI SYSTEM), neural network (ANN), and time series analysis (TSA) Genetic Algorithm (GA) Chaos Theory (CHAOS) Data Mining (DM) Big Data Analysis (BDA)... and other methodologies and related software applications	空間決策方法論 利用空間及時間軸探討決策的方法包括 多準則決策(MCDM)模糊理論(FT) 海洋地理資訊系統(MGIS) 人工智慧型系統開發(AI SYSTEM) 類神經網路(ANN) 時間序列分析(TSA) 基因演算法(GA) 混沌理論(CHAOS) 資料探礦 (DM) 大數據分析(BDA)...等方法論之介紹與相關軟體應用	3	Elective Course	運輸科學系碩士班	SDG4、SDG9、SDG17
2021	Master Program	1	A	國際船員職場研討	Topic on International Seafaring	This course aims to provide students with an understanding of the theory and practice of maritime human resources, as well as relevant research methods and applications of maritime human issues.	本課程旨在使同學了解海上人力資源的理論與實務，以及海上人力議題的相關研究方法及應用。	3	Elective Course	商船學系碩士班	SDG8
2021	Master Program	1	A	事故肇因之分析技術	The Analysis Technologies for Accident Causalities	Currently, the air transport industry uses methods such as the Systemic Occurrence Analysis Methodology (SOAM) developed by the Safety Regulation Commission (SRC) of the Ministers of Transport and Defence for Air Traffic Management (ATM) and the HFACS (Human Factors Analysis Methodology) of the FAA (Federal Aviation Administration). The SOAM (Systemic Occurrence Analysis Methodology) developed by the SRC (Safety Regulation Commission) for ATM (Air Traffic Management) and the HFACS (Human Factors Analysis and Classification System) adopted by the FAA (Federal Aviation Administration) are the mainstream technologies. (Human Factors Analysis and Classification System) adopted by the Federal Aviation Administration (FAA) are the mainstream technologies. The systematic analysis method and the hierarchical structure of these two techniques have contributed to the clarification of the causes and the cause-effect relationships among the various factors in air transportation incidents. Subsequently, the course will introduce critical value or probabilistic analysis techniques and how these methods are applied to the analysis of accident causes. The main objective of this course is to provide the participants with an understanding of the techniques that can be used to analyze the human factors of a maritime accident and how to apply these methods. It is hoped that the course will bring new concepts and insights into the analysis of the causes of accidents.	事故肇因之分析技術，目前以空運界所採用之方法，諸如由歐盟運輸暨國防部長（Ministers of Transport and Defence）轄下之SRC（Safety Regulation Commission）為空運管理（ATM, Air Traffic Management）所發展之SOAM（Systemic Occurrence Analysis Methodology），以及美國聯邦飛航總署（FAA, Federal Aviation Administration）所採用之HFACS（Human Factors Analysis and Classification System）為主流技術。這兩套技術其系統化的分析方法，以及層次分明的架構概念對於釐清空運事故當中之肇因及各項因素之間的因果關係，有相當的貢獻。隨後，課程將介紹關鍵值或概率之分析技術及這些方法又如何被運用在事故肇因之分析上。本課程主要目標是使得學員認識並了解，能以何種的技術來分析海難事故的人為因素，以及如何應用這些方法。希望能為學員帶來一些分析事故肇因的新觀念與啟示。	3	Elective Course	商船學系碩士班	SDG4、SDG14
2021	Master Program	1	A	計畫評估	Project Evaluation	This course introduces the various evaluation methods and their practical applications for project (or program, strategy, or action) evaluation, and trains graduate students to understand project evaluation techniques and to handle them appropriately when faced with decision problems. This course systematically organizes and introduces various evaluation methods from traditional to modern, from single criteria to multiple criteria, and from qualitative (qualitative) to quantitative (quantitative).	本課程主要介紹計畫（或方案、策略、行動）評估之各種評估方法及在實務上的應用，訓練研究生瞭解計畫評估的技巧，以及在面臨決策問題時能做妥適的處理。本課程從傳統到現代，從單一準則到多準則，從定性（質化）到定量（量化）之各種評估方法，有系統加以整理與介紹。	3	Elective Course	商船學系碩士班	SDG8、SDG9、SDG11、SDG12、SDG13、SDG14
2021	Master Program	1	A	商船綜論	Merchant Ship Synthesis	1. Provide broad information on the Merchant ships. 2. Provide students with advanced knowledge of seamanship.	1. 提供廣泛的商船相關資訊。 2. 使學生具備船藝進階知識。	3	Elective Course	商船學系碩士班	SDG3、SDG4、SDG9、SDG14、SDG15、SDG16、SDG17
2021	Master Program	1	A	組織行為與人力資源專論	Special topics on Organizational Behaviour and Human Resources Management	To provide students with an understanding of the content of Organizational Behavior (OB) and Human Resources (HR) management and its application to research.	使學生了解組織行為(OB)與人力資源(HR)管理學之內涵，以及其在研究上的應用。	3	Elective Course	商船學系碩士班	SDG8
2021	Master Program	1	A	港埠系統模擬	Port System Simulation	In order to enable students graduating from this department to have a deeper understanding of the use and operation of modern port facilities, technological advances have led to rapid changes in port facilities. However, the complexity of port and harbor facilities often makes the teaching lack of appropriate teaching aids, and only imagination and ideas can be used to show their effectiveness.	科技之進步，使得港埠設施之改變，日新月異，為使本學系畢業之學生，對於現今港埠現代化設施之使用與操作，有更深層之認識與瞭解。然而，港埠設施具有其複雜性，使得教學上常缺乏適當之輔助教具，只能空憑想像與意會而無法具體呈現其成效，藉由此港埠模擬系統的助益，可一目了然複雜實際港埠系統之完整運作流程。	3	Elective Course	商船學系碩士班	SDG9
2021	Master Program	1	A	運輸經濟學	Advanced Transportation Economics	This course is designed to provide students with an understanding of how economic analysis can be applied to transportation problems and to introduce important theories of transportation economics and their applications.	旨在使學生瞭解如何將經濟學的分析手法應用在交通運輸之問題上，並介紹運輸經濟學之重要理論及其應用。	3	Elective Course	商船學系碩士班	SDG11
2021	Master Program	1	A	船舶交通工程	Vessels Traffic Engineering	The main content of this course is to introduce the movement phenomenon of a ship (or marine transport) and the engineering planning and design related to this movement. The objective of this course is to train students to "observe" ship traffic phenomena and to use mathematical theories to develop "models" of ship traffic for "application" to ship traffic planning, design and management (or service) facilities.	本課程的主要內容在於介紹船舶（或海上運具）移動之運動現象以及與該運動相關的工程規劃與設計。準此，本課程之目標在訓練學生從船舶交通現象「觀測」出發，採用數學等理論建立船舶交通「模式」，以便「應用」於船舶交通規劃，設計及管理（或服務）等相關設施。	3	Elective Course	商船學系碩士班	SDG9、SDG11
2021	Master Program	1	A	等候定價與決策行為	Queuing Pricing and Decision Behavior	To understand the bottlenecks in the crowded public facilities in a state of queuing for pricing models, as well as users in this mode, the equilibrium of decision-making behavior.	使學生瞭解公共設施處於瓶頸擁擠狀態時之等候定價模式，以及設施使用者在該模式下之均衡決策行為。	3	Elective Course	商船學系碩士班	SDG9
2021	Master Program	1	A	路網理論	Network Analysis	To improve efficiency and productivity in the transportation sectors. Through the solution of mathematical model provides a basis for making a decision.	網路是利用線或通路(Channels)，將不同的點連接起來所組成的系統。一般常見的網路有公路、鐵路、海空交通網等，包括以上部份或全體所組成的較複雜網路，俗稱運輸網路。研究運輸網路的目的，就是追求在有限的資源下，獲得最大的滿足，將某種商品或旅客，從出發點運至目的點，改善運輸部門的效率與生產力，藉由解算數學模型	3	Elective Course	商船學系碩士班	SDG11
2021	Master Program	1	A	專題討論	Special Topics in Merchant Marine	1. Reading and comprehension to special topics in Merchant Marine field. 2. Presentations to the special topics in Merchant Marine field.	1. 研讀及理解商船領域之重要特殊課題 2. 對商船領域之重要特殊課題提出心得報告	1	Required Course	商船學系碩士班	SDG4、SDG5、SDG17
2021	Master Program	1	A	工程磨潤學	Engineering Tribology	Introduction of the basic concepts of lubrication engineering from the viewpoint of mechanical design and manufacturing	從機械設計與製造的觀點介紹磨潤工程的基本概念	3	Elective Course	機械與機電工程學系碩士班	SDG9、SDG12
2021	Master Program	1	A	永續能源	Sustainable Energy	This course evaluates current and potential future energy systems which include renewable and conventional energy production technologies with emphasis on meeting energy needs in the 21st century in a sustainable	本課程從理論與實際應用介紹現今能源系統包含了石化能源、海洋能源(洋流、溫差、潮汐)、其他再生能源以及核能。學生將會了解各種主要能源轉換技術以及對環境的衝	3	Elective Course	機械與機電工程學系碩士班	SDG7、SDG9、SDG12

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	A	精密製造分析	The Analysis of Precision Manufacturing Processes	The main objectives of this course are: 1. enable students to understand the error modeling methods and verification techniques for machining machines. 2. to understand the theoretical analysis of cutting procedures. 3. to enable students to understand the inspection techniques and analysis methods of machining accuracy. 4. To equip students with the basic ability to combine theory and practice for the integrated planning and analysis of precision manufacturing processes.	本課程旨在介紹達成精密機械製造之各項組成要素，並導入相關數學理論方法以進行各項分析工作，進而達到結合理論與實務以進行精密製造程序之整合性規劃分析。本課程主要的教學目標在於： 1. 使學生瞭解加工機床之誤差建模方法與校驗技術。 2. 使學生瞭解切削加工程序之理論分析方法。 3. 使學生瞭解加工精度之檢測技術與分析方法。 4. 使學生具備結合理論與實務以進行精密製造程序之整合性規劃分析的基礎能力。	3	Elective Course	機械與機電工程學系碩士班	SDG8、SDG9
2021	Master Program	1	A	銲接結構失效分析	Failure Analysis of Welded Structures	The interrelationship of design, fabrication, nondestructive evaluation, fracture mechanics, and reliability concepts in establishing the overall fitness-for-purpose of welded structures and equipment.	設計、製造、無損評價、斷裂力學和可靠性概念在確定焊接結構和設備的整體適用性方面的相互關係。	3	Elective Course	機械與機電工程學系碩士班	SDG9
2021	Master Program	1	D	專題討論	Seminar	Through participation in academic lectures and discussions, students will be able to improve their paper presentation skills, master their research progress and enhance academic and skill exchange.	藉由參加學術演講及討論，提升學生論文發表能力，掌握研究進度及增進學術及技能交流。	1	Required Course	機械與機電工程學系碩士班	SDG7、SDG9、SDG10、SDG12、SDG17
2021	Master Program	1	A	船舶融資與航運金融	Shipping Finance	This course discusses the essential theories and the best practice of financial management and shipping finance.	1.說明財金領域的核心知識與金融市場的交易邏輯 2.複習一般公司理財的理論與實務 3.介紹海運公司財務管理的理論與實務，包括金融市場的融資工具、新船與二手船融資、資本結構決策、資本預算決策、財務風險管理、另類融資工具與伊斯蘭金融等。	3	Elective Course	航運管理學系碩士班	SDG1、SDG2、SDG4、SDG5、SDG8、SDG9、SDG10、SDG11、SDG12、SDG16
2021	Master Program	1	A	船舶融資與航運金融	Shipping Finance	This course discusses the essential theories and the best practice of financial management and shipping finance.	1. 本課程介紹海運公司財務管理的理論與實務，包括金融市場的融資工具、新船與二手船融資、資本結構決 策、資本預算決策、財務風險管理、公司治理、另類融資工具與伊斯蘭金融等。 2. 幫助同學了解金融市場的邏輯，進而建立正確的投資理財策略。	3	Elective Course	航運管理學系碩士班	SDG1、SDG2、SDG4、SDG5、SDG8、SDG9、SDG10、SDG11、SDG12、SDG16
2021	Master Program	1	A	綠色航運與物流管理	Green Shipping and Logistics Management	The aim of the course is to provide students with an advanced understanding and investigating the important issues on green shipping and logistics management, the current green shipping and logistics practices, and the academic research themes and future study directions.	本課程主要目的是讓學生深入瞭解及探討綠色航運與物流管理的重要議題內容、經營業者實務採用之措施、以及探討該領域學術研究主題及未來研究之方向。	3	Elective Course	航運管理學系碩士班	SDG14
2021	Master Program	1	A	企業研究方法	Business Research Method	On completion of this module, a student should be able to achieve some of the following goals:undertake a literature search and review, evaluate academic arguments and develop a convincing argument of their own, manage their time effectively, understand how to work productively with project supervisors, create diagrams for different research purposes, write for academic and non-academic audiences, design a research poster, present their project orally to peers	完成本課程後，學生應該能夠實現以下一些目標：進行文獻搜索和回顧，評估學術論點並提出令人信服的論點，有效地管理自己的時間，了解如何與項目主管進行富有成效的合作，為不同的研究目的製作圖表，為學術和非學術受眾寫作，設計研究海報，向同行口頭介紹自己的項目。	3	Elective Course	航運管理學系碩士班	SDG4、SDG5、SDG8、SDG9、SDG10、SDG16、SDG17
2021	Master Program	1	A	航運總論	General Introduction to Shipping	1.Analyzing the characteristics of liner and tramp shipping. 2.Introducing to the practice and theory of liner and tramp shipping. 3.Case studies	1. 深入了解定期及不定航運經營之特性 2. 探討定期及不定期航業經營與管理之理論與實務 3. 航運實務問題研析	3	Required Course	航運管理學系碩士班	SDG9
2021	Master Program	1	A	國際貿易專論	Seminars on International Trade	The aim is to provide students with a deeper understanding of the issues related to international trade theory and to further their knowledge of the reasoning and research methods of international trade theory.	在於使同學對於國際貿易理論相關議題有一較深入之瞭解並對於國際貿易理論之推理與研究方法有進一步之認識	3	Elective Course	航運管理學系碩士班	SDG1、SDG2、SDG7、SDG9、SDG10、SDG12、SDG13、SDG17
2021	Master Program	1	B	組織與管理	Organization and Management	This course is to help students obtain in-depth understandings of organizations through good comprehension of central theoretical perspectives and paradigms. This course will focus on determinants of an organization's success, focusing particularly on structure and design issues, as well as external environmental factors that impact organizational structure and functioning.	1.瞭解管理的基本理論 2.強化同學對於組織管理相關機能的自我論述	3	Required Course	航運管理學系碩士班	SDG1、SDG5、SDG8、SDG10、SDG12
2021	Master Program	2	B	港埠經營與管理	Port Administration and Management	After the academic semester, students in this class are expected to 1.Have in-depth knowledge on the port operation practice and management, 2.Understand theories and practices on port planning and development, 3.Learn the port planning and design skills.	1. 深入了解港埠管理與營運之特性 2. 探討港埠規劃與發展之理論與實務 3. 解析港口之規劃與佈置	3	Required Course	航運管理學系碩士班	SDG10、SDG11、SDG13、SDG14、SDG17
2021	Master Program	2	A	運輸系統分析	Transportation System Analysis	The concept of system analysis is used to explore the various elements and functions of transportation, including passenger transportation, cargo transportation, and intelligent transportation systems.	以系統分析概念探討運輸的各種要素與功能，包含旅客運輸、貨物運輸、智慧型運輸系統。	3	Elective Course	航運管理學系碩士班	SDG9、SDG11
2021	Master Program	1	B	行政法總論（一）	Administrative Law - General Principles(I)	1. Introduction to the basic theories of administrative law 2. To establish students' mastery of modern administrative activities and their derivative legal phenomena, and to guide the formation of their problem awareness, with a view to stimulating their interest in further study from different perspectives in the interdisciplinary field. Interactive discussions will also be used to promote students' understanding and analysis of basic issues and their systematic mastery.	1.行政法基礎理論之介紹 2.奠定同學對於現代行政活動及其衍生法現象之掌握，並引導其問題意識之形成，期激發以不同角度切入跨領域研究之進階學習的興趣。兼以互動式討論，促進學生對於基本議題之理解分析及體系性掌握。	2	Required Course	海洋法律研究所碩士班	SDG3、SDG4、SDG5、SDG6、SDG8、SDG10、SDG11、SDG12、SDG13、SDG14、SDG15、SDG16
2021	Master Program	1	A	國際法專題研究	Seminar on International Law	Students will be able to (1) recognize some of the important international law issues currently faced by the international community, and further understand how to interpret and apply international law principles to negotiate and negotiate when disputes arise between states in these areas of international law, and if necessary, even refer to arbitration or to international judicial bodies for litigation to reach a solution through judicial procedures. (2) Understand that important principles of international law, which are agreed upon by several countries and have legal effects, exist in various treaties and customs, therefore, it is necessary to be familiar with these important treaties and customs so that they can be invoked at any time. This will lead to the expansion and enrichment of the field of international law, which will enhance the interests of nations and promote human welfare. (3) To learn more about international jurisprudence and precedents, so that they will be able to analyze and comment on international law disputes in the future and be able to propose solutions to them.	在使同學(1)認識到目前國際社會中所面臨的若干重要國際法問題，進而瞭解國家之間在這些國際法領域發生爭端時，如何解釋及運用國際法原則進行協商談判，必要時甚至送請仲裁或提交國際司法機關訴訟，經由司法程序達成解決方案，(2)理解重要國際法原則，是經由多個國家同意而產生法律效力，存在於各項條約及習慣之中，因此要熟悉這些重要條約及習慣，以便隨時可以引用，尤其應注意隨著國際社會不斷進步演變，國家間會形成新共識，締結新條約或修改舊條約，採納新法律規則，使得國際法領域更為擴大充實，更能提升各國利益及促進人類福祉，(3)了解更多國際判決及先例，以利未來面臨國際法爭端時，具備分析評論能力，而且能夠提出應對方案。	2	Required Course	海洋法律研究所碩士班	SDG1、SDG4、SDG14、SDG16、SDG17
2021	Master Program	1	B	憲法	Constitutional Law	This course aims to investigate the constitutional function of protecting individual"s human rights and its role in a democratic political system from the perspectives of political philosophy and constitutionalism. The course will discuss values, theories and institutions of constitution law. Finally it will also research on correlation between constitutional institutions and protection of human rights.	憲法之主要規範內容為基本權利與國家組織。本課程將從憲政理論的角度，探討憲法在保障個人基本權利上所能發揮的功能及在民主制度中所能扮演的角色。本課程將引導學生自政治哲學與憲法學切入，探尋出近代民主政治所追求的價值，以作為憲法體制的引導；在掌握憲法基本架構下，檢視我國憲政運作現況，以認識憲法制度與人權	2	Required Course	海洋法律研究所碩士班	SDG1、SDG3、SDG4、SDG5、SDG8、SDG10、SDG12、SDG16
2021	Master Program	2	A	國際環境保護法專題研究	Seminar on International Environmental Law	This course aims to teach the theory, practice, and application of international environmental law through lectures, current events, presentations, and discussions. The course will introduce the general theory of international environmental law, basic principles, and specific environmental issues, hoping that students will learn through lectures and discussions and expand their knowledge of international environmental law.	本課程希望透過教師授課、時事介紹、專題報告及討論等方式，教授國際環境法各主題的理論、實踐及運用。課程中將針對國際環境法之概論、基本原則及特定環境問題規範作介紹，希望修課同學能經由聽講及討論過程中學習，並擴展其對國際環境法認識之深度及廣度。	2	Elective Course	海洋法律研究所碩士班	SDG1、SDG4、SDG11、SDG12、SDG13、SDG14、SDG16、SDG17
2021	Master Program	2	B	民事訴訟法	Code of Civil Procedure	This course provides students with an overall understanding of civil procedure law and serves as a basis for improving their knowledge of litigation law.	讓同學經過學習之後對民事訴訟法有整體性之認知，以作為精進訴訟法知識之基礎。	2	Required Course	海洋法律研究所碩士班	SDG10、SDG16
2021	Master Program	1	A	環境資料分析	Environmental Data Analysis	Students will understand the basic methods of data analysis	讓學生了解資料分析的基本方法	2	Required Course	海洋環境資訊系碩士班	SDG13
2021	Master Program	1	A	海洋浮游生物分子生態	Molecular Ecology for Marine Plankton	This course is opened for the graduate students who are interested in the ecology of marine plankton.	以分子生物的觀點討論海洋浮游生物與環境交互作用，並瞭解全球環境變遷對其的可能衝擊。	3	Elective Course	海洋環境與生態研究所碩士班	SDG14
2021	Master Program	1	A	海洋浮游生物多樣性分析(一)	Research Methods for Marine Plankton Diversity Analysis (I)	This course is opened for the graduate students who are interested in relative research topics in marine plankton diversity. All of well-development methods in this field will be introduced in this course.	介紹並實際操作分析海洋浮游生物多樣性之研究方法	3	Elective Course	海洋環境與生態研究所碩士班	SDG14、SDG15
2021	Master Program	1	A	海洋浮游生物多樣性分析(二)	Research Methods for Marine Plankton Diversity Analysis (Ⅱ)	This course is opened for the graduate students who have been studied the course “Research Methods for Marine Plankton diversity analysis (I)”. All of well-development methods in this field will be introduced in this course.	實際操作分析海洋浮游生物多樣性之研究方法	3	Elective Course	海洋環境與生態研究所碩士班	SDG14、SDG15
2021	Master Program	1	A	海洋生物資訊學	Marine Bioinformatics	Introduction of Marine bioinformatics and its application in the marine ecosystem.	簡介生物資訊學及其在海洋生態之應用	3	Elective Course	海洋環境與生態研究所碩士班	SDG14
2021	Master Program	1	A	浮游植物生理生態學	Phytoplankton Physiological Ecology	Students are introduced to the phytoplankton physiological ecology and its application in the phytoplankton ecology. After this course, students will be able to obtain the basic concept of phytoplankton physiological ecology. Through reading and discussing the recent literature, students will also be able to learn its applications in the marine ecology.	介紹浮游植物生理生態及其在海洋生態之應用，在學完本課程後使研究生具備海洋浮游植物生理與生態之基本觀念，並透過期刊論文閱讀及討論認識現今在海洋生態之應用情形。	3	Elective Course	海洋環境與生態研究所碩士班	SDG14

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	A	海洋溫室氣體與氣候變遷	Oceanic greenhouse gases and climate change	This course provides comprehensive knowledge and important concepts on oceanic greenhouse gases and climate change. This course also discuss how the climate change influence the ocean and the interaction between them. By combining the scientific articles reading and discussions, it can inspire students to think, analyze and discuss the data as well as present their ideas	本課程的目標，在提供學生對於海洋溫室氣體與氣候變遷的基本觀念和知識，並討論氣候變遷對海洋的影響，同時結合國際期刊的閱讀和討論，激發學生思考、分析、討論和表達。	3	Elective Course	海洋環境與生態研究所碩士班	SDG13、SDG14
2021	Master Program	1	A	海洋夜光蟲專題研究	Case Study in Marine Noctiluca Scintillans	This course further provides comprehensive concepts and knowledge of marine ciliate and discusses its relationship with environments and marine microbial food web by reading and discussing scientific articles. Students are training for the ability of independent thinking and presentation.	本課程結合國際期刊的閱讀和討論，進一步建立學生對海洋纖毛蟲的基本觀念及知識並討論海洋纖毛蟲與環境及海洋微生物食物網的關係，同時訓練學生的思考和表達能力。	3	Elective Course	海洋環境與生態研究所碩士班	SDG4、SDG9、SDG11、SDG14
2021	Master Program	1	A	海洋生物碳幫浦專題研究	Case study for ocean biological pump	Ocean biological carbon pump is the critical driver of atmospheric carbon dioxide exchange with the upper ocean leading to carbon sequestration to the ocean floor. This sequestration process plays a decisive role in controlling past, present and future climate changes on the earth. This course will demonstrate the roles of colloidal particles in marine environments from various perspectives (for example, microbial reactions, colloidal chemistry, atmospheric and environmental science). It will provide students with a background knowledge of particle injection pump mechanisms and their importance for the carbon cycle.	海洋生物碳幫浦包含具有將大氣二氧化碳傳送至深海並埋藏於海底沉積物的功能，是控制地球過去現在與未來氣候變化最主要的機制，同時經由其輸送至深海的有機物正是驅動暮光層生態運轉的能源基礎。本課程將介紹海洋生物碳幫浦的主要驅動力以及海洋有機碳顆粒（例如微膠、透明胞外聚合物顆粒和海洋雪）在海洋生物地質化學循環中扮演的角色。這門課將為學生提供有關海洋有機碳顆粒的循環及其對碳循環重要性的背景知識。	3	Elective Course	海洋環境與生態研究所碩士班	SDG7、SDG9、SDG13
2021	Master Program	1	A	海洋一氧化二氮濃度與分布專題研究	Nitrous oxide concentrations and distributions in the seawater	This course provides comprehensive knowledge and important concepts on oceanic nitrous oxide production. By reading scientific articles, inspires students to think, analyze and discuss the data as well as present their ideas. This training aims to enhance the students' knowledge about nitrous oxide concentrations and distributions in the seawater.	本課程的目標，在提供學生對於海洋中一氧化二氮生成的基本觀念和知識，以建立學生對海洋中一氧化二氮濃度與分布的認識，同時結合國際期刊的閱讀和討論，激發學生思考、分析、討論和表達。	3	Elective Course	海洋環境與生態研究所碩士班	SDG13、SDG14
2021	Master Program	1	A	海洋生物地球化學與生態系統整合研究(一)	Integrated Marine Biogeochemistry and Ecosystem Research(I)	The goal of this course is to provide students with an understanding of the current state of research in the integration of marine biogeochemistry and ecosystem research in Taiwan, in cooperation with faculty from the Department of Environmental and Fisheries, the Institute of Marine Biology, and the Institute of Biotechnology.	本課程是與本校環漁系、海生所、生技所老師共同開課，目標是讓修課學生能瞭解國內在海洋生物地球化學與生態系統整合研究之研究現況。	2	Elective Course	海洋環境與生態研究所碩士班	SDG4、SDG13、SDG14
2021	Master Program	1	A	海洋微生物生態	Marine Microbial Ecology	This course will allow students to learn about the importance of the marine microbial loop to the marine ecology.	本課程將讓修課學生修習認識海洋微生物環(microbial loop)對海洋生態的重要性	3	Elective Course	海洋環境與生態研究所碩士班	SDG14
2021	Master Program	1	A	環境地質學	Environmental Geology	Introduce students to your natural environment and the human interactions and everyday problems with our environment and global community from a geological perspective. Increase awareness of environmental issues and how they affect society. Gain an understanding of the physical processes that operate in and on Earth.	引導學生瞭解自然環境與人類活動間之相互關係，增加學生對於地質環境與自然災害間之認知。課程將著重於土壤與地下水污染調查與整治、放射性核廢料處置議題及山崩土石流災害。本課程將包括4天3夜的野外實習，將會安排於星期五、六、日、一，確切日期將於上課第一週公布。	3	Elective Course	地球科學研究所碩士班	SDG6、SDG11、SDG13
2021	Master Program	1	A	地球物理學(含實習)	Geophysics	1. To investigate the strata and crustal structure and their reservoir exploration 2. To analyze seismic and electromagnetic data by geoscientific softwares (RAYINV, Echos, SSMT2000) 3. To learn the basic theory of refraction, reflection and other geophysic exploration	1. 探討地層和地殼構造及其中蘊藏的資源探勘 2. 應用地球科學軟體(RAYINV, Echos, SSMT2000)分析震測與電磁波資料 3. 學習震波的折射與反射、其它地球物理探勘方法的基本原理	3	Elective Course	地球科學研究所碩士班	SDG4
2021	Master Program	1	A	石油地質學(含實習)	Petroleum Geology	(1) To understand important energy sources and learn to value limited energy sources. (2) Understanding of current oil and gas exploration techniques and geochemical analysis methods. (3) Students who have taken this course are expected to have a basic understanding of petroleum geology.	(一)重要能源的認識，並學習珍惜有限能源。 (二)了解目前常用之油氣探勘技術和地球化學分析方法。 (三)期許修過此門課的同學，皆具備基礎石油地質的概念。	3	Elective Course	地球科學研究所碩士班	SDG7、SDG9
2021	Master Program	1	A	古生物演化史	Phylogenetic paleontology	The aims of this Seminar are: for the fossils fans, discussed Evolution of Paleontology on the basis of basic biology and geology. In Phylogenetic systematic proposition, to ask how life developed from early organic to diversity.	讓對古生物學感興趣，且對生物學與地質學有基礎概念的學生有更進一步認識古生物演化的課程。以種系發生史為基礎架構，講述地球歷史中，生命如何從最簡單之基礎型式一步一步演化出繽紛多樣世界的歷程。	2	Elective Course	地球科學研究所碩士班	SDG14
2021	Master Program	1	A	海洋科學產業實習	Industry Practice of Ocean Sciences	1.This industry practice training program is designed for undergraduate and graduate students. 2.According the MOU between the NTOU and NMMST, the training field of the industry practice is at the NMMST.	1.本所為培育基礎應用之地球科學與海洋科學相關人才，鼓勵大學部或碩士班學生積極參與產學交流與業界實習，提早接受業界實務訓練及學習相關研究方法，體驗業界實務研究工作情形。 2.依本校與國立海洋科技博物館（簡稱海科館）所簽署之學術合作備忘錄，本實習課程將以海科館為實習場域。 3.本實習課程視同正課，實習期間學生須遵守學習單位之各項規定並服從其主管之教導。	2	Elective Course	地球科學研究所碩士班	SDG4、SDG11、SDG14
2021	Master Program	1	A	環境與地震學	Environment and Seismology	From the point of view of environmental education and hazard reduction, the relationship between earthquakes, earthquake warning, earthquake forecast, earthquake prediction, earthquake disasters, earthquake protection and the hazard reducing system will be introduced.	從環境教育與防災教育的觀點出發，為學生介紹地震、地震預報與預警、地震預測、地震災害、地震防護與災防體系之間的關係。	3	Elective Course	地球科學研究所碩士班	SDG4、SDG11、SDG13
2021	Master Program	1	A	環境與地震學	Environment and Seismology	From the point of view of environmental education and hazard reduction, the relationship between earthquakes, earthquake warning, earthquake forecast, earthquake prediction, earthquake disasters, earthquake protection and the hazard reducing system will be introduced.	從環境教育與防災教育的觀點出發，為學生介紹地震、地震預報與預警、地震預測、地震災害、地震防護與災防體系之間的關係。	3	Elective Course	地球科學研究所碩士班	SDG4、SDG11、SDG13
2021	Master Program	1	A	材料光學	Optical Properties of Materials	To provide students with an in-depth understanding of the optical properties of solid-state materials and to investigate the phenomena of light generation, propagation, absorption, scattering, and transmission and reflection at interfaces in semiconductors. To illustrate the phenomena of light absorption and complex emission, and to describe the absorption and emission processes and their spectra from valence band to conduction band in semiconductors to facilitate research work.	讓學生對固態材料的光學性質有深入的了解，探討光在半導體中的產生、傳播、吸收、散射、及在界面的透射與反射等現象。說明光吸收與復合放光的現象，描述半導體中價帶到導帶間的吸收和放射過程及其光譜，以利研究工作之進行。	3	Elective Course	光電與材料科技學系碩士班	SDG4、SDG9
2021	Master Program	1	A	半導體材料與奈米結構	Fundamentals of Semiconductors Materials and Nanostructures	Physical properties of semiconductor materials and nanostructures which are critical to optoelectronic devices will be introduced in this class. These include the following topics: Bandgap engineering of nanostructures, two-, one- and zero-dimensional systems, transport in superlattices and quantum wells, carrier diffusion and scattering, kinetic equation, ballistic transport, optical absorption, excitonic effects, radiative and non-radiative recombination, electrostatics and transport in junctions, heteroepitaxy, strain, defects and interfaces.	本課程介紹半導體材料及其納米結構對於光電子元件特性至關重要的物理特性。包括：奈米結構的能帶工程、二維，一維和零維系統、超晶格和量子井中的載子傳輸、載流子的擴散和散射、動力學方程、無碰傳輸、光吸收，激子效應，輻射和非輻射複合，接面靜電學和載子傳輸，異質外延，應變，缺陷和界面等基本材料結構之物理概念。	3	Elective Course	光電與材料科技學系碩士班	SDG4、SDG9
2021	Master Program	1	A	光纖通信系統	Fiber-Optic Communication Systems	Students will have a preliminary understanding of the evolution of optical communications and the entire optical transmission system, as well as the basic principles of individual transmission, amplification and reception components and their applications.	讓學生對光纖通訊的演進及整個光傳輸系統有一個初步的認識，並對個別傳輸、放大和接收元件也能瞭解其基本原理和其應用。	3	Elective Course	光電與材料科技學系碩士班	SDG9
2021	Master Program	1	A	海洋人文社會專題	Topics in Oceanic Humanities and Social Sciences	We will enhance the marine humanities of our graduate students, broaden their international maritime perspectives, cultivate their knowledge and practical experience in cross-disciplinary studies and research on marine humanities and social issues, and develop their diverse expertise in response to the current social environment and rapid changes in industrial patterns, as well as the national policy goals and global trends in the development of the marine industry.	增進本院研究生之海洋人文素養，開拓其國際海洋視野，培育跨領域學習、研究海洋人文社會問題的知能與實作經驗，發展其多元專長，以因應當前社會環境與產業型態快速變遷，以及國家發展海洋事業之政策目標與世界潮流。	1	Required Course	人文社會科學院（碩）	SDG1、SDG4、SDG5、SDG8、SDG10、SDG11、SDG14、SDG16
2021	Master Program	1	A	教育心理學研究	Research of Educational Psychology	The purpose of this introductory course in "Research on Educational Psychology" is to help students to explore current theory in Psychology related to Education and also to cultivate students' research and creative thinking abilities.	增加學生心理學的基本知識並培養學生研究及創意思考能力。	2	Elective Course	教育研究所碩士班	SDG3、SDG4
2021	Master Program	1	A	教育心理學研究	Research of Educational Psychology	The purpose of this introductory course in Cognitive Science and Teaching Research is to help students to explore current theory in Psychology and Teaching. This course includes useful sections on Attention, Perception, Cognitive Development, Language and Thiyght, Learning, Memory and Motivation.	認知科學和教學研究的入門課程目的是幫助學生探索心理學和教學的當前理論。 本課程包括注意力、感知、認知發展、語言和思維、學習、記憶和動機等有用的部分。	2	Elective Course	教育研究所碩士班	SDG3、SDG4
2021	Master Program	1	A	人力資源管理專題	Special Topic on Human Resources	Understand the concept of Human Resource Management Understand the implication of Human Resource Management. Implicate Human Resource Management into education field Build up your own learning organization	1.了解人力資源管理的各項基本功能。 2.學習如何將人力資源管理概念運用在教育場域中。 3.學習英文學術期刊文章閱讀及評析能力 4.探索論文研究主題。 5.培養獨立思考能力，打破現有框架，提出具有邏輯的人力資源管理方案。	2	Elective Course	教育研究所碩士班	SDG4、SDG8
2021	Master Program	1	A	教育研究法	Educational Research Methods	1. Understand the basic concepts of educational research; 2. Understand and be able to apply various research methodologies to a given research topic in education; 3. Be able to develop, write, and present educational research proposals	1. 了解教育研究的基本概念; 2. 了解並選用適當的教育研究方法; 3. 能夠制定、撰寫並發表教育研究計畫	3	Required Course	教育研究所碩士班	SDG4、SDG11

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Master Program	1	B	教育研究法	Educational Research Methods	(1) Understand the meaning and purpose of educational research. (2) Understand the types and methods of educational research. (3) Have the skills to collect and organize literature. (4) Possess basic knowledge and skills in educational research. (5) Produce a thesis proposal for educational research.	(1)瞭解教育研究之意涵與目的。 (2)瞭解教育研究之類型與方法。 (3)具備文獻蒐集與整理之技巧。 (4)具備教育研究之基礎知識與技能。 (5)產出教育研究論文構想書。	3	Required Course	教育研究所碩士班	SDG4、SDG14
2021	Master Program	1	A	論文寫作與評析	Thesis Writing and Evaluation	1.students can understand the contents of dissertation writing. 2.students can get the ability of dissertation writing and evaluating. 3.students can write and present the original dissertation.	一、學生能了解論文寫作的內涵。 二、學生能具有論文寫作與評析的能力。 三、學生能初步撰寫與發表研究計畫。	2	Elective Course	教育研究所碩士班	SDG3、SDG4、SDG10
2021	Master Program	1	A	教育美學專題	Special Topic on Educational Aesthetics	(1) To understand the basic meaning of aesthetics, aesthetics and educational aesthetics. (2) Be able to collect and understand information and report on topics related to aesthetics and aesthetics. (3) To be able to conduct and report on special studies on selected topics in educational aesthetics. (4) Be able to use the aesthetic connotations gained from the study to think about relevant problems in the teaching field.	一、能認識美感、美學及教育美學的基本內涵。 二、能蒐集及理解美感與美學相關議題資料及報告學習心得。 三、能針對選定之教育美學研究主題進行專題研究及報告。 四、能常用學習所得之美學內涵思考教學現場中的相關問題。	2	Elective Course	教育研究所碩士班	SDG4
2021	Master Program	1	A	新興議題與課程革新專題	Emerging Topics and Curriculum Reform	1.understand new trends and issues on education 2.explore the relations between educational issues and curriculum reform 3.analyze problems in current curriculum innovation	1.能了解最近的教育議題與趨勢 2.探討教育議題與課程改革之間的關係 3.能分析課程革新的各項問題	2	Elective Course	教育研究所碩士班	SDG4
2021	Master Program	1	A	海洋教育特論	Special Topic on Marine Education	Training students with the following knowledge: 1.The importance of marine education 2.The scope of marine education 3.Theoretical basis of marine education 4.Overview of the development of marine education 5.Organization for the promotion of marine education 6.Curriculum Development of Marine Education 7.Teaching Practice of Marine Education 8.Marine literacy and learning assessment	訓練學生具備以下知識 一、海洋教育的重要性 二、海洋教育的範圍 三、海洋教育的理論基礎 四、海洋教育發展概況 五、海洋教育的推動組織 六、海洋教育的課程發展 七、海洋教育的教學實踐 八、海洋素養與學習評量	2	Required Course	教育研究所碩士班	SDG4、SDG11、SDG14
2021	Master Program	1	A	海洋教育師資專題	Issue on teacher of marine education	1.students can make sense of critical concepts, status and professional standards on marine education teacher. 2.students can explore the needs, cultivation, and models, approaches, and activities of teacher professional development. 3.students can be engaged in evaluating and reflecting teacher""s profession to increase the effectiveness of marine educational teacher professional development.	一、學生能了解海洋教育師資的基本概念、現況與專業標準。 二、學生能探究或體驗海洋教育師資需求、培育與專業發展模式、途徑或活動。 三、學生能從事海洋教育師資的專業評鑑與省思，以提升海洋教育師資的專業效能。	2	Elective Course	教育研究所碩士班	SDG11、SDG13、SDG14
2021	Master Program	1	A	藝術教育方案發展與規劃專題	Special Topic on the Methods of Art Education	Develop students' conceptualization of the art field. Planning of art activities.	培養學生藝術領域概念。及規劃藝術活動能力。	2	Elective Course	教育研究所碩士班	SDG4
2021	Master Program	1	A	教育社會學研究	Research on Education of Sociology	1.Students can understand the evolution, theory and method of educational sociology. 2.Students can conduct the topic inquiry fro macro and micro opinions. 3.Students can be engaged in doing research of educational sociology and improve the educational revolution.	一、學生能了解教育社會學的發展演變、理論、與研究方法。 二、學生能從鉅觀與微觀的角度，進行專題探究。 三、學生能從事教育社會學研究，促進教育革新。	2	Elective Course	教育研究所碩士班	SDG4
2021	Master Program	1	A	教育行政管理專題	Special Topic on Educational Administration and Management	1.To know the meaning, scope, theory of Educational Administration & Management. 2.To familiar with the process of Educational Administration & Management. 3.To collect and analyze the literature of Educational Administration & Management. 4.To have the willing to do some research on Educational Administration & Management.	1.瞭解教育行政管理的意義、範圍、理論發展與實務上的知識。 2.熟悉教育行政管理之研究歷程。 3.蒐集與評析教育行政管理研究的文獻。 4.願意從事教育行政管理的研究。	2	Elective Course	教育研究所碩士班	SDG4
2021	Master Program	1	A	高等教育統計	Advanced Educational Statistics	1. Udndertadn the concept of statistic 2. Understand the application of statistic in education field. 3. Understadn the operation of statistic software(excel and spss)	1. 了解統計基本概念 2. 了解統計在教育場域中的應用 3. 了解統計分析軟體操作(excel and spss)	2	Elective Course	教育研究所碩士班	SDG4
2021	Master Program	1	A	學習型組織專題	Special Topic on The Learning Organization	(1)Understand the concept of leaning organization. (2)Understand the implication of learning organization. (3)Implicate learning organization into education field (4)Build up your own learning organization	1. 了解學習型組織概念 2. 了解學習型組織的應用方式 3. 應用學習型組織概念在教育場域中 4. 建構師生海洋教育學習型團隊	2	Elective Course	教育研究所碩士班	SDG4、SDG14、SDG17
2021	Master Program	2	A	創造力教育專題	Special Topic on Creative Education	This course based on human mind, exploring the connotation of creativity and related issues. After that, by views of education to discuss some teaching plan, which involved creative thinking; on the other hand, though watch and experience to develop ourselves creative ability. Students are expected to use the key strategies of creating thinking, use the wisdom of the team, design and appreciate the relevant works, in order to become a creative T-type person. Overall, the objectives of this course are as follows: (一)Understand the basic theory of creative thinking. (二)Understand the basic theory of creative thinking. (三)Use the strategies of creative thinking. (四)Creative Thinking Design and Appreciation	人類文明的發展實際上正是一部創造力的歷史。創造力是高層次思考的表現，亦是教育的重要議題。創造思考是個人心智運作與其動機、人格特質、知識、社會文化等因素互動，形成具獨創性（新穎）和實用性（價值）構想，以解決問題的歷程與能力（張世彗，2013）。 本課程先以人類心智的理論為基礎，探討創造力的內涵及其相關議題。其次，再由教育的視角，探討各種融入創造思考的課程與教學設計，從觀摩與體驗中增進創造力培育的實踐知能。期望同學們能運用創造思考的關鍵策略，發揮團隊智慧，設計並鑑賞創造思考的相關作品，以成為富創造力的T型人才自許。整體而言,本課程的目標如下: (一) 瞭解創造思考的基本理論 (二) 探討創造思考的主要議題 (三) 運用創造思考的相關策略	2	Elective Course	教育研究所碩士班	SDG4
2021	Master Program	2	A	海洋觀光教育專題	Special Topic on Marine Tourism Education	1. Understand marine tourism categories 2. Understand marine tourism related marine knowledge and skill 3. Understand the professional cultivation of marine tourism 4. Research and develop Ho Ping Island international tourism policy	1. 了解海洋觀光產業類型 2. 了解海洋觀光相關海洋知識技能 3. 了解各類型海洋觀光人才培育 4. 以和平島國際旅遊島發展為主軸探討及研發和平島國際旅遊觀光方案	2	Elective Course	教育研究所碩士班	SDG4、SDG8、SDG17
2021	Master Program	2	A	海洋素養與教學專題	Special Topic on Ocean Literacy and Teaching	1. To understand the important development of marine education in Taiwan. 2. To collect and understand the related connotation of marine literacy. 3. To understand the construction process and connotation of the marine literacy teaching model. 4. Be able to design marine education lesson plans using the marine literacy teaching model.	一、能認識臺灣推動海洋教育的重要發展情形。 二、能蒐集及了解海洋素養的相關內涵。 三、能了解海洋素養教學模式的建構歷程及內涵。 四、能運用海洋素養教學模式設計海洋教育教案。	2	Elective Course	教育研究所碩士班	SDG4
2021	Master Program	2	A	道德教育專題	Special issue on moral education	1.understanding the implication and significance on moral education 2.discussing teaching methods on moral education 3.practicing moral education into school education	1.了解道德教育的內涵與重要性 2.探究道德教育的教學與實踐方法 3.能將道德教育應用於學校教學	2	Elective Course	教育研究所碩士班	SDG3、SDG4、SDG10、SDG16
2021	Master Program	2	A	海洋休閒教育專題	Special Topic on Marine Recreational Education	1.Understanding and exploring the culture of marine leisure 2.Cultivate students' ability to plan and execute marine leisure	1.海洋休閒文化的認識與探討 2.培養學生規劃海洋休閒能力及執行力	2	Elective Course	教育研究所碩士班	SDG4
2021	Master Program	2	A	學校輔導專題	Special Topic on School Counseling	(A) learn about theories related to mental health, motivation, and emotions. (B) analysis of the status and development of school counseling practice. (C) recognize the relevant issues of school counseling and research findings. (D) willing to develop the school counseling strategy to promote students""" mental health.	本課程以正向心理學為基礎，從心理健康的觀點，探究與學校輔導相關的理論與原則，如情緒與動機、依附與認同、正向心理特質、幸福感與復原力、人際關係與衝突等；再從學校輔導的實務面，探討實務的作法與相關議題，以及個別興趣主題的探究。希望這樣的設計能使學習者先在較廣泛的理論與實務背景中，建立自選議題的可能脈絡與定位，發展對學校輔導議題的深度理解與觀點。本課程希望學習者於學習結束後，能展現以下學習成果： (一) 了解學校輔導之相關理論基礎與意義。 (二) 探討學校輔導之相關議題與研究的啟示。 (三) 樂於發展促進學生心理健康的學校輔導策略。	2	Elective Course	教育研究所碩士班	SDG3

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2021	Master Program	2	A	海洋與教育專題討論	Seminar on Marine Subjects and Education	In conjunction with the Marine Education Seminar, six lectures were held on the theme of "fish education" and the planning of the fish education program in conjunction with the United Nations Sustainable Development Goals (SDGs), with the aim of achieving the following teaching objectives. (1) To acquire knowledge related to marine education. (2) To understand the relationship between fish education and sustainable ocean development. (3) To be able to plan their own fish education programs. (4) To improve the ability of research through mutual discussion.	結合海洋教育學術講座，以「食魚教育」為主題，結合聯合國永續發展目標（SDGs），舉辦六場專題演講及進行食魚教育計畫之規劃，以期達成下列教學目標： （一）能掌握海洋教育相關知能。 （二）能了解食魚教育與海洋永續發展的關係。 （三）能規劃自己實踐食魚教育的計畫。 （四）能透過相互討論，提升專題研究之能力。	1	Required Course	教育研究所碩士班	SDG4、SDG12、SDG14
2021	Master Program	1	A	學術論文寫作	Thesis Approach and Paper Writing	This course is designed for first-year students to learn about thesis writing and research methods. The objectives of the course are to 1. to teach how to search the literature and use databases. 2. to understand relevant research methods. 3. to understand the basic techniques and methods of writing academic papers. 4. to be able to write the outline and format of a dissertation research project, to learn how to write an academic dissertation, and to overcome problems and bottlenecks encountered.	本課程為本所一年級學生開設，有關論文寫作與研究方法之課程，目的為：1.教授如何查詢文獻資料，與利用資料庫；2.瞭解相關研究方法；3.瞭解學術論文的基本寫作技巧與方法；4.能夠自行撰寫論文研究計畫大綱與格式，學習學術論文之寫作，並克服遭遇之問題與瓶頸。	2	Elective Course	海洋文化研究所碩士班	SDG4
2021	Master Program	2	A	海洋社會科學專題	Seminar on Marine Social Science	(1) To understand the nature and connotation of social science and to integrate the diverse learning and interests of natural science. (2) To cultivate students' concern and sentiment for the marine social and humanistic fields, and to construct a humanistic perspective on marine social science from marine social science theories. (3) To understand and explore the meaning of global governance of the ocean, marine cultural assets and their governance, marine tourism and its governance, sustainable development of marine conservation, and the cultivation of talents in marine education. (4) To bring into play the values and opportunities provided by the marine industry, to shape marine culture, and to continue to develop marine scientific research and cultivate marine talents.	（一）、理解社會科學本質與內涵，結合自然科學涵養的多元學習與興趣。 （二）、培養學生對於海洋社會人文領域的關懷與情操，從海洋社會科學理論出發，建構對於海洋社會科學的人文思維。 （三）、明瞭並探究海洋全球治理意涵、海洋文化資產及其治理、海洋觀光及其治理，海洋保育永續發展、海洋教育培育人才等議題。 （四）、發揮海洋產業所提供之價值與機會，同時形塑海洋文化，並且不斷深耕海洋科學研究、培育海洋優秀人才。	2	Elective Course	海洋文化研究所碩士班	SDG4、SDG8、SDG11、SDG12、SDG14
2021	Master Program	2	A	海洋文化資產保存與治理專題	Seminar on the Preservation and Governance of Oceanic Culture Property	(1) To explore the meaning of cultural assets, their preservation and governance. (2) From the theory and development of cultural assets, we will construct a humanistic thinking of marine cultural assets and cultivate care and sentiment in the humanistic field of marine society. (3) To understand the preservation and governance of marine cultural assets, to understand governance theories, to value cultural citizenship and civic participation, to understand marine culture and tourism policies and their relationship to national development, to learn and apply cultural research methods, and to build students' research knowledge of marine culture and tourism through theoretical lectures and practical visits to the field. (4) Through teaching and research that integrates theory and practical needs, the values and opportunities provided by industries related to marine culture administration are brought into play, so that students can take into account both their studies and career planning and cultivate excellent talents in marine culture administration.	（一）、探究文化資產的意義，及其保存與治理意涵。 （二）、從文化資產之理論與發展，建構海洋文化資產的人文思維、培養海洋社會人文領域的關懷與情操。 （三）、明瞭海洋文化資產保存及其治理、明瞭治理理論、重視文化公民權利與公民參與、以及理解海洋文化與觀光政策及其與國家發展之關係、學習並應用文化科研研究方法，藉由理論講述與實務參訪之現地考察教學方式，建立學生對於海洋文化和觀光之研究知能。 （四）、藉由理論與實務需求結合之教學與研究下，發揮海洋文化行政相關產業所提供之價值與機會，以期學生將所學與生涯規劃兼顧，培育海洋文化行政優秀人才。	2	Elective Course	海洋文化研究所碩士班	SDG8、SDG11
2021	Master Program	2	A	海洋文化觀光資源與規劃專題	A study on Tourism Resource Planning of Oceanic Culture	Through this course, students are expected to understand the characteristics of marine cultural tourism resources and learn to design and plan various tourism activities to promote tourism and leisure activities with marine cultural characteristics.	全球海洋產業發展日益受到重視，沿海國家多已積極開發各種產業，海洋相關產業帶給各國之經濟貢獻越來越不容忽視。以臺灣為例，台灣是西太平洋上的島嶼，海島的地緣關係、地理條件、海岸港口、洋流潮汐、產業經貿、渡海移民等諸多歷史因素，建構出豐富的臺灣海洋文化的特質。但由於自1987年解嚴之後，臺灣本土意識以及臺灣海洋文化才受到重視，海洋觀光休閒活動也在這之後逐漸被國人注意。因此臺灣海洋文化的內函以及與觀光之間的關係，需要瞭解與認識。是以期望能透過本課程的教學，讓學生瞭解海洋文化觀光資源蘊藏的特性；並藉由此特性學習設計與規劃各種觀	2	Elective Course	海洋文化研究所碩士班	SDG8、SDG10
2021	Master Program	2	A	沿海地區與島嶼文化專題	Topics in the Cultures of Coastal Areas and Islands	This course will introduce the methodology of "regional studies" and explore the unique living cultures of coastal and island areas and the rich and diverse maritime cultural connotations they reflect from the perspectives of maritime consciousness, maritime space, cross-sea movement, sea-based livelihoods, and human-sea interaction. The following teaching objectives are expected to be achieved. 1. to understand the physical and human geographic characteristics of coastal areas and islands. 2. to recognize the value of "regional studies" methodology in the study of marine culture 3. to understand the similarities and differences between the geographical conditions and marine cultures of coastal areas and islands from different case studies. 4. to pay attention to the ecological conservation of coastal areas and islands, as well as the inheritance and transformation of local cultures. 5. be able to draw on previous theoretical concepts and research results to conduct case studies and offer personal insights on specific coastal areas and island cultures.	古今中外海洋文化的孕育生成皆與近海、環海的地理環境密不可分。沿海地區與島嶼是海洋文化生成發展的基地。長久以來，人們濱海居息、依海營生，從漁撈到海貿，從本舟到巨輪，從近海活動到遠渡重洋，從往來鄰近海域到全球航線連結，沿海地區和島嶼一直是海民出航往返的核心所在，他們在此傳承各種出海漁撈、航船、海貿的技藝、知識、傳說和習俗，也匯聚了對海洋的深刻體驗、意識與信念；沿海地區和島嶼則是創造、體現海洋文化的重要載體，當地的欣榮、凋零與轉型，反映了海洋文化的發展與變遷、起伏與韌性。本課程將引介「區域研究」方法論並從海洋意識、海洋空間、跨海移動、依海營生、人海互動等面向探討沿海和島嶼地區獨特的生活文化及其所反映豐富多樣的海洋文化內涵。期能達到下列教學目標： 1. 能了解沿海地區與島嶼的自然與人文地理特性。 2. 能認識「區域研究」方法論對海洋文化研究的價值。 3. 能從不同個案研究理解沿海地區與島嶼的地理條件與海洋文化的異同。 4. 能關注沿海地區與島嶼生態保育以及當地文化傳承與轉型問題。 5. 能借鏡前人的理論概念與研究成果，針對特定的沿海地區與島嶼文化進行個案研究並提出個人見解。	2	Elective Course	海洋文化研究所碩士班	SDG14
2021	Master Program	2	A	海洋運動休閒文化專題	Oceanic Sports, Leisure and Cultural Individual Studies	This course introduces and discusses the concept and scope of coastal and marine tourism and recreation, the economic impact and environmental issues of coastal and marine tourism and recreation, recreational opportunities and experiences, recreational conflicts, the concept of allowable volume, interpretation services, recreational fishing, the concept of island tourism development, and the sustainable development of coastal and marine tourism and recreation.	教學目標：台灣海洋資源豐富且具多樣性，本課程主要針對海岸與海洋觀光遊憩活 的概念和範疇、海岸與海洋觀光遊憩活 之經濟影響和環境議題、遊憩機會與遊憩體驗、遊憩衝突、容許量的概念、解說服務、休閒漁業、島嶼觀光發展規劃概念、海岸與海洋觀光遊憩的永續發展等之介紹和討論，同學修習後，可了解海洋觀光相關之規劃管理知識。	2	Elective Course	海洋文化研究所碩士班	SDG8、SDG12、SDG14
2021	Master Program	2	A	海洋博物館與文化產業專題	Marine Museum and Cultural Industry	1. be able to understand the types, characteristics and functions of museums. 2. be able to understand the concept and reality of marine museums and the reproduction of marine culture from different case studies. 3. to understand the connotation, value and evolution of cultural industries and their relationship with culture, economy and society. 4. to pay attention to the relationship between marine museums and related cultural facilities and the development of marine cultural industries. 5. to be able to draw on theoretical concepts and research results of previous students, and to conduct thematic research and provide personal insights on specific issues in the field of marine museums and cultural industries.	1. 能了解博物館的類型、特性與功能。 2. 能從不同個案研究理解海洋博物館與海洋文化傳承再現的理念與實況。 3. 能認識文化產業的內涵、價值、演變及其與文化、經濟、社會的關聯。 4. 能關注海洋博物館及相關文化設施與海洋文化產業發展的關聯。 5. 能借鏡前人的理論概念與研究成果，針對海洋博物館與文化產業領域特定議題進行專題研究並提出個人見解。	2	Elective Course	海洋文化研究所碩士班	SDG9
2021	Master Program	1	A	專題討論：語言學習焦慮	Topics in Language Learning Anxiety	This course introduces students to research on language learning anxiety. We will identify and discuss current trends and controversial issues most important to anxiety or apprehension arising from learning a second/foreign (L2) language. Our focus will be on how anxiety affects L2 achievement. When we discuss the relationships between anxiety and L2 achievement, our interest is in whether these relationships are similar or different across studies. We will then discuss whether these results are moderated by other variables, including learning settings (e.g., foreign language versus second language), the skills being learned (e.g., listening versus writing), and the languages being learned or used (e.g., English versus Japanese). Suggested papers for classroom discussions and presentations are listed on the instructor's Moodle. Class interactions and discussions via the Moodle will be much emphasized throughout this course.	本課程向學生介紹關於語言學習焦慮的研究。我們將確定並討論當前的趨勢和對學習第二/外國（L2）語言產生的焦慮或擔憂最重要的爭議問題。我們的重點將是焦慮如何影響第二語言的成就。當我們討論焦慮和L2成績之間的關係時，我們感興趣的是這些關係在不同的研究中是否相似或不同。然後，我們將討論這些結果是否受到其他變量的影響，包括學習環境（如外語與第二語言）、學習的技能（如聽力與寫作）以及學習或使用的語言（如英語與日語）。 建議用於課堂討論和演講的論文列在教師的Moodle上。本課程將強調通過Moodle進行的課堂互動和討論。	3	Elective Course	應用英語研究所碩士班	SDG1、SDG4、SDG5、SDG10

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Contiuning Education Bachelor Degree Program	3	A	港埠經營與管理	Port Administration and Management	1.The operation and management of ports. 2.The function,kinds,elements,and security of ports.	一、港埠為海洋運輸的終端站也是起點站，其經營管理良善與否?將直接影響國際貿易、物流之經濟效率與服務品質。尤其我國國際貿易之貨物運輸中，絕大多數貨物 仰賴海運，若能提供良好之港埠作業效能與低廉之作業成本，將有助於國家發展。本課程將介紹港埠種類、功能、港埠設施，並討論港埠之經營方式與管理作為，及航港體制變革，期望藉由本課程之講授，對港埠作業有初步瞭解，俾利未來從事國際貿易、航業經營等相關工作專業知識之累積。 二、使學生能夠對對港埠種類與基本功能、港埠構成要素、設施、經營管理方式、安全維護與未來發展趨勢有初步之了解，俾對其日後投入航港工作時有所助益。	2	Required Course	航運管理學系進修學士班 航運管理組	SDG9
2021	Contiuning Education Bachelor Degree Program	3	A	運輸規劃	Transportation Planning	1. to explore the basic concepts of transportation planning. 2. to study the research of transportation planning topics. 3. To develop the professional knowledge of transportation planners through practical cases.	1. 探討運輸規劃之基本概念。 2. 學習運輸規劃課題之研究。 3. 透過實務案例培養同學具備運輸規劃師所應有的專業知能。	2	Elective Course	航運管理學系進修學士班 航運管理組	SDG11
2021	Contiuning Education Bachelor Degree Program	4	A	航運生涯規劃	Shipping Career Planning	(1) To guide students to discover their own values and abilities and to cultivate their personal interests, and to assist them in planning their personal careers and to strive for self-enrichment in preparation for higher education or employment. (2) To teach students resume writing, job interviewing skills, understanding the job market, career choices and strategies, and the concept of gender equality in the workplace. (3) To assist students to face the future with a positive attitude, to develop a sense of beauty, to value ethics, and to establish the concept of gender equality.	（１） 引導學生發現自己的價值、能力及培養個人興趣，並協助學生做好個人生涯劃後，努力充實自己以做好升學或就業之準備。 （２） 教授學生履歷資料之填寫、求職面談技巧、認識職場、生涯抉擇與策略及職場上性別平等之觀念 （３） 協助學生以積極態度面對未來、培養美感、重視倫理及建立性別平等之觀念。	2	Elective Course	航運管理學系進修學士班 航運管理組	SDG5、SDG10
2021	Contiuning Education Bachelor Degree	4	A	機場規劃	Airport Planing and Operation	1.In-depth understanding of the operation of international airport facilities and the relationship between trade and logistics. 2. The latest trends of airport routes and air passenger and cargo development in the world and The latest trends in	1.深入瞭解國際機場設施運作及與經貿物流關係. 2.機場航線及航空客貨運世界最新發展趨勢及我國因應之道.	2	Elective Course	航運管理學系進修學士班 航運管理組	SDG9
2021	Contiuning Education Bachelor Degree Program	4	A	港埠規劃	Port Planning	1.In-depth understanding of the operation of international airport facilities and the relationship between trade and logistics. 2. The latest trends of airport routes and air passenger and cargo development in the world and The latest trends in airport routes and air passenger and cargo transportation in the world and the ways to respond to them in Taiwan.	1.深入瞭解國際港埠設施運作及與經貿物流關係. 2.現代化港埠貨櫃船及海運世界最新發展趨勢及我國因應之道.	2	Elective Course	航運管理學系進修學士班 航運管理組	SDG9
2021	Contiuning Education Bachelor Degree Program	1	A	飲料調製與管理	Beverage Preparation and Management	Students will learn about the characteristics and management of various beverage ingredients, strengthen their skills in the application of different ingredients to beverage products, and instill in them the ability to drink beverages correctly so that practitioners will have a professional attitude and professionalism and strengthen their ability to think in reverse.	俾使學生瞭解各種飲料原料特性及管理之知識，強化學生對不同原料應用於飲料製品之技能，灌輸學生具備正確飲用飲料使從業人員具備專業態度與專業素養態度，加強反向思考能力。	2	Required Course	食品科學系進修學士班	SDG3
2021	Contiuning Education Bachelor Degree Program	2	A	食品保存技術	Food preservation technology	Familiar with the deterioration and spoilage of agriculture food product and the need of preservation. To familiarize the principles and methods of preserving perishable food, and to train the students for the ability to keep sustainable resource.	認識農漁牧業各種產品的變質與腐敗,以及食品保存的重要性。學習各種食品保存的方法,利用科技以保存珍貴食糧資源與永續經營。	2	Elective Course	食品科學系進修學士班	SDG12
2021	Contiuning Education Bachelor Degree	2	A	食品加工學(一)	Food Products Technology (1)	The purpose of this course is to introduce various food processing methods, and to explain the chemical and physical changes in raw materials during processing.	本課程之目的、在介紹各種類食品加工方法、及原料在加工中其化學、物理變化現象之解明等。	2	Required Course	食品科學系進修學士班	SDG2
2021	Contiuning Education Bachelor Degree Program	3	A	食品冷凍學	Frozen Foods Technology	This course provides a series of introduction to the principles of freezing and processing techniques in order to provide students with a foundation in food preservation. Students will be taught the principles of low temperature preservation of food products, introduced to various methods of freezing and processing, and explore the changes in quality during the freezing process, so that students can understand the current operation of the food freezing industry and have the ability to produce, quality control, and develop low temperature products.	本課程就冷凍的原理、加工技術做一系列介紹，期以奠定學生在食品保藏之基礎。教導學生低溫保存食品的原理,介紹各種食品凍結與加工的方法,探討冷凍加工過程中品質的變化,使學生瞭解食品冷凍產業的運作現況,進而具有生產、品管、及研發低溫產品的能力。	2	Elective Course	食品科學系進修學士班	SDG17
2021	Contiuning Education	2	A	微生物學	Microbiology	The topic of this course is to introduce the knowledge of Microbiology for the students study in the field of Food	本課程為主修食品科學及相關學門者，對微生物學學習的入門。	3	Required	食品科學系進修學士班	SDG3、SDG4

						Science and related disciplines.			Course		
2021	Contiuning Education Bachelor Degree Program	3	A	分子生物學	Molecular Biology	1. To establish an intuitive and historical perspectives on molecular biology for students 2. To vertically connect the relationships of structure and function of biomolecules such as DNA, RNA and proteins etc. 3. To horizontally connect the biotechnological applications based on the developments of contemporary molecular biology 4. To introduce the latest trends of biotech researches and developments such as gene editing or next generation sequencing (NGS)	一、幫助學生建立對分子生物學的直觀與史觀。 二、縱向連結DNA、RNA和蛋白質等生物分子結構與功能之關係。 三、橫向綜論以當代分子生物學為基礎所發展出來的生物科技及應用。 四、介紹最新生物技術如基因編輯或次世代基因定序等研究發展趨勢。	2	Elective Course	食品科學系進修學士班	SDG4
2021	Contiuning Education Bachelor Degree	2	A	保健食品概論	Introduction nutritional supplement	This course introduces the current situation of health care in our country, followed by a detailed description of the situation in other countries, so that students can have a consistent understanding of the development and management of the world.	介紹我國保健之現況，接著詳細說明其他國家之情形，讓學生能一貫性地瞭解世界各國之發展與管理的情形。	2	Elective Course	食品科學系進修學士班	SDG3
2021	Contiuning Education Bachelor Degree Program	3	A	食品與消費	Food and Markets	Students will learn about the relationship between the food industry and the general public, understand the impact of consumer habits on agriculture and food resources, and develop students' self-management of eating habits and food processing.	建立正確的消費觀念，認識食品工業與一般民眾的關係，瞭解消費習性對農業和糧食資源的影響， 培養學生對飲食習性與食品加工的自我管理。	2	Elective Course	食品科學系進修學士班	SDG2
2021	Contiuning Education Bachelor Degree Program	2	A	生物技術概論	Introduction to Biotechnology	1. To build up the fundamentals of operational definition about microorganisms and biomolecules (technical subjects) for students 2. To vertically connect the relationship between biomolecules in microcosm world and biosphere in the earth 3. To horizontally connect the applications and influences of manipulating microorganisms and biomolecules on the fields of food, medicine, epidemic prevention, environmental protection and biotech industry 4. To introduce the latest trends of biotech researches and developments such as gene editing or next generation sequencing (NGS)	一、幫助學生建立微生物及生物分子操作型定義之基礎(技術本位)。 二、縱向連結微觀的生物分子與巨觀生物圈之間的關係。 三、橫向綜論操作微生物及生物分子對食品、醫藥、防疫、環境保護及生技產業等各領域之應用及影響。 四、介紹最新生物技術如基因編輯或次世代基因定序等研究發展趨勢。	2	Elective Course	食品科學系進修學士班	SDG4
2021	Contiuning Education Bachelor Degree	3	A	微生物利用技術	Applied Microbialtechnolgy	The objective of this course is to introduce the basic physiology of microorganisms and related utilization techniques in various industries.	本課程目標以微生物基本生理及相關利用技術於各產業之介紹。	2	Elective Course	食品科學系進修學士班	SDG3、SDG4、SDG7、SDG9、SDG10、SDG11、SDG12、SDG13、SDG14
2021	Contiuning Education Bachelor Degree Program	3	A	營養學(一)	Nutrition (1)	1. to provide students with basic nutrition knowledge and understanding of the role of food components in maintaining human physiological functions and preventing diseases. 2. to integrate the core knowledge of food science to stimulate students' interest in researching innovative foods and learning advanced nutrition courses. 3. To develop students' ability to compile data, collaborate with peers, analyze and think, and communicate.	1. 使學生具備基礎營養知識，明瞭食物成分在維持人體生理功能及預防疾病之角色。 2. 結合食品科學核心領域知識，啟發學生研究創新食品、學習進階營養課程之興趣。 3. 培養學生彙整資料、同儕合作、分析思考及表達溝通...等能力。	3	Required Course	食品科學系進修學士班	SDG2
2021	Contiuning Education Bachelor Degree Program	4	A	食品安全風險評估	Food Safety Risk Assessment	1. Understand risk analysis, including risk assessment, risk management, and risk communication. 2. understand how risk assessment is used in risk analysis as the scientific basis for developing risk management measures and why such measures can be used to protect human health.	1.瞭解風險分析，包括風險評估、風險管理和風險交流。 2.瞭解分險分析中如何以風險評估作為制定風險管理措施所提供科學依據，並瞭解為何該措施可用於保護人體健康。	2	Elective Course	食品科學系進修學士班	SDG3
2021	Contiuning Education Bachelor Degree	4	A	營養生化	Advanced Nutrition	Students are introduced to the biochemistry of nutrition and understand the relationship between nutrition and biochemistry.	已深入簡出引導學生學習營養生化，理解營養與生物化學之間的關係	2	Elective Course	食品科學系進修學士班	SDG2

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Contiuning Education Bachelor Degree Program	4	A	健康食品特論	Advanced Health Food	1. Teach yourself how to design a balanced and nutritious menu design, calculate food calories, make good use of food substitution tables, and be your own nutritionist. 2. Hand-made malt candy, fruit wine... Handcrafting courses. 3. In addition to the daily diet, the general public may purchase food products for maintenance or nutritional needs, and these products are often mislabeled as "health food". This course will help you to be a smart consumer.	1.教您如何為自己設計均衡又營養的菜單設計，會計算食物熱量，善用食物代換表，做自己的營養師。 2.親手做麥芽糖、釀水果酒..等手作課程。 3.一般民眾於日常飲食之外，可能為了保養或補充營養等需求，去購買相關食品，而這些產品，常常被誤冠上「健康食品」的名號，透過此課程，帶領各位修課學生認識經政府認證的小綠人標章「健康食品」，並解析該產品的化學成分分析及實質科學證據之「保健功效」，藉以分辨市售廣告詞，當一個聰明的消費者。	2	Elective Course	食品科學系進修學士班	SDG2、SDG3
2021	Contiuning Education Bachelor Degree	4	A	老年營養與老人食品科學	Geriatric nutrition and food science	To introduce basic knowledge of geriatric nutrition and concept of healthy food science	介紹老年期食品科學與營養的基本概念	2	Elective Course	食品科學系進修學士班	SDG2
2021	Contiuning Education Bachelor Degree Program	4	A	食品行銷管理	Food market management	The goal of the course is to enable students to develop a complete professional knowledge of the five major areas of food marketing management, and to make good use of what they have learned to actively grasp the trends of various areas and future employment opportunities. This course is a systematic exploration of marketing management theories and their applications, emphasizing the analysis of important concepts and explaining the application of the theories with real-life examples and experiences in China and abroad.	為因應社會需求及產業發展之多元趨勢，增拓學生跨領域知識及技能，以提升學術研究及就業競爭力，本課程教導學生學習食品保健及行銷管理等專業知識，著眼於培養學生食品行銷管理專長，使學生修習本學程後能具備以下各種知能，為未來進入食品、健康、生技或醫藥等相關產業後之行銷管理能力作良好準備。願景為透過課程使修習之學生能完整建構食品行銷管理領域五大面向之專業知能，並能善用所學積極掌握各種面向之趨勢發展及未來就業機會。本課程乃有系統地探討行銷管理理論及其應用，強調重要觀念的解析，並以國內外實例與生活見聞來解釋學理的應用。	2	Elective Course	食品科學系進修學士班	SDG3
2021	Contiuning Education Bachelor Degree Program	4	A	食品法規	Food Regulation	1. Understand the relevant laws and regulations to be followed by the food industry. 2. Be able to analyze food safety issues on their own and understand the corresponding control regulations of public authorities. 3. Be able to find and analyze international regulations and domestic laws and regulations.	1.瞭解食品業者應遵循之相關法規。 2.能自行分析食品安全時事議題，瞭解公部門相應之管制規範。 3.能自行查找與分析國際規範及國內法規。	2	Elective Course	食品科學系進修學士班	SDG3
2021	Contiuning Education Bachelor Degree Program	1	A	藝術治療	Art Therapy	Art has been practiced for years as a form of psychotherapy. All expressive arts, such as visual arts, music, dance, and theater, have their rich elements and energy to develop our mind, body, and spirit for a more harmonious and fulfilling life.	藝術作為一種心理治療已行之有年，舉凡視覺藝術、音樂、舞蹈、演劇等表現性藝術都具有其豐富元素與能量，開發我們身心靈，以使生活更加和諧完滿。	2	General Course	通識教育中心(進)	SDG3
2021	Contiuning Education Bachelor Degree Program	1	C	憲法	Constitution of R.O.C.	This course is designed to introduce the separation of powers and the constitutional system, but also to focus on human rights issues that may be encountered in daily life. The topics discussed in this course include the interpretation of the Constitution by the Chancellor's Council or real-life cases. Specific topics include the proper legal procedures for police traffic administration, labor rights of part-time workers, students' right to study and basic rights on campus, internet behavior, internet speech involving obstruction of computers, obstruction of reputation, etc., the right to take exams and participate in politics in public service, the boundary between human rights and freedom of speech, human rights and personal data protection, patient's right to autonomy and hospice, freedom of marriage and bigamy, gender human rights, procedural rights of criminal defendants and criminal witnesses, and emerging issues. Through lectures and interactive discussions, we will learn and grow together. We will discover that the human rights provisions of the Constitution are not just a hunger pie or a boring required course, but are so closely related to our daily lives.	憲法是一個國家或政治實體所建立的法秩序中最高層級的規範。它形塑了國家機關的組織、權力運作的方式、國家與人民的關係，並規制了政府存在的價值與任務。對於這部國家根本的大法，我們更應該關注它實質層面是否同時具備「憲政主義」的精神，也就是透過憲法限制政府的權力與實現人民基本權利的保障。 本課程之設計除權力分立與憲政體制介紹外，更著重於日常生活中可能接觸到的人權議題；並分別佐以大法官會議相關之憲法解釋或生活實際案例為討論主題。具體之內容如警察交通行政之正當法律程序；兼差打工的勞動人權，學生學習權及校園基本權；網路行為、網路言論涉及妨害電腦、妨害名譽等；應考試、服公職之參政權；人格權與言論自由的界限、人格權與個人資料保護；病人自主權與善終權；婚姻自由與重婚、性別人權；刑事被告、刑事證人之程序權益；以及新興的人權，如環境權、安寧權、日照權等議題。透過講授與互動討論，一同學習、成長。我們將發現，原來憲法中的人權條款並不是充飢的畫餅，也不是枯燥無趣的必修課程，而是如此緊密相關	2	Required Course	通識教育中心(進)	SDG5、SDG10、SDG11、SDG16
2021	Contiuning Education Bachelor Degree Program	1	A	音樂人生(美感)	Music of Life	(1) To introduce musical works in a lifelike manner, to stimulate the diversity of life through the influence of artistic creation, and to cultivate music appreciation skills. (2) Through practical and interactive teaching, we combine the diverse art of music with life and gain an accumulation of aesthetic experience. (3)Although we have missed the golden opportunity to learn the piano and violin, it is never too late to learn to appreciate classical music and related cultures! (4) Use multi-media to understand the impact of each century of music on their creative expression and the background of the musicians. We will learn the secrets and inspirations of composers that have not been recorded in the history of music.	〈一〉以生活化介紹音樂作品，由藝術創作之影響激發起人生的多樣性，並藉以培養音樂鑑賞能力。 〈二〉從實際互動教學中，將音樂的多樣貌藝術與生活結合，從中獲取美感經驗的累積。 〈三〉雖然已錯過了學習鋼琴、小提琴樂器的黃金時機，但學習欣賞古典音樂和相關的文化，從現在開始，一點也不嫌遲！ 〈四〉運用多媒體，瞭解各音樂世紀作品比較與音樂家背景對其創作表現的衝擊。窺知音樂史所未記載的作曲家小秘密和創作靈感。	2	General Course	通識教育中心(進)	SDG3、SDG5、SDG17
2021	Contiuning Education Bachelor Degree Program	1	A	幽默寓言選讀	Read Selectively of China Ancient Humor Fables	1. This course will focus on classical Chinese fables. 17 fables (detailed in the table below) will be selected and read together with the students. 2. As a literary genre, fables are fictional stories or anthropomorphic representations of natural objects to illustrate truths in order to make use of the past to advise the present and mock others, often with an exhortative and educational quality. The traditional Chinese fables are the most original and groundbreaking ones found in the pre-Qin texts. They are not only exhortatory and educational, but also sometimes humorous and have the effect of making people laugh and instantly wake up. These fables, which have been handed down since the pre-Qin Dynasty, have been popularized and have slowly become idioms that are familiar to all, but few people today know their origin and originality. Therefore, through this course, the instructor is empowered to act as a tour guide, leading students to read the original literature and enter the sometimes mocking, sometimes humorous, and sometimes bizarre world of the ancients. 3. To strengthen the comprehension of basic Chinese sentence patterns, vocabulary, and words. 4. To learn the traditional culture and develop the interest and ability to appreciate Chinese literature. 5. To develop the ability to use fluent words to express personal ideas and emotions.	1.本課程以講授中國古典寓言為主，共擇選寓言十七篇（詳目如下表）與同學共同研讀。 2.寓言作為一種文學體裁，是指用假說的故事，或將自然物擬人化的手法，說明道理，以便達到借古勸今、以物諷人的效果，每每帶有勸戒的教育性質；凡能勘透人情世故，且深具智慧者，始能從日常生活中提煉或創作出「寓言」，用於嘲諷、警世，或當下說服他人。中國傳統的寓言，以見於先秦載籍者最富原創意義與開創性，不僅富於勸戒、教育意義，有時亦深具幽默感，頗有令人在發笑當下，即刻冷然醒悟的效果。這些先秦以降流傳下來的寓言，因膾炙人口，慢慢衍成成語，眾口流佈，耳熟能詳，但今人罕能知其出處暨原本，因此之故，藉由本課程的開設，讓授課者權充一個導遊的角色，引領同學閱讀原始文獻，並進入古人有時嘲諷犀利，有時詼諧幽默，有時古怪恢奇的世界。 3.強化中文基本句型、辭彙、文字之理解能力。 4.涵泳傳統文化，培養欣賞中國文學之興趣與能力。 5.培養運用流暢文字，表達個人理念與情感之能力。	2	General Course	通識教育中心(進)	SDG4
2021	Contiuning Education Bachelor Degree Program	1	A	幽默寓言選讀	Read Selectively of China Ancient Humor Fables	1. This course will focus on classical Chinese fables. 17 fables (detailed in the table below) will be selected and read together with the students. 2. As a literary genre, fables are fictional stories or anthropomorphic representations of natural objects to illustrate truths in order to make use of the past to advise the present and mock others, often with an exhortative and educational quality. The traditional Chinese fables are the most original and groundbreaking ones found in the pre-Qin texts. They are not only exhortatory and educational, but also sometimes humorous and have the effect of making people laugh and instantly wake up. These fables, which have been handed down since the pre-Qin Dynasty, have been popularized and have slowly become idioms that are familiar to all, but few people today know their origin and originality. Therefore, through this course, the instructor is empowered to act as a tour guide, leading students to read the original literature and enter the sometimes mocking, sometimes humorous, and sometimes bizarre world of the ancients. 3. To strengthen the comprehension of basic Chinese sentence patterns, vocabulary, and words. 4. To learn the traditional culture and develop the interest and ability to appreciate Chinese literature. 5. To develop the ability to use fluent words to express personal ideas and emotions.	1.本課程以講授中國古典寓言為主，共擇選寓言十七篇（詳目如下表）與同學共同研讀。 2.寓言作為一種文學體裁，是指用假說的故事，或將自然物擬人化的手法，說明道理，以便達到借古勸今、以物諷人的效果，每每帶有勸戒的教育性質；凡能勘透人情世故，且深具智慧者，始能從日常生活中提煉或創作出「寓言」，用於嘲諷、警世，或當下說服他人。中國傳統的寓言，以見於先秦載籍者最富原創意義與開創性，不僅富於勸戒、教育意義，有時亦深具幽默感，頗有令人在發笑當下，即刻冷然醒悟的效果。這些先秦以降流傳下來的寓言，因膾炙人口，慢慢衍成成語，眾口流佈，耳熟能詳，但今人罕能知其出處暨原本，因此之故，藉由本課程的開設，讓授課者權充一個導遊的角色，引領同學閱讀原始文獻，並進入古人有時嘲諷犀利，有時詼諧幽默，有時古怪恢奇的世界。 3.強化中文基本句型、辭彙、文字之理解能力。 4.涵泳傳統文化，培養欣賞中國文學之興趣與能力。 5.培養運用流暢文字，表達個人理念與情感之能力。	2	General Course	通識教育中心(進)	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Contiuning Education Bachelor Degree Program	1	A	幽默寓言選讀(二)	Read selectively of China ancient fables (2)	1. This course focuses on classical Chinese fables and is a continuation of "Selected Humorous Fables I". 2. A total of 30 fables (detailed in the table below) will be selected and studied together with the students. 3. As a literary genre, fables are fictitious stories or anthropomorphized natural objects to illustrate truths, so as to use the past to advise the present and mock people with objects, often with an exhortative and educational nature. The traditional Chinese fables are the most original and groundbreaking ones found in the pre-Qin texts. They are not only exhortatory and educational, but also sometimes humorous and have the effect of making people laugh and instantly wake up. These fables, which have been handed down since the pre-Qin Dynasty, have been popularized and have slowly become idioms that are familiar to all, but few people today know their origins and originality. Therefore, through this course, the instructor is empowered to act as a tour guide to lead students through the original literature and into the sometimes mocking, sometimes humorous, and sometimes bizarre world of the ancients. 4. To strengthen the comprehension of basic Chinese sentence patterns, vocabulary, and words. 5. To learn the traditional culture and develop the interest and ability to appreciate Chinese literature. 6. To develop the ability to express personal ideas and feelings with fluent writing.	1.本課程以講授中國古典寓言為主，為接續「幽默寓言選讀・一」之深化課程。 2.共擇選寓言三十篇（詳目如下表）與同學共同研讀。 3.寓言作為一種文學體裁，是指用假說的故事，或將自然物擬人化的手法，說明道理，以便達到借古勸今、以物諷人的效果，每每帶有勸戒的教育性質；凡能勸透人情世故，且深具智慧者，始能從日常生活中提煉或創作出「寓言」，用於嘲諷、警世，或當下說服他人。中國傳統的寓言，以見於先秦載籍者最富原創意義與開創性，不僅富於勸戒、教育意義，有時亦深具幽默感，頗有令人在發笑當下，即刻冷然醒悟的效果。這些先秦以降流傳下來的寓言，因膾炙人口，慢慢衍成成語，眾口流佈，耳熟能詳，但今人罕能知其出處暨原本，因此之故，藉由本課程的開設，讓授課者權充一個導遊的角色，引領同學閱讀原始文獻，並進入古人有時嘲諷犀利，有時詼諧幽默，有時古怪恢奇的世界。 4.強化中文基本句型、辭彙、文字之理解能力。 5.涵泳傳統文化，培養欣賞中國文學之興趣與能力。	2	General Course	通識教育中心(進)	SDG4
2021	Contiuning Education Bachelor Degree Program	1	A	劉伯溫寓言選讀	Read selectively of Liu Bo Wen—Yu Li Zi fables	1. This course focuses on the fables of Yu Yi written by Liu Ji in the Ming Dynasty. 17 fables (detailed in the table below) are selected for study with the students. 2. As a literary genre, fables are fictional stories or anthropomorphized natural objects to illustrate truths, so as to use the past to advise the present and mock others with objects, often with an exhortative and educational quality. The fables in "Inion" are not only exhortatory and educational, but also sometimes have a deep sense of humor that can make people laugh and instantly wake up. Through this course, the instructor is empowered to act as a tour guide, guiding students through the original literature and into the sometimes mocking, sometimes humorous, and sometimes bizarre world of "Inion". 3. Strengthen the comprehension of basic Chinese sentence patterns, vocabulary, and words. 4. To learn traditional culture and cultivate the interest and ability to appreciate Chinese literature. 5. To develop the ability to use fluent words to express personal ideas and emotions.	1.本課程以講授明代劉基所撰《郁離子》寓言為主，共擇選寓言十七篇（詳目如下表）與同學共同研讀。 2.寓言作為一種文學體裁，是指用假說的故事，或將自然物擬人化的手法，說明道理，以便達到借古勸今、以物諷人的效果，每每帶有勸戒的教育性質；凡能勸透人情世故，且深具智慧者，始能從日常生活中提煉或創作出「寓言」，用於嘲諷、警世，或當下說服他人。《郁離子》寓言，不僅富於勸戒、教育意義，有時亦深具幽默感，頗有令人在發笑當下，即刻冷然醒悟的效果。頗多膾炙人口之作，藉由本課程的開設，讓授課者權充一個導遊的角色，引領同學閱讀原始文獻，並進入《郁離子》有時嘲諷犀利，有時詼諧幽默，有時古怪恢奇的世界。 3.強化中文基本句型、辭彙、文字之理解能力。 4.涵泳傳統文化，培養欣賞中國文學之興趣與能力。 5.培養運用流暢文字，表達個人理念與情感之能力。	2	General Course	通識教育中心(進)	SDG4
2021	Contiuning Education Bachelor Degree Program	1	A	劉伯溫寓言選讀	Read selectively of Liu Bo Wen—Yu Li Zi fables	1. This course focuses on the fables of Yu Yi written by Liu Ji in the Ming Dynasty. 17 fables (detailed in the table below) are selected for study with the students. 2. As a literary genre, fables are fictional stories or anthropomorphized natural objects to illustrate truths, so as to use the past to advise the present and mock others with objects, often with an exhortative and educational quality. The fables in "Inion" are not only exhortatory and educational, but also sometimes have a deep sense of humor that can make people laugh and instantly wake up. Through this course, the instructor is empowered to act as a tour guide, guiding students through the original literature and into the sometimes mocking, sometimes humorous, and sometimes bizarre world of "Inion". 3. Strengthen the comprehension of basic Chinese sentence patterns, vocabulary, and words. 4. To learn traditional culture and cultivate the interest and ability to appreciate Chinese literature. 5. To develop the ability to use fluent words to express personal ideas and emotions.	1.本課程以講授明代劉基所撰《郁離子》寓言為主，共擇選寓言十七篇（詳目如下表）與同學共同研讀。 2.寓言作為一種文學體裁，是指用假說的故事，或將自然物擬人化的手法，說明道理，以便達到借古勸今、以物諷人的效果，每每帶有勸戒的教育性質；凡能勸透人情世故，且深具智慧者，始能從日常生活中提煉或創作出「寓言」，用於嘲諷、警世，或當下說服他人。《郁離子》寓言，不僅富於勸戒、教育意義，有時亦深具幽默感，頗有令人在發笑當下，即刻冷然醒悟的效果。頗多膾炙人口之作，藉由本課程的開設，讓授課者權充一個導遊的角色，引領同學閱讀原始文獻，並進入《郁離子》有時嘲諷犀利，有時詼諧幽默，有時古怪恢奇的世界。 3.強化中文基本句型、辭彙、文字之理解能力。 4.涵泳傳統文化，培養欣賞中國文學之興趣與能力。 5.培養運用流暢文字，表達個人理念與情感之能力。	2	General Course	通識教育中心(進)	SDG4
2021	Contiuning Education Bachelor Degree Program	1	A	歌唱藝術	Singing of The Art	(1) To learn about the human voice, to introduce songs from different singing styles, and to present the beauty and artistic realm of different song voices. (2) To learn about the various types of world famous songs and the beautiful singing styles presented, so that students can have a sense of intimacy with the native land where they live and grow up. (3) To introduce the classical series of world famous songs, to explore their connotations and styles of singing art, and to cultivate appreciation and singing skills as a guide.	(一)認識人聲、從不同的演唱方式之歌曲介紹，呈現出不同的歌謠聲音之美與藝術化的境界。 (二)認識世界名歌各種類型、美聲演唱方式呈現，使學生與其生活、生長背景之鄉土具有親切感。 (三)介紹世界名歌經典系列介紹，探討其歌唱藝術之內涵多樣貌風格，培養鑑賞能力及歌唱技能之素養為導向。	2	General Course	通識教育中心(進)	SDG3、SDG17
2021	Contiuning Education Bachelor Degree Program	1	A	合唱之美(美學)	The Sound of CHORUS	(1) To understand choral music, the beauty and artistic realm of the human voice from different vocal combinations (2) To introduce the diversity of styles and connotations in the art of diverse choral works and to develop appreciation skills. (3) To introduce students to the various types of choral music, so that they can have a sense of intimacy with their native land.	(一)認識合唱音樂，以人聲從不同的聲部組合演唱呈現出不同的聲音之美與藝術化的境界。 (二)介紹多元合唱作品藝術之內涵多樣貌風格，培養鑑賞能力素養。 (三) 認識各種合唱類型，使學生與其生活、生長背景之鄉土具有親切感。	2	General Course	通識教育中心(進)	SDG3、SDG5、SDG17
2021	Contiuning Education Bachelor Degree Program	2	A	憲法	Constitution of R.O.C.	The objectives of this course are as follows. 1. To understand the "supremacy" of the Constitution Since the Constitution is the supreme character of a country governed by the rule of law, no law or order can contradict it, and no government or interaction with the people can contradict it. Therefore, it is necessary to understand it first. 2. Understanding Government Organization and Operation The people are the owners of national sovereignty and should understand that the exercise of national sovereignty is closely related to their rights.	課程概述與目標： 本課程旨在介紹中華民國憲法的基本規定與實務。憲法內容浩繁，受限一學期有限之時數，僅以人權基本概念介紹為主，輔之以法律案例分析，提升學習動力與興趣；政府組織僅以架構式作功能性質之介紹，使學生明瞭我國政府體制與實際運作情形。 本課程之教學目標如下： 1、認識憲法「最高性」特質 由於憲法在法治國具最高位特質，任何法律或命令均不得與其牴觸，政府施政與人民互動均無法與憲法牴觸。故具首要認識之必要性。 2、瞭解政府組織運作 人民乃國家主權擁有者，應瞭解國家統治權行使與其權利息息相關	2	Required Course	通識教育中心(進)	SDG10、SDG16
2021	Contiuning Education Bachelor Degree Program	1	C	國文	Chinese	Through reading the classical works of thinkers and writers, students will not only improve their language skills, but also reflect on their own life situations and attitudes towards others, so that the classics can be integrated into their lives. In addition, we hope to train students' communication and oral expression skills through discussions and reports.	透過閱讀思想家、文學家之經典作品，除能增進同學語文能力的基礎，並能反思己身生命處境，及待人處事態度，使經典得以融入個人生命。另外也希望透過討論、報告等方式，訓練同學協調溝通及口語表達等能力。	2	Required Course	通識教育中心(進)	SDG4、SDG5、SDG10、SDG16
2021	Contiuning Education Bachelor Degree Program	1	A	國文	Chinese	Through reading the classical works of thinkers and writers, students will not only improve their language skills, but also reflect on their own life situations and attitudes towards others, so that the classics can be integrated into their lives. In addition, we hope to train students' communication and oral expression skills through discussions and reports.	透過閱讀思想家、文學家之經典作品，除能增進同學語文能力的基礎，並能反思己身生命處境，及待人處事態度，使經典得以融入個人生命。另外也希望透過討論、報告等方式，訓練同學協調溝通及口語表達等能力。	2	Required Course	通識教育中心(進)	SDG4、SDG5、SDG10、SDG16
2021	Contiuning Education Bachelor Degree Program	1	B	人員安全及社會責任	Personnel Safety and Social Responsibility	This course is designed in accordance with IMO Model course 6.03, Model course 7.03-competence 1.21 1.4.1 3.5 3.6.1 and 1978 STCW Code Section A-VI/1 to familiarize students with the types, characteristics, operating procedures, safety practices and emergency measures for shipboard operations. It is intended to familiarize students with the types, characteristics, operating procedures, safety practices and emergency response measures of shipboard operations.	本課程內容係遵照IMO 之Model course 6.03, Model course 7.03-competence 1.21 1.4.1 3.5 3.6.1和1978 STCW Code Section A-VI/1之規定編排而成者,期使學生能夠熟悉船上作業之種類、特性、作業程序、安全作業守則和緊急應變措施。	2	Required Course	商船學系學士後多元專長培力課程專班	SDG12
2021	Contiuning Education Bachelor Degree Program	1	A	船舶通訊與GMDSS	Marine Communication and GMDSS	The Global Maritime Distress and Safety System (GMDSS) is a global maritime distress and safety system. In 1988, the governments of the Contracting Parties to the International Convention for the Safety of Life at Sea (SOLAS, 1974) held the Global Maritime Distress and Safety System (GMDSS) Conference and adopted the amendments to SOLAS, 1974 (SOLAS, 1988) and the GMDSS resolution on radio communications. The amendments entered into force on February 1, 1992 and were fully implemented on February 1, 1999. Ships sailing on international routes are equipped with this system and mariners should have adequate skills and functions to use it for self-rescue and rescue purposes.	全球海上遇險及安全系統(Global Maritime Distress and Safety System, GMDSS)。係於1988年，海上人命安全國際公約(SOLAS, 1974)之締約國政府，舉行全球海上遇險及安全系統(GMDSS)會議，通過1974年海上人命安全國際公約之修正案(SOLAS, 1988)，以及GMDSS有關無線電通訊之決議案，該公約修正案於1992年2月1日起生效，並於1999年2月1日起全部實施。航行國際線的船舶均已裝設此系統，航海者應有充分之使用技能與職能，以為自救及救人所需。	3	Required Course	商船學系學士後多元專長培力課程專班	SDG9

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Contiuning Education Bachelor Degree Program	1	B	船舶通訊與GMDSS	Marine Communication and GMDSS	In comply with the STCW convention, this course follows IMO Model Course 1.25 (General Operator"s Certificate for the GMDSS) lecturing the relevant knowledge of maritime communication, including the theory of GMDSS, to ensure that the trainees are capable of managing those equipments onboard ship with necessary skills.	本課程內容係依據STCW章程第II章第II/1節表A-II/1及第II/2節表A-II/2之規定，並遵照國際海事組織(IMO) Model Course 7.03-1.6 (RESPOND TO A DISTRESS SIGNAL AT SEA)、Model Course 7.03-1.8(TRANSMIT AND RECEIVE INFORMATION BY VISUAL SIGNALLING) 及Model Course 1.25–GMDSS通用級值機員發證(General Operator"s Certificate for the GMDSS)之規範。兼顧相關必要知識或技能之傳授來規劃課程，使學生瞭解此項設備之必要資訊及具備操縱該系統之基本知識。	3	Required Course	商船學系學士後多元專長培力課程專班	SDG4、SDG14
2021	Contiuning Education Bachelor Degree Program	1	B	保全職責	Security Duty	In accordance with Section A-VI/6 of the STCW Convention, Article 89 of the Crew Law, and Article 15-1 of the Crew Training Standards and Application Regulations, the crew should receive professional training on "Security awareness (Class A and B crew)" and "Security duties (Class A crew)" starting from January 1, 103. The course teaches the professional training of international regulations. The course teaches the norms and practices of international regulations, and upon completion of the course and after assessment, the crew will receive a professional training certificate approved by international conventions in accordance with their maritime qualifications.	自美國遭受 911 恐怖攻擊後,即尋求國際合作,執行船舶與港口保全工作。而國際海事組織(IMO)於 2001 年 11 月 20 日之大會通過主題為「防範威脅乘客和船員保全及船舶安全之恐怖行為之措施和程序審查」之 A924(22)決議案。海上人命安全國際公約(SOLAS)之締約國政府於 2002 年 12 月 9 至 13 日招開海事安全外交會議中，採納SOLAS1974 之 2002 年修正案第 XI-2 章及其決議案 2(ISPS Code)，並於 2004 年 7 月 1日生效。為符合此一章程之實施，每一船舶必須建立保全計劃，並須獲得船籍國所簽發之國際船舶保全證書。 我國為因應STCW公約2010年修正案，依據STCW公約第A-VI/6節規定、船員法第89條及船員訓練檢費及申請核發辦法第15之1條，自103年1月1日起航海員應接受「保全意識(Security awareness)(甲乙級船員)」及「保全職責(Security duties)(甲級船員)」之船員專業訓練。	1	Required Course	商船學系學士後多元專長培力課程專班	SDG17
2021	Contiuning Education Bachelor Degree Program	1	A	保全職責	Security Duty	In accordance with Section A-VI/6 of the STCW Convention, Article 89 of the Crew Law, and Article 15-1 of the Crew Training Standards and Application Regulations, the crew should receive professional training on "Security awareness (Class A and B crew)" and "Security duties (Class A crew)" starting from January 1, 103. The course teaches the professional training of international regulations. The course teaches the norms and practices of international regulations, and upon completion of the course and after assessment, the crew will receive a professional training certificate approved by international conventions in accordance with their maritime qualifications.	自美國遭受 911 恐怖攻擊後,即尋求國際合作,執行船舶與港口保全工作。而國際海事組織(IMO)於 2001 年 11 月 20 日之大會通過主題為「防範威脅乘客和船員保全及船舶安全之恐怖行為之措施和程序審查」之 A924(22)決議案。海上人命安全國際公約(SOLAS)之締約國政府於 2002 年 12 月 9 至 13 日招開海事安全外交會議中，採納SOLAS1974 之 2002 年修正案第 XI-2 章及其決議案 2(ISPS Code)，並於 2004 年 7 月 1日生效。為符合此一章程之實施，每一船舶必須建立保全計劃，並須獲得船籍國所簽發之國際船舶保全證書。 我國為因應STCW公約2010年修正案，依據STCW公約第A-VI/6節規定、船員法第89條及船員訓練檢費及申請核發辦法第15之1條，自103年1月1日起航海員應接受「保全意識(Security awareness)(甲乙級船員)」及「保全職責(Security duties)(甲級船員)」之船員專業訓練。	1	Required Course	商船學系學士後多元專長培力課程專班	SDG17
2021	Contiuning Education Bachelor Degree Program	1	A	領導統御與駕駛臺資源管理	Leadership and Bridge Resource Management	This course follows the International Maritime Organization (IMO) Model Course 7.03-1.2.3 Effective Bridge Teamwork Procedures; and STCW78/10 CODE A. The following course is designed to provide the necessary knowledge or skills. The BRM course is designed to make the best use of the human and material resources of the bridge and to organize the ship's pilots to further learn and clarify their duties and responsibilities in the daily bridge team work, to correct their thinking and working attitude, and to use the bridge equipment correctly to maintain the normal and safe navigation of the ship.	本課程遵照國際海事組織(IMO) Model Course 7.03-1.2.3 Effective Bridge Teamwork Procedures 有效的駕駛台團隊工作程序; 及STCW78/10 CODE A 之規範，兼顧相關必要知識或技能之傳授，編排以下課程內容。 BRM課程透過對各類事故的仔細剖析，結合船舶在航行中的一些經常可能發生或遇到的實際情況，充分利用駕駛台人力與物力資源，組織船舶駕駛人員進一步地學習和明確各自在日常駕駛台組合工作中的義務與責任，端正思想和工作態度；正確使用駕駛台的各種設備保持船舶的正常安全航行。	2	Required Course	商船學系學士後多元專長培力課程專班	SDG8
2021	Contiuning Education Bachelor Degree Program	1	A	氣象學	Meteorology	This course follows the IMO MODEL COURSE 1.1.7 METEOROLOGY Meteorological Inclusions: 1.1.7.1.SHIPBORNE METEOROLOGICAL INSTRUMENTS; 1.1.7.2 THE ATMOSPHERE, ITS COMPOSITION AND PHYSICAL PROPERTIES; 1.1.7.3 ATMOSPHERIC PRESSURE; 1.1 .7.4 WIND; 1.1.7.5 CLOUD AND PRECIPITATION; 1.1.7.6 - 1.1.7.12 WEATHER FORECASTING, etc. Students will learn about weather analysis and forecasting, tropical cyclone characteristics and navigation avoidance, important meteorological organizations, and climate change and catastrophic weather to achieve the goal of using meteorological information and ship navigation to improve the safety of ship navigation.	本課程遵照國際海事組織(IMO)MODEL COURSE 1.1.7 METEOROLOGY 氣象學包含: 1.1.7.1.SHIPBORNE METEOROLOGICAL INSTRUMENTS; 1.1.7.2 THE ATMOSPHERE, ITS COMPOSITION AND PHYSICAL PROPERTIES ; 1.1.7.3 ATMOSPHERIC PRESSURE; 1.1.7.4 WIND;1.1.7.5 CLOUD AND PRECIPITATION; 1.1.7.6 - 1.1.7.12 WEATHER FORECASTING 等。 學習氣象理論，瞭解天氣分析與預報、熱帶氣旋特徵與避航、重要氣象組織及氣候變遷及災變天氣等，以達到利用氣象資訊與船舶導航以增進船舶航行安全為目標。	2	Required Course	商船學系學士後多元專長培力課程專班	SDG13
2021	Contiuning Education Bachelor Degree	1	A	海事法規	Maritime Administrative Law	The content of the subject curriculum are according with the IMO Model course 7.03 modules 3.1, 3.6.1 .	本課程遵照國際海事組織(IMO)Model Course7.03-3.1 Ensure Compliance with pollution of the Marine Environment &3.6.1 Basic working Knowledge of the Relevant IMO Conventions concerning SOLAS and MARPOL之規範,兼顧相關必要知識或技能之傳授,編	2	Required Course	商船學系學士後多元專長培力課程專班	SDG3、SDG4、SDG8、SDG14、SDG15、SDG17
2021	Contiuning Education Bachelor Degree	1	B	電子航海	Electronic Navigation	This course provides the understanding of basic theory and practicing knowledge regarding electric navigation equipment.	使學生瞭解各式電子航儀之基礎理論及實務應用。	2	Required Course	商船學系學士後多元專長培力課程專班	SDG4、SDG14
2021	Contiuning Education Bachelor Degree Program	2	A	人員安全及社會責任	Personnel Safety and Social Responsibility	trainee successfully completing this course will be able to: •comply with emergency procedures •take precautions to prevent pollution of the marine environment •observe safe working practices •understand orders and be understood in relation to shipboard duties •con tribute to effective huma n relati on ships on board ship	透過本課程使學員能: - 遵守應急程序 - 防止污染事故並能對海洋環境保護 - 培育工作環境危機察覺職能 - 船上個人社會責任所需與勞資權利與義務認知	2	Required Course	商船學系學士後多元專長培力課程專班	SDG12
2021	Contiuning Education Bachelor Degree Program	2	A	操船模擬	Ship Handling and Simulation	This government course follows the International Maritime Organization (IMO) Model Course 7.03-1.3 Use of Radar and ARPA to Maintain Safety of Navigation and the Use of Automatic Mapping Radar to Maintain Safety of Navigation; and (IMO Model Course No. 1.07 and STCW 1995 Regulation 1/12), and 1.2.1 Knowledge of the Collision Regulation. 1.2.1.1 Content, application and intent of COLREG 1972; 1.2.2 Principles in Keeping a Navigational Watch 1.2.1.1 Content, application and intent of COLREG 1972; 1.2.2 Principles in Keeping a Navigational Watch Cabin Surface Equivalent; 1.1.3 Electronic Systems of Position Fixing and Navigation Students will learn the following through the operation of ARPA simulators and ship-handling simulators. 1. familiarize with the various equipment and functions of the cockpit 2. operation of various equipment 3. familiarization with rudder commands and clock application 4. observing ship movements 5. practicing ship avoidance	本課程遵照國際海事組織(IMO)Model Course7.03-1.3 Use of Radar and ARPA to Maintain Safety of Navigation 雷達及自動測繪雷達之使用以維持航行安全; 及(IMO Model Course No.1.07 and STCW 1995 Regulation 1/12), 及1.2.1 Knowledge of the Collision Regulation 避碰規則知識。1.2.1.1 Content, application and intent of COLREG 1972; 1.2.2 Principles in Keeping a Navigational Watch 艙面當值; 1.1.3 Electronic Systems of Position Fixing and Navigation 電子定位及導航系統等之規範;兼顧相關必要知識或技能之傳授，編排以下授課內容。 學生利用ARPA模擬機及操船模擬機之操作能學習下列事項： 1. 熟悉駕駛台之各項設備及功能 2. 操作各項設備 3. 舵令、俥鐘的熟悉與應用 4. 觀測船舶間之動態 5. 練習船舶避讓	2	Elective Course	商船學系學士後多元專長培力課程專班	SDG4、SDG9、SDG11、SDG12、SDG14、SDG17
2021	Contiuning Education Bachelor Degree Program	2	A	救生艇筏及救難艇筏操縱	Proficiency in Survival Craft and Rescue Boat	This course is based on the International Maritime Organization (IMO) Model Course 7.03-3.4 Operate Life-Saving Appliances, with reference to Model Course 1.23 Proficiency in Survival Craft and Rescue Boats This course is designed to teach students to understand and operate lifeboats, rescue boats, life rafts, life jackets, diving suits, and life preservers. In addition, students will be familiar with the use of life-saving equipment such as survival communication equipment, distress signals, first aid treatment, helicopter hoisting equipment and rescue methods, maintenance and inspection of lifeboats and rescue boats, and raft maneuvering under adverse weather conditions. The purpose of self-help and rescue.	本課程係依照國際海事組織(IMO) Model Course 7.03-3.4 Operate Life-Saving Appliances 之規範，並參考Model Course 1.23 Proficiency in Survival Craft and Rescue Boats other than Fast Rescue Boats及1978年STCW國際公約2010修正案規則VI/2、SOLAS國際公約和LSA章程等最新修正的相關內容，兼顧相關必要知識或技能之傳授，教導同學認識且能正確操作使用救生艇、救難艇、救生筏、救生衣、浸水衣、救生圈等救生裝備，同時熟悉各項求生通訊設備使用、遇險信號發送、傷患急救處置、直昇機吊掛裝備與救援方式、救生艇和救難艇的保養檢查，及惡劣天候下之艇筏操縱等專業知識與技能，進而掌握和控制在船舶異常狀況下個人與全船旅客如何有效避免危難之發生，並應	2	Required Course	商船學系學士後多元專長培力課程專班	SDG9
2021	Contiuning Education Bachelor Degree Program	3	A	科技管理	Technology knowledge	1. In the era of knowledge economy, technology plays an increasingly important role for enterprises to gain competitive advantage. It is important for business management students or business executives to have the basic knowledge to effectively deal with issues related to technology research and development, innovation, and entrepreneurship when formulating business strategies. 2. This course provides students with a basic understanding of technology management. This course provides students with a basic understanding of technology management, including its economic and humanistic implications and impacts.	1.進入知識經濟時代，科技對企業獲取競爭優勢扮演越來越重要的角色。一般企管學生或企業主管必須具備相關基礎知識，以便在制訂企業策略時，能有效處理與技術研發、創新、創業等有關議題。 2.本課程在提供同學對科技管理的基礎認識。包括其經濟與人文的意涵及影響。	2	Elective Course	資訊管理學系進修學士班	SDG8、SDG17
2021	Contiuning Education Bachelor Degree	3	A	配送管理	Distribution management	This course is oriented to the development of theories and practical applications in order to enrich students' knowledge in the professional field of logistics and distribution studies.	本課程係以結合理論發展與實務應用為教學導向，以充實學生於物流配送專業研究領域之認知，並藉由講課及討論，讓學生對配送管理之理論有相當之瞭解。	2	Required Course	航運管理學系進修學士班物流管理組	SDG9
2021	Contiuning Education Bachelor Degree	2	A	統計學	Statistics	This course is designed to develop students' basic concepts of statistics and to establish their ability to summarize, analyze, synthesize and make judgments on data.	本課程主要在於培養學生統計學之基本概念，以奠定學生對數據資料的歸納分析、綜合與判斷之能力；並期學生熟悉統計學常用之電腦套裝軟體，以能將各項技能靈活應用於後續相關課程及實務上。	3	Required Course	航運管理學系進修學士班物流管理組	SDG4

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Contiuning Education Bachelor Degree Program	2	A	統計學	Statistics	This course is designed to develop students' basic concepts of statistics and to establish their ability to summarize, analyze, synthesize and make judgments on data.	本課程主要在於培養學生統計學之基本概念，以奠定學生對數據資料的歸納分析、綜合與判斷之能力；並期學生熟悉統計學常用之電腦套裝軟體，以能將各項技能靈活應用於後續相關課程及實務上。	3	Required Course	航運管理學系進修學士班物流管理組	SDG4
2021	Contiuning Education Bachelor Degree Program	2	A	外文領域(進階英文)	English	The main objective of this course is to improve students' listening, speaking, reading and writing skills and comprehension. The students will be asked to practice listening and reading through useful conversations and well-written articles.	1.培養學生聽說讀寫能力 2.增進學生多元性文化認識 3.加強字彙能力 4.加強學生文法能力。	2	Required Course	外語教學研究中心(進)	SDG3、SDG4、SDG5、SDG12
2021	Contiuning Education Bachelor Degree Program	1	B	人員安全及社會責任	Personnel Safety and Social Responsibility	The objective of this course is to establish students' concept and capability to ensure their own personal safety and responsibility to the society when working as a marine engineer.	本課程內容係遵照IMO 之Model course 7.04之規定編排而成者,期使學生能夠熟悉船上作業之種類、特性、作業程序、安全作業守則和緊急應變措施。	2	Required Course	輪機工程學系學士後多元專長培力課程專班	SDG12
2021	Contiuning Education Bachelor Degree Program	1	A	熱流學(一)	Thermal fluids dynamics I	Thermodynamics is an engineering cours based on applied physics and particularly interested in relationships between energy, work and heat. Thermodynamic concepts are essential for analyzing almost all Mechanical Engineering problems, hence, the objective of this course is to educate engineering students so they are able to effectively utilize thermodynamics for practical problem solving.	熱力學為以應用物理為基礎之學科，討論關於能量、功與熱之相互關係。熱力學觀念為分析所有機械工程問題之基礎，因此，本課程之目標為教授學生對於實際問題能有效利用熱力學知識分析之。 此課程符合STCW 公約表A-III/1 有關輪機工程操作級能力之強制要求的知識、瞭解及熟練(This course aims to meet the mandatory minimum requirements for knowledge, understanding and proficiency in Table A-III/1 of STCW for the Competence Marine	2	Required Course	輪機工程學系學士後多元專長培力課程專班	SDG1、SDG4、SDG7、SDG9、SDG10、SDG14
2021	Contiuning Education Bachelor Degree Program	1	B	熱流學(一)	Thermal fluids dynamics I	Thermodynamics is an engineering cours based on applied physics and particularly interested in relationships between energy, work and heat. Thermodynamic concepts are essential for analyzing almost all Mechanical Engineering problems, hence, the objective of this course is to educate engineering students so they are able to effectively utilize thermodynamics for practical problem solving.	熱力學為以應用物理為基礎之學科，討論關於能量、功與熱之相互關係。熱力學觀念為分析所有機械工程問題之基礎，因此，本課程之目標為教授學生對於實際問題能有效利用熱力學知識分析之。	2	Required Course	輪機工程學系學士後多元專長培力課程專班	SDG1、SDG4、SDG7、SDG9、SDG10、SDG14
2021	Contiuning Education Bachelor Degree Program	1	A	人員求生技能	Personal Survival Techniques	The knowledge, skills, and training related to survival are the key to surviving a water-related disaster. This course is in compliance with the international convention STCW and will actively help students to survive in case of water emergencies in the future.	和求生相關的求生知識、技能、及訓練，是身歷水難，而仍得以倖存的關鍵。 本課程在於符合國際公約 STCW， 並積極幫助同學在未來一生當中，一旦不幸遭遇水中緊急狀況，仍能臨危不亂，保全性命。	2	Required Course	輪機工程學系學士後多元專長培力課程專班	SDG4、SDG14
2021	Contiuning Education Bachelor Degree Program	2	B	輪機英文	Marine Engineer"s English	Training marine engineering students to build up their comprehensive of English to cope with STCW required by 1995 IMO meeting. Effective communication is a mandatory requirement of the IMO STCW Convention to ensure the safety of crews and vessels. This course is to develop students from marine engineering department with essential language skills.	為配合IMO在1995所訂定的STCW，規範船員的適任能力，訓練輪機同學在英語應用的基礎能力	2	Required Course	輪機工程學系學士後多元專長培力課程專班	SDG1、SDG3、SDG4、SDG6、SDG7、SDG8、SDG9、SDG13、SDG14、SDG17
2021	Contiuning Education Bachelor Degree Program	2	A	輪機英文	Marine Engineer"s English	Training marine engineering students to build up their comprehensive of English to cope with STCW required by 1995 IMO meeting. Effective communication is a mandatory requirement of the IMO STCW Convention to ensure the safety of crews and vessels. This course is to develop students from marine engineering department with essential language skills.	為配合IMO在1995所訂定的STCW，規範船員的適任能力，訓練輪機同學在英語應用的基礎能力	2	Required Course	輪機工程學系學士後多元專長培力課程專班	SDG1、SDG3、SDG4、SDG6、SDG7、SDG8、SDG9、SDG13、SDG14、SDG17
2021	Contiuning Education Bachelor Degree Program	1	A	鍋爐學	Boiler	The content of the subject curriculum are acording with the IMO model course 7.04 modulus 25.	本課程內容符合IMO典範課程7.04-25標準課程	2	Required Course	輪機工程學系學士後多元專長培力課程專班	SDG7、SDG8、SDG9、SDG13、SDG14
2021	Contiuning Education Bachelor Degree Program	2	A	領導統御與機艙資源管理	Leadership and Engineroom Resource Management	This course uses an aircraft simulator to teach students about the cabin environment and systems, basic cabin operations, and what resources are available and managed in the cabin. The course will also teach students how to evaluate the efficiency of operations and system health. Since human resources are part of the cabin resources, this course also includes leadership and team management to optimize the use of human resources in the cabin. Special Requirements:* Since this course is eligible for a training certificate, no unexcused absences will be allowed, otherwise a failing grade will be assigned.	提昇高級船員技術水準，使被指派於船上擔任輪機以上職務之輪機員達到輪機人員訓練發證及當值標準國際公約章程(STCW CODE)A-III/1 規則要求：「保持安全之輪機當值」之最低適任標準，使具備領導統御與機艙資源管理之知識，諸如資源的配置、分配與優先順序、通信、決斷與領導、危機管理、領導和工作負載管理等詳盡的知識及能力，以維持我國商船航行安全。 本課程使用輪機模擬機，以教導同學認識機艙環境與系統，機艙基本操作，並瞭解機艙有那些資源可以運用與管理。課程當中將教導同學如何評估運轉效率與系統健康狀況。由於人力資源也是機艙資源的一部份，本課程內容並包含領導統御與團隊管理以善用機艙的人力資源。 特別規定：*由於本課程可核發訓練證書,課程時數須符合規定，故本課程不允許無故缺課，否則成績將評定為不及格。	3	Elective Course	輪機工程學系學士後多元專長培力課程專班	SDG4、SDG8、SDG9、SDG13、SDG14
2021	Contiuning Education Bachelor Degree Program	2	B	領導統御與機艙資源管理	Leadership and Engineroom Resource Management	This course uses an aircraft simulator to teach students about the cabin environment and systems, basic cabin operations, and what resources are available and managed in the cabin. The course will also teach students how to evaluate the efficiency of operations and system health. Since human resources are part of the cabin resources, this course also includes leadership and team management to optimize the use of human resources in the cabin. Special Requirements:* Since this course is eligible for a training certificate, no unexcused absences will be allowed, otherwise a failing grade will be assigned.	提昇高級船員技術水準，使被指派於船上擔任輪機以上職務之輪機員達到輪機人員訓練發證及當值標準國際公約章程(STCW CODE)A-III/1 規則要求：「保持安全之輪機當值」之最低適任標準，使具備領導統御與機艙資源管理之知識，諸如資源的配置、分配與優先順序、通信、決斷與領導、危機管理、領導和工作負載管理等詳盡的知識及能力，以維持我國商船航行安全。 本課程使用輪機模擬機，以教導同學認識機艙環境與系統，機艙基本操作，並瞭解機艙有那些資源可以運用與管理。課程當中將教導同學如何評估運轉效率與系統健康狀況。由於人力資源也是機艙資源的一部份，本課程內容並包含領導統御與團隊管理以善用機艙的人力資源。 特別規定：*由於本課程可核發訓練證書,課程時數須符合規定，故本課程不允許無故缺課，否則成績將評定為不及格。	3	Elective Course	輪機工程學系學士後多元專長培力課程專班	SDG8
2021	Contiuning Education Bachelor Degree Program	2	A	船舶自動控制	Automation in Merchant Ships	This course is intended to introduce the basics of automatic turbine control, control system composition, common auxiliary engine control system, diesel main engine control system, generator control system, monitoring and alarm system, etc.	面對輪機自動化的程度越來越高，要能夠正確而有效率的使用相關設備，輪機自動控制知識的養成變得刻不容緩，各種甲種輪機員的考試中，輪機自動控制也是必要的內容。能夠適當的操作、調整以及維護相關設備已是輪機員重要的職責。本課程擬介紹輪機自動控制的入門基礎、控制系統組成、常用的輔機控制系統、柴油主機控制系統、發電機控制系統、監視與警報系統等。	3	Required Course	輪機工程學系學士後多元專長培力課程專班	SDG7
2021	Contiuning Education Bachelor Degree Program	2	B	船舶自動控制	Automation in Merchant Ships	This course is intended to introduce the basics of automatic turbine control, control system composition, common auxiliary engine control system, diesel main engine control system, generator control system, monitoring and alarm system, etc.	面對輪機自動化的程度越來越高，要能夠正確而有效率的使用相關設備，輪機自動控制知識的養成變得刻不容緩，各種甲種輪機員的考試中，輪機自動控制也是必要的內容。能夠適當的操作、調整以及維護相關設備已是輪機員重要的職責。本課程擬介紹輪機自動控制的入門基礎、控制系統組成、常用的輔機控制系統、柴油主機控制系統、發電機控制系統、監視與警報系統等。	3	Required Course	輪機工程學系學士後多元專長培力課程專班	SDG7
2021	Contiuning Education Bachelor Degree Program	2	B	蒸汽推進機	Steam Turbine	as the focus of teaching, so that students in this department have a basic understanding and understanding Steam Turbines are currently the main propulsion power for a few ships (such as warships, aircraft carriers and VLCCs). They mainly use high-pressure steam to rotate the propulsion device of the turbine, and can use the rotation of the turbine as the prime mover, and can rotate the generator set to generate electricity.	蒸汽渦輪機目前為少數船舶(如軍艦、航空母艦及VLCCs)之主推進動力，主要利用高壓蒸汽轉動渦輪機之推進裝置，以及可利用渦輪機之轉動作為原動機，並可轉動發電機組產生電力供應，因此以蒸汽渦輪機之基本理論及構造敘述作為授課的重點，使本系學生有基本的認識與了解。	3	Required Course	輪機工程學系學士後多元專長培力課程專班	SDG7
2021	Contiuning Education Bachelor Degree Program	2	A	蒸汽推進機	Steam Turbine	as the focus of teaching, so that students in this department have a basic understanding and understanding Steam Turbines are currently the main propulsion power for a few ships (such as warships, aircraft carriers and VLCCs). They mainly use high-pressure steam to rotate the propulsion device of the turbine, and can use the rotation of the turbine as the prime mover, and can rotate the generator set to generate electricity.	蒸汽渦輪機目前為少數船舶(如軍艦、航空母艦及VLCCs)之主推進動力，主要利用高壓蒸汽轉動渦輪機之推進裝置，以及可利用渦輪機之轉動作為原動機，並可轉動發電機組產生電力供應，因此以蒸汽渦輪機之基本理論及構造敘述作為授課的重點，使本系學生有基本的認識與了解。	3	Required Course	輪機工程學系學士後多元專長培力課程專班	SDG7
2021	Contiuning Education Bachelor Degree Program	3	A	人工智慧	Artificial Intelligence	This course introduces the basic concepts and applications of artificial intelligence, including expert systems, neural-like networks, fuzzy systems, genetic algorithms, and other basic principles.	介紹人工智慧之基本概念,包括專家系統,類神經網路,模糊系統,基因演算法等基本原理及應用.	4	Elective Course	航運管理學系進修學士班資訊管理組	SDG9
2021	Contiuning Education Bachelor Degree Program	4	A	專家系統程式設計	Programming Expert Systems	Combining PROLOG and expert systems, emphasizing practical techniques and PROLOG implementation.	結合PROLOG與專家系統，強調實務技術及PROLOG實現。	4	Elective Course	航運管理學系進修學士班資訊管理組	SDG9
2021	Contiuning Education Bachelor Degree Program	4	A	資訊系統規劃與設計	Information System Planning and Design	This course is designed to provide students with an understanding of the basic concepts of information system planning and the role of information system planning in information system development.	本課程，旨在使學生瞭解資訊系統規劃的基本概念與資訊系統規劃在資訊系統建置中所扮演的角色，以理論配合與實務介紹資訊系統開發過程中，各階段應注意事項及其成功關鍵因素，使學生能對資訊系統建置有一整體概念。	4	Elective Course	航運管理學系進修學士班資訊管理組	SDG4、SDG11、SDG12、SDG17

Year	Program Type	Grade	Class	Chinese Course Title	English Course Title	English Objective	Chinese Objective	Credit	Course Character	Department/Institute	Corresponding to SDGs projects
2021	Contiuning Education Bachelor Degree Program	3	A	作業研究	Operation Research	(1) Learn to apply extended types of linear planning (including transportation problems, assignment problems, and introduction to integer planning concepts). (2) Learn about operational research network systems (including shortest path problem, minimum spread tree, maximum flow problem, CPM and PERT). (3) Introduction to game theory and decision theory (single strategy and mixed strategy models, risk and uncertainty decision).	(1)學習線性規劃運用延伸類型(包含運輸問題、指派問題，整數規劃概念介紹)。 (2)學習作業研究網路系統(包含最短路徑問題、最小展開樹、最大流量問題、CPM跟PERT)。 (3)賽局理論與決策理論介紹(單一策略及混策略模型、風險及不確定性決策)	2	Required Course	航運管理學系進修學士班資訊管理組	SDG9