

107 學年度第 1 學期第 1 次 校課程委員會議

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各系(所)中心新增課程中英文摘要

一、農學院

(一) 農學院：

國際花卉產業

2 選

本課程將討論全世界花卉作物的生產和行銷，重點在生產花卉作物的地點，控制環境生產的科學原理，以及如何加工和銷售花卉作物。

學習目標：

- (1) 了解當前的全球花卉市場
- (2) 了解生產優質花卉的原則
- (3) 了解採後處理如何影響花卉的保存期限。

International Floricultural Business

2 E

This course will discuss the production and marketing of floricultural crops in the world, with an emphasis on where floricultural crops are produced, the scientific principles of controlled environment production, and how floricultural crops are processed and marketed.

Learning Objectives:

- (1) Understand the current global floriculture market.
- (2) Learn the principles of producing top quality flowers.
- (3) Know how postharvest practices affect the shelf life of flowers.

生涯規劃與成長

2 選

本課程討論的主題是提高意識和認同，發展潛力，理解團隊合作的力量，理解平衡工作和個人生活的重要性，提高生活質量，有助於實現夢想和願望。

學習目標：

- (1) 學生將制定個人發展目標
- (2) 學生將學習非技術/軟實力的重要性
- (3) 學生將參加職業規劃。

Growth and Empowerment

2 E

This 1-credit course discusses topics that improve awareness and identity, develop potential, understand the power of teamwork, appreciate the importance of balancing work and personal lives, enhance the quality of life and contribute to the realization of dreams and aspirations.

Learning Objectives:

- (1) Students will develop personal development targets
- (2) Students will learn the significance of non-technical/soft skills
- (3) Students will participate in career planning

(二) 森林系：

環境教育

2 選

吳幸如 上

本課程介紹環境教育的定義、目標與發展歷史，並提供同學以環境科學和人文的觀點

為基礎，瞭解人與環境之間的複雜交互作用，並能夠關切及探索從本土到全球所面臨的各種環境危機和議題，以獲得所需的知識、技能和價值觀。環境教育是一種教育過程，故課程中也將透過對話交流與互動討論的回饋機制，激發學生發展有意義且與生命經驗相關的學習，從而體悟到知識、價值、行動與情感的內在關連，以培養出具備環境行動的公民。

Environmental Education

2 E

H. J. Wu, F

This course will introduce the definition, objective and history of environmental education. Students will learn to understand the complicated interaction between human beings and environments and the related issues through the science and human dimension perspectives. Students are also encouraged to explore and concern various local or global environmental issues and crisis to increase the required knowledge, skill and values. Environmental education itself is an education process. Thus, the course will also involve comprehensive class discussion to inspire students developing meaningful and life-experience related learning for understanding the connection between knowledge, values, action and emotion, and then cultivating a citizen with environmental action.

環境倫理

2 選

吳幸如 下

全球自然資源因人類的不當開發與濫用，已逐漸貧乏；汙染造成的氣候變遷與暖化也已導致地球許多環境遭受前所未有的衝擊。攸關如何阻止地球環境持續惡化的難題，非僅靠科技宣導可解決，需要人類體現對環境的核心價值認同後，才能進而啟發積極的行動力。環境倫理課程，即以哲學與倫理的觀點在探討何為環境價值、人在環境中該扮演何角色、各項環境議題該如何解決等。課程內容主要介紹環境倫理以及環境議題；進行方式將以講座授課、閱讀與課堂研討。盼能啟發學生對環境倫理的認識與重視、建立環境意識、學習分析環境議題與思考解決方案。

Environmental Ethics

2 E H. J. Wu, S

Global natural resources have been decreasing due to unwise development and overuse. Climate change and warming caused by pollution has led to tremendous impact on earth. Solution regarding how to stop the degradation of earth environment depends not only on technology but on the acknowledging about the basic value of protecting the environment. As such further movement can be activated. This course aims to let students discuss our roles in the environment, ways of dealing with the environmental issues and value of our living world by the viewpoint of philosophy and ethic. The contents of this course is to introduce environmental ethic and issues by lecturing, reading and discussion. In the end, students can get a better understanding and appreciation on environmental ethic, have a sense of environment, and learn how to analyze the issue and come up with solution.

環境教育教材教法

3 選

吳幸如 上

本課程旨在介紹推行環境教育所需的各項教材和教學方法。課程目標除了讓學生了解環境教育的目標，原理與實務之外，並希望將由淺入深地引導學生應用基本的環境教育理念，逐步設計及評析環境解說作品之成效，並且轉化環境科學研究資料或文獻，發揮創意，發展及設計各種環境教學和活動計畫。此課程期許學生能落實“Think globally, act locally”的環境行動，藉由其獨立的環境解說方案發展，以關切本土及全球的生態保育和環境教育課題，並提升環境教育之實務操作與推廣的能力。

Teaching Methods and Material in Environmental Education 3 E H. J. Wu, F

This course introduces a series of methods and material required for performing environmental education. The objectives are not only to improve students' understanding about the purposes, theories and practices, but also gradually lead students to apply the basic concepts to design and evaluate interpretative works, and to transfer scientific information or literatures into various environmental education programs. We expect students to implement the "Think globally, act locally" concept through improving their awareness and concern on the biological conservation and issues of environmental education, along with enhancing required skills and ability in outreach programs.

傳統生態知識

2 選

吳幸如 上

「傳統生態知識」是一門結合人文與自然科學的跨領域學門，源自於先民長期與自然學習共處所累積的生活智慧。近年來有愈來愈多先進國家將傳統生態知識廣泛應用在不同領域，除可保存文化多樣性外，還可提升生物多樣性，如里山環境經營、生態旅遊，以及國家公園的自然資源管理等。可惜過去在台灣並未受到大眾的重視，而逐漸喪失。

本課程主要透過對傳統生態知識的了解，讓學生能重視並學習靈活應用。授課內容主要為不同層級傳統生態知識的內涵與全球各地之應用實例，如藥學、特色產業或休閒旅遊等。課程中將特別分享台灣原住民族獨有的傳統生態知識，除介紹傳統日常生活(建築、食物、狩獵、藥用...等)中所應用的在地動植物生態知識外，亦包括原住民文化中對自然生態的信仰、傳說與永續利用的經營管理哲學等，以期學生能從中發掘台灣在地文化特色的亮點。本課程授課方式以課堂講述為主，但為使學生印象深刻，將盡量以實物展示或分享實際案例。傳統生態知識之應用體驗，則另在實習課程中進行。

期許本課程能讓學生從了解到認同傳統生態知識的價值，進而尊敬多元文化，並學習原住民祖先從自然而學來的謙卑知足、與自然共生共榮的永續生存之道。

Traditional Ecological Knowledge

2 E

H. J. Wu, F

"Traditional Ecological Knowledge" is a cross-disciplinary study that combines with humanities and natural sciences, derived from the wisdom of life accumulated by the ancestors' long-term learning within nature. More and more advanced countries have applied traditional ecological knowledge to keep and increase the cultural diversity and biodiversity on different fields, such as Satoyama environmental management, ecotourism, and natural resource management of National Parks recently. It is a pity that in the past, it was gradually lost in Taiwan without being valued by the public.

This course is designed to enable students to value and learn to apply flexibly through the understanding of traditional ecological knowledge. The content of the lectures is mainly the definition of traditional ecological knowledge at different levels and application examples around the world, such as pharmacy, agriculture or recreation. In the course, the traditional ecological knowledge unique to Taiwan's aboriginal people will be shared. In addition to introducing the local ecology of flora and fauna applied in traditional daily life (construction, food, hunting, medicinal, etc.), it also includes Aboriginal culture. The beliefs, legends and sustainable management of the natural ecology, so that students can explore the highlights of Taiwan's local cultural characteristics. The course is taught in a class, but in order to impress the students, they will try to show or share the actual cases in kind. The application experience of traditional ecological knowledge is also carried out in the internship course.

This course is designed to enable students to recognize the value of traditional ecological knowledge, to respect multiculturalism, and to learn the humility of the aboriginal ancestors learned from nature and the eternal survival of coexistence with nature.

傳統生態知識實習

1 選

吳幸如 上

本課程主要讓學生實際操作或體驗傳統生態知識的內容與應用。

預計將透過傳統工藝工作坊參訪與學習、傳統技藝實作，以及部落旅遊操作與體驗、石版屋體驗等方式，傳授涵蓋傳統知識在日常生活中所應用的在地動植物知識、信仰，以及自然資源管理系統。重點包含傳統氣象學的應用(如何觀察天氣變化)、傳統野外求生學(包含無具野炊、如何取得火種與水源、野生可食植物辨識、簡易狩獵技巧..等等技巧)、狩獵分區管理實務、傳統農耕技巧、飲食文化，以及釀酒與編藤工藝等。

Practice of Traditional Ecological Knowledge 1 E

H. J. Wu, F

This course is designed to allow students to actually operate or experience the content and application of traditional ecological knowledge.

It is expected to teach local knowledge of flora and fauna, beliefs, and nature resource management system that traditional knowledge is used in everyday life through visiting the traditional craft workshops, practicing traditional skills, designing and operating tribal travel. The focus includes traditional meteorological applications (how to observe weather changes), field survival (including no wild donkeys, how to obtain fire and water sources, wild edible plant identification, simple hunting techniques, etc.), traditional hunting areas management and practices, traditional farming techniques, food culture, winemaking and rattan crafts.

原住民族與自然資源管理

3 選

吳幸如 下

本課程主要希望學生對台灣原住民族及其特有文化有基本的認識，並進而了解原住民族傳統自然資源管理系統的內容，及其相關文化對自然資源保育的重要性，與其如何能有效提升生物多樣性、達到資源永續目的的原理。課程內容主要為：台灣原住民族介紹、相關共同管理學理概論、世界自然資源共管實例介紹、台灣原住民族的自然資源管理系統，以及自然資源共管模式在台灣實施的現況與未來發展的趨勢等，共五個部分。

期許學生能透過本課程能具備寬廣的國際觀，了解國際自然保育管理趨勢。更希望能進一步引發學生對於原住民族文化的尊重、找回人類天性中與自然資源間的情感和連結，以及對山林自然資源永續議題的關懷。

課程進行方式除課堂講述外，也將安排學生到鄰近部落進行實地參訪，以對實際的應用有更深刻的體悟。

Indigenous Peoples and Management of Natural Resources

3 E H. J. Wu, S

This course mainly hopes that students have a basic understanding of Taiwan's aboriginal people and their unique cultures, and then understand the contents of the traditional natural resources management system of the aborigines, and the importance of its related culture to the conservation of natural resources, and how it can effectively improve biodiversity and reach the goal of resource sustainability. The course content is mainly five parts: introduction of Taiwan's aboriginal people, relevant management theory, the world's natural resources co-management case study, natural resource management system of Taiwan's aboriginal people, and the current situation and future development trend of natural resource co-management mode in Taiwan.

Through this course, students are expected to have a broad international outlook and understanding of international conservation management trends. It is hoped that students will be further encouraged to

respect the aboriginal culture, to find the emotions and connections between human nature and natural resources, and to care for the sustainable issues of natural resources in the mountains.

In addition to the lectures, the course will also arrange for students to visit the neighboring tribes to gain a deeper understanding of the actual application and action.

(三) 水產養殖系：

水產儀器操作與原理(核心課程) 2 選

本課程教授水產養殖實務、應用及研究過程中，會使用的相關儀器的介紹、操作及原理，包括螢光顯微觀察系統、聚合酶連鎖反應儀、即時聚合酶連鎖反應儀、多槽溫控式核酸增幅儀、電泳膠影像攝影系統、全波長酵素免疫分析儀、染色體照相及核型分析系統、自動生化分析儀、紫外光可見光分光光譜儀、螢冷光顯像接收分析系統、細胞電穿孔儀、蛋白質等電化學分析儀、高效能液相層析儀、自動樣品注射器、原子吸收光譜儀、氣相層析儀、自動血液分析儀及水產科技飼料實習廠內設備等。

Theory and Operation of Aquacultural Instruments 2 E

This course is designed to teach the fundamental theory and operation of instruments involved in aquacultural practices, researches and applications. The instruments include fluorescence microscopy system, polymerase chain reaction (PCR) machine, real-time PCR machine, gel digital imaging analyzer, enzyme-linked immunosorbent assay (ELISA) reader, chromosome image and karyotype analysis system, automated clinical chemistry analyzer, UV/visible spectrophotometer, fluorescence/chemo luminescence imaging analyzer, electroporator, IEF system, HPLC system, autosampler, AA spectrometer, and equipments in the feed mill.

物聯網基礎與養殖產業應用(微型課程) 1 選

本課程主要教授學生目前最新的物聯網相關技術，包括各種感測器簡介及應用、物聯網技術簡介及應用，以及巨量資料分析技術簡介與應用，期望能夠讓學生具備物聯網相關技術基礎概念，並思考如何應用於水產養殖產業。

Internet of Thing and Application in Aquaculture 1 E

This course introduce the latest technique related to internet of thing (IoT) including the theory introduction and application on environmental sensor, communication method and big data analysis. The object of course is aimed to cultivate student to possess the basic concept of IoT and ability of planning for the application of IoT in aquaculture industry.

智慧水產養殖(微型課程) 1 選

藉由感測、物聯網技術、巨量資料分析、自動化設備的完整裝置，水產養殖產業將可能達到智慧化生產的階段。本課程主要教授智慧化生產的各階段知識，及應用在水產養殖產業之現況，培養學生具備智慧化養殖的基礎知識及觀念。

Intelligent Aquaculture 1 E

Intelligent production in aquaculture may be conducted by integrating sensing, internet of thing (IoT), big data analysis and intelligent automatic equipment. This course introduce the knowledge and the application at present related to intelligent production in aquaculture, and cultivate the student to possess

the basic knowledge and concept of intelligent production in aquaculture.

(四) 木材科學與設計系：

綠產品開發應用(特色課程)

2 選

本課程設計的重心在於讓學生了解材料的製作過程，和材料在環境中所產生的物性及化性變化，並以此為基礎，了解材料製程、性質與微結構與環境的關係，並透過案例、讓學生產生具體印象。課程內容包含了：綠色環保材料、綠色材料技術與品質材料、多元化綠色材料應用設計、廢棄物減量與資源化。

Green Product R&D

2 E

The focus of this course design is to allow students to understand the material production process and the physical and chemical changes that the material generates in the environment. Based on this, the relationship between the material process, nature, and microstructure and environment will be understood. Let students have a specific impression. The course content includes: green environmental protection materials, green material technology and quality materials, diversified green material application design, waste reduction and resource utilization

綠產品開發應用(深碗課程)

1 選

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材料工程概論(微型課程)

1 選

本課程主要針對各種材料（金屬、陶瓷、高分子、複合材料）之基本原理，性質及應用，做概要性的介紹。內容包括材料之晶體結構與晶體缺陷，固體材料之原子擴散，相圖與相變化，材料製程及應用，材料之物理性質（光性質、電性質、磁性質及熱性質），材料之機械性質（強度、延展性、硬度、韌性、疲勞、潛變），材料之強化機構與方法。

Introduction to Materials Engineering 1 E

This course is designed to provide a general introduction to the basic principles, properties and applications of various materials (metal, ceramic, polymer, composite materials). The contents include crystal structure and crystal defects of materials, atomic diffusion of solid materials, phase diagram and phase change, material process and application, physical properties of materials (light properties, electrical properties, magnetic properties and thermal properties), mechanical properties of materials (Strength, ductility, hardness, toughness, fatigue, creepe), material strengthening mechanism and method

創新生產品質管理(微型課程) 1 選

本課程以生產技術之品質管理為主。目標在能透過品質管理的觀點反饋在生產線上可能遭遇之問題，並提供生產線上即時解決方案之創新思考，進而提升產品質與優化生產流程。

Innovative Production Quality Management 1 E

This course focuses on the quality management of production technology. The goal is to provide feedback on issues that may be encountered on the production line through the point of view of quality management, and provide innovative thinking on the immediate solution of the production line to improve product quality and optimize the production process.

纖維利用(特色課程) 1 選

本課程將介紹生物纖維材料之種類和相關技術如工藝，材料選擇和配方。生物纖維材料利用常以生物複合材料為主，通常結合木材或的農業纖維（如苧麻，亞麻，小麥，鐘麻等）與熱塑性聚合物。本課程將提供相關的知識和技術如：1.製作和設計的高性能生物纖維複合材料 2.控制纖維的形式，形態和長寬比 3.實現適當的分散性和相容性之生物纖維 4.利用成本效益，質量控制，和可持續的天然纖維。

Bio-Fiber Utilization 1 E

This course will introduce the types of biofiber materials and related technologies such as process, material selection and formulation. Biofibrous materials are often made from biocomposites, usually combined with wood or agricultural fibers (such as ramie, flax, wheat, kenaf, etc.) and thermoplastic polymers. The course will provide relevant knowledge and techniques such as: 1. Production and design of high performance bio-fiber composites 2. Control of fiber form, morphology and aspect ratio 3. Biofibers 4. to achieve proper dispersion and compatibility Use cost-effective, quality control, and sustainable natural fibers.

家具設計實務(核心課程) 2 選

本課程以家具產品開發設計實務課程為主。目標是讓海外實習學生能學以致用。課程主要著重於引導學生從設計、委託製造方案到家具成品之完整設計過程的觀念。進而提高赴海外工作興趣，以期培育具有國際觀及實務經驗的專業從業人。

Furniture Design Practice 2 E

This course focuses on furniture product development and design practice courses. The goal is to enable overseas interns to apply their knowledge. The course focuses on the concept of a complete design process that guides students from designing, commissioning a manufacturing solution to a finished furniture product. This will further increase interest in overseas work and cultivate professional practitioners with international perspectives and practical experience.

創新生產品質管理(核心課程) 2 選

本課程以生產技術之品質管理為主。目標在能透過品質管理的觀點反饋在生產線上可能遭遇之問題，並提供生產線上即時解決方案之創新思考，進而提升產品質與優化生產流程。

Innovative Production Quality Management 2 E

This course focuses on the quality management of production technology. The goal is to provide feedback on issues that may be encountered on the production line through the point of view of quality management, and provide innovative thinking on the immediate solution of the production line to improve product quality and optimize the production process.

家具加工實務(微型課程) 1 選

本課程以家具工法單元訓練為主，教導學生熟悉各種手工具及木工機械之作業法。使同學具備簡易的木材加工技能，以從事簡易木材加工工作，並達家具木工丙級技術士的技能，俾應用於木質工藝製造工程上。

Furniture processing practice 1 E

This course is based on training in furniture engineering methods and teaches students to be familiar with the operation of various hand tools and woodworking machines. Students are provided with simple wood processing skills to engage in simple wood processing and reach the skills of Class-C technicians in furniture woodworking, and they are used in wood-based manufacturing engineering.

木材加工創新管理實務(微型課程) 1 選

本課程規劃以邀請業界之生產部門、生產技術部門、生產業作業規劃，品管業務與包關運送等專案人員來進行現場作業分享。並安排現場實習導覽體驗讓學學們能夠實際的瞭解線上作業之各項任務之重點，讓同學快速與產業接軌。

Wood Processing Innovation Management Practice 1 E

This course plans to invite the industry's production departments, production technology departments, production operations planning, quality control business and customs clearance and other project personnel to share on-site operations. And arrange on-site internship navigation experience so that the students can understand the key tasks of the online operation, so that students quickly integrate with the industry.

設計取經實務(微型課程) 1 選

因應海外台商家具產業普遍缺少設計與開發人才尤其是產品經理人的觀念。本課程將邀請產業界之設計師來校進行設計分享。內容包括設計專案的啟動，設計師怎樣做設計、業界設計師的日常、設計比賽大觀園、手做工藝設計的方法，工藝設計體驗課程等。

Learn from the Design masters 1 E

In response to the general lack of design and development talents of overseas Taiwanese furniture industry. This course will invite designers from industry to come to school for design sharing. The content includes the start of the design project, how the designers do the design, the daily design of the industry designer, the design competition, hand-crafted design methods, process design experience courses.

(五) 生物科技系：

智慧財產權(核心課程)**2 選****徐志宏、上**

本課程主要介紹智慧財產權的基本常識、重要性、規定、申請及使用等相關技巧，始能在參與產業發展的過程中尊重及善用智慧財產權。課程內容包括智慧財產權之基本知識及法規、創新與保護的重要性、專利價值與策略、專利查詢、技術調查與管理、專利組織、專利申請、專利審查機制及實施與案例討論等。

Intellectual Property**2 E****D. J. H. Shyu , F**

This course is designed to introduce the basic knowledge and importance of intellectual property. The techniques of using patents and apply for a patent are also intended to be trained in this course to respect and take advantage of intellectual property. The content includes the basis and laws of intellectual property, the importance of innovation and protection, patent value and strategy, patent search, technology investigation and management, patent office and organization, patent application, patent pending and case discussion.

生物科技與六級農業(深碗課程)**1 選****周映孜、上**

生物科技應用範圍涵蓋農業，隨著六級農業的推廣兩者間相輔相成，不但可以協助一級農業的生產，提升二級農業的加工，更能透過三級農業的服務擴散效益，讓同學在往後的基礎課程中可以明白生物科技的重要與未來。課程中將增加學生操作與互動課程增加上課內容的活潑性。

The Sixth Industrialization for Biotechnology and Agricultural 1 E Ying Tzy, Jou, S

The application of biotechnology covers agriculture, with the promotion of the sixth industrialization for complement each other, how to help the production of primary agriculture, improve the processing and distribution, and also provide benefits to the students through the diffusion of benefits from agriculture. After this course, students can understand the importance and future of biotechnology. Courses will increase student activity and interaction courses to increase the liveliness of the content.

食品安全風險溝通與教育(微型課程)**1 選****吳敏華、下**

食品安全不存在零風險，因此了解風險及危機的特性與結構，掌握洞察風險與危機的先機，才能將風險與危機所造成的可能損害降至最低合理與最低範圍。危機處理的目的不只為解決眼前問題，還要能在危機中看到未來機會，掌握契機，主動創新求變，獲取成長。本課程將學習面對食品安全風險和危機時必須能洞察先機、掌握風險，在危機發生前，採取預防措施；危機發生後掌握媒體溝通關鍵，降低危機擴大的可能。

Food Safety Risk Communication and Education 1 E Min- Hua, Wu

There is no zero risk in food safety. Therefore, understanding the characteristics and structure of risks and crises, and grasping the opportunities and risks of crisis, can reduce the possible damage caused by risks and crises to the minimum reasonable and minimum range. The purpose of crisis management is not only to solve immediate problems, but also to see future opportunities in the crisis, grasp the opportunity, actively innovate and change, and gain growth. This course will learn to face the opportunities and risk in the face of food safety risks and crises. Take precautionary measures before the crisis occurs. After the crisis, grasp the key to media communication and reduce the possibility of crisis expansion.

食品安全危機處理(微型課程)**1 選****吳敏華、下**

現今食安事件一再發生，許多國家紛紛透過立法及建立專責機構，強化對現代食品之監督管理。面對複雜的食物安全風險，風險溝通與教育是進入食品安全生活以及保障我們安全最重要的一個課題。本課程以科學為基礎，學習食品安全風險發生前的教育宣導和風險發生後如何積極與大眾溝通之策略。課程中將學習以生活化方式，宣導民眾所關心的公共議題，使民眾對於與我們日常生活中相關的食品安全議題有更深入的了解。食品安全資訊需要客觀的安全和主觀的安心，安全是科學、安心是人性，中間的轉換需要透過正確傳播模式將訊息傳遞到消費者、政府和業者手中。

Food Safety Crisis Management

1 E

Min- Hua, Wu

Nowadays, food safety incidents have occurred repeatedly. Many countries have strengthened their supervision and management of modern food through legislation and the establishment of specialized agencies. In the face of complex food safety risks, risk communication and education are the most important issues in entering a safe food life and safeguarding our safety. This course is based on science and learns about the pre-existing education of food safety risks and how to actively communicate with the public after the risk has occurred. In the course, we will learn to publicize the public issues that people care about, so that people have a deeper understanding of the food safety issues related to our daily lives. Food safety information requires objective safety and subjective peace of mind. Safety is science, peace of mind is human nature, and intermediate transformation requires the transmission of information to consumers, governments and operators through the correct mode of communication.

應用微生物(核心課程)

2 選

陳又嘉、上

本課程主要介紹食用真菌與其他可應用於農工業的微生物。授課內容主要包括靈芝、巴西蘑菇、香菇、雲芝、蟬花、蟲草、茯苓等菌類，其形態分類、有效成分分析，並介紹其調節身體機能的可能機制；此外，酒類釀造、乳製品發酵、有機酸與甜味劑之生產，其相關微生物與生理特性，及工業中微生物可開發生產的酵素及其作用機制，也將在課程中介紹。

Applied Microbiology

2 E

Y. C. Chen , F

The course discusses edible fungi and the application of those useful microorganisms in agriculture and industry. The morphology and identification of mushrooms interested are introduced. The possible mechanisms of human physiology regulated by bioactive compounds of fungi are also discussed. Besides, the microorganisms related to organic acids, sweeteners, and enzyme production, brew and milk fermentation are also discussed in this course.

化妝品概論與應用(含實作)(核心課程)

2 選

施玟玲、陳秀足

使用化妝品目的在用以潤澤髮膚，刺激嗅覺，掩飾體臭或修飾容貌，產品琳琅滿目。本課程內容包含化妝品化學、化妝品品質檢驗、傳統及新穎化妝品類型及實例以及化妝品產業實務，能將學理與實務無縫接軌，培養獨立思考能力。

Concept and Application of Functional Cosmetic

2 E

W. L. Shih F

The aim of cosmetics usage is to moisturize the skin and hair, stimulate smells, hide body odor and face modification, therefore, a comprehensive collection of products had been developed. The course content includes cosmetics chemistry, cosmetics quality control inspection, traditional and novel cosmetics, as well as cosmetics industry. This course helps students combining the rationals and practices, and also develop independent thinking ability.

生物學跨領域之創意與創新 **2 選** **顏嘉宏(+業師)**

本課程由教師及業師講解生物學整合性、多面向的相關知識，例如動物、植物、生態、細胞、人體等，再導入五創的概念，即創意、創新、創造、創藝、創業，讓學生選定其有興趣之題目，進行問題/產品導向的教學(PBL 教學法，Problem/Product based learning)，並協助學生將學習成果撰寫成報告及後續的商品化。

Multidisciplinary Innovative and Creative Application of Biology **2 E assigned, S**

This course will provide the integrated biological knowledge, such as animal, plant, ecosystem, cell biology, and human physiology, and the concept of innovation by teachers from Dept. Biological Science and Technology, and from various industries. Students will do the Problem/Product based learning to complete his/her report and commercialize his/her product if possible.

分離科學及實習 **3 選** **徐睿良、下**

分離科學在科學與技術領域、甚至化學及生技產業上扮演舉足輕重的角色。本課程的目的為介紹各式新舊分離技術之原理及其應用範圍，同時藉由實際操作，使同學學習如何將分離科學應用於生物科技領域。

Separation Science & Laboratory Practice **3 E** **J. L. Hsu, F**

Separation is an old yet new technology, plays a key role in various fields of science and technology as well as in chemical- and bio-industries. The aim of this course is not only to provide an overview of separation science but also to offer laboratory practice for their practical application, especially, to biotechnology.

(六) 植物醫學系：**生物防治實習** **1 選** **華真、下**

本實習課程目的，讓學生在實際操作中觀察，捕食性天敵及寄生性天敵與微生物對有害生物的抑制作用，進而到田野實際觀察，不同作物田，天敵發生種類及數量與限制因子之分析。建立學生對生物防治操作之整體概念

Practice of Biological Control **1 E** **T. Hua, S**

The purpose of this course is to allow students to observe, in actual practice, the predation of predatory natural enemies and parasitic natural enemies and microbial inhibition of pests, and then to the actual observation of the field, the analysis of the types, quantities and limiting factors of natural enemies in different crop fields. Establish a student's overall concept of biological control operations.

創意與創新 **2 選** **謝如梅、下**

本課程主要講授創意與創新的過程以及新事業的發展歷程，將介紹如何運用創業精神、創意和策略思維來發展創新產品與服務，旨在啟發同學對於創意與創新的興趣與熱情。本課程的主要教授主題包括創業心智與創造力、創新機會辨識、設計思考概念與演練、創業計劃書的撰寫、團隊合作演練。

Creativity and Innovation **2 E**

This course studies the process of creativity and innovation and its central role in new emerging ventures. This course will give an introduction to how new product and service are developed by applying entrepreneurship, creativity and strategic planning. The purpose of this course is to inspire the interest and passion of creativity and innovation. The entrepreneurial mind and creativity, opportunity recognition, design thinking, the resources of developing a business plan, and team building will be covered in this course.

創意與創新實務(微型課程) 1 選 謝如梅、下

本課程主要目的在介紹創意激發與創新管理之相關實務議題，主要內容包括創新的價值、創意的來源、創意的篩選、創意的具體化、及新產品開發等相關課題。課程要求包括：課程討論、創新構想提案、創新實踐等。

The Practice of Creativity and Innovation 1 E

The purpose of this course is to introduce important concepts and implementation in concept generating and innovation management. Course contents include value of innovation, concept generation, concept screening, concept development and testing, and new product development etc. Course requirements include discussion, proposal of innovation ideas, and innovation practice.

生物材料與智財 2 選 薛招治、下

本課程針對生物材料的創新保護，提供一系統性、整體性的智財法觀念架構介紹，並以案例解析的方式來呈現如何利用智財法保護生物材料相關創新。課程內容主要介紹智慧財產權法律包含專利、商標、著作權及營業秘密之基本概念與案例應用，使學生瞭解不同類型的創新應以何種智財法保護。並希望學生能透過專利分析檢索及演練，訓練學生具備生物材料創新研發前的創意蒐集能力，接觸國內外最新的資訊與技術。

Biological Materials and Intellectual Property 2 E C. C. Hsueh,S

The purposes of this course aims at providing a systematic and holistic introduction to the concept of intellectual property law, and using case analysis to demonstrate how to use intellectual property laws to protect biomaterial-related innovations. The course content mainly introduces the basic concepts and case applications of patents, trademarks, copyrights and business secrets in the intellectual property rights law, so that students can understand what type of innovation should be protected by intellectual property laws. It also hopes that students can use patent search and patent analysis to train students to have the ability that collecting technology reference prior to research and development of biomaterials and contacting the latest information of biomaterial technologies.

農業藥劑安全應用與評估(微型課程) 1 選 林宜賢、下

本課程主要利用問題導向式的學習方式授課的微型課程。課程內容含農業藥劑概述、文獻搜尋、網頁資料分析以及藥效評估與人體安全評估等實務操作。本課程擬針對不同的作物為主題，評估選用農業藥劑於植物病原微生物及農業害蟲防治時該注意的作用機制與用藥安全。

Safety Application and Evaluation of Pesticide 1 E Yi-Hsien Lin, S

This is a mini course which teaches by using problem based learning model. This course will provide the basic introduction of pesticide, literature review, and webpage data analysis. In addition, this course

contains the practical training on assessments of pesticide efficacy and human safety. The purpose of this course will focus on the application of pesticide on different crops. Finally, students need to present the best way on pest control according to the mode of action and safety of pesticides.

(七) 食品科學系：

新興食品加工技術

2 選

本課程論述新型及非傳統的食品加工方法和(或)以新奇概念整合現存的加工方法，藉以追求更經濟的方式生產更好品質的食品，講題包括：新奇的熱加工方法，新奇的熱加工媒介等；同時，課堂上也會討論使用某些非熱加工技術或包裝技術來保護食品品質。

Emerging Technologies for Food Processing

2 E

This course illustrates new and non-conventional food processing methods, and/or integrate current processing methods through novel conceptions to produce foods with a higher quality using better economic approaches. The topics include novel methods for thermo-processing, novel materials for thermo-processing, etc. This course will also discuss the uses of non-thermo processing technologies or packaging technologies to protect the quality of food products.

基因改造食品檢驗技術

2 選

本課程邀請產、官、學的學者專家，傳授食品與飼料中存在基因改造作物成分的最新檢測技術，學員將可學到檢測基因改造作物所需要的分生及生化檢測技能，協助基因改造食品管控實驗室建立適當的設備與檢測方法，以及設立相對應的驗證方法，做為檢測、確認、定量基因改造作物的的應用。

Analytical Technologies for Genetically Modified Foods

2 E

This course will invite various scholars or specialists from industry, government, and academia to teach the newest analytical methods for determination of genetically modified organisms' components in foods or animal feeds. In this course, students will be able to learn required molecular biological and biochemical analytical techniques for determination of genetically modified organisms. After training, students will be able to help the genetically modified organism lab to set up proper equipment and analytical methods, and establish according verification methods for applications of determination, confirmation, and quantification of genetically modified organism.

農業發展與國際合作

2 選

本課程透視過去 50 幾年來台灣的農業發展，同時也指引下一個世紀新的發展方向，課程內容包括：土地改革政策、農業對外貿易與經濟發展、從農業經濟到工業經濟的轉型，以及國際合作。

Agricultural Development and International Cooperation

2 E

This course is to provide an insight of agricultural development of Taiwan for the past 50 years, and also point out its new direction for the next century. Its contents include: land reform programs, agricultural trade and economic development, transformation from an agricultural to industrialized economy, and international cooperation.

活性天然物特論**2 選**

本課程聘請不同活性天然物專長之學者專家，講授活性天然物產業之最新研究與發展，其中包括活性天然物萃取、分離、純化等技術，以及活性天然物功能之探討與產品開發，並依照授課內容，提供學生實作實習或業界參訪之活動，讓學生能將課堂所習之活性天然物知識與技術，實際動手應用於產品製作或親身體驗活性天然物產業的運作。

Special Topics in Bioactive Natural Products**2 E**

This course will invite various scholars and experts in the field of bioactive and natural products to teach the newest research and development in bioactive and natural product industry, including extraction, isolation, purification techniques of bioactive and natural products, functional studies and product development of bioactive and natural products. In addition to lecture in the classroom, the lecturer will also provide students with hand-on practice in the lab or field trip to visit bioactive and natural product industry. This course will allow students to utilize the knowledges and techniques learned in classroom for actually hand-on application of product manufacturing in the lab or to visit bioactive and natural product industry personally to observe and experience different technologies in factories.

農業與食品生技法規**2 選**

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。

Agricultural and Food Biotechnology Regulations**2 E**

Biotechnology has been introduced into agricultural products and food industry. Besides consolidation of innovation and R&D, optimization of agriculture and food industry to promote competitive capacity in the international market, increasing safety of agriculture, fish and livingstock products, promoting citizen health, developing sustainable agriculture have become important issues of agriculture and food biotechnology industry in our country currently. We have learned from dioxin and fipronil incidents of chicken eggs that both agriculture products and food processing may exist many health risks. Government should not only set up thorough laws and regulations to assure the safety of foods from farm to table, but also ascertain the source management starting from the initial stage of agricultural planting. Even perform the safety control of seeds and soils. In order to strengthen the self-management capability of agriculture products and food industry, reduce the cost of laws and regulations abundance, eliminate obstacles of law enforcement, and urge enterprises to be familiar with international regulation in order to increase their international competitive powers, we need to cultivate interdisciplinary talents and learn and amend the law and regulation environment of agriculture and food biotechnology industry. The goal of this course is to learn the laws and regulations of agriculture and food supplying chains. In order to connect to international market, this course also provide information of basic regulations and import-export controls of European Union and United States, and international

regulations of agriculture products and food biotechnology to promote the international competitive power of students.

科技事業經營策略

2 選

在現今的科技全球化(Globalization)下，科技產業中的企業經營和策略規劃面臨許多前所未有的挑戰，除了事業層級(Business level)的技術發展、商業化(Commercialization)的高度不確定性，因應長期研發投入的相關財務資源規劃(Financial planning)，加速產品及科技開發的速度(Time-to-market)，還需要深入的思考企業層級(Corporate level)的國際競爭策略(Competition strategy)，使研發成果獲得最高的市場價值，並在來自兩岸、亞洲、以及全球的競爭者對企業生存造成壓力之前，做好萬全的準備。

Business Strategy in High-technology Industries

2 E

Due to globalization of technology currently, scientific industry's business administration and strategy planning have faced many unprecedented challenges. Besides technology development of business level and extreme uncertainty of commercialization, the investments of financial planning to cope with long term research and development are required to speed up product and technology development. In addition, the enterprises also need to consider deeply about international competition strategy on the corporate level in order to obtain the greatest market value of their R&D fruits, and be fully prepared before the upcoming pressure of enterprise survival from mainland China, Asia, and global competitors..

食品加工特論與實習

3 選

本課程聘請不同食品加工專長之學者專家，講授食品產業之最新研究與發展，其中包括微生物醱酵、保健食品、乳品加工、肉品加工等，並依照授課內容，提供學生實作實習或業界參訪之活動，讓學生能將課堂所習之食品加工知識與技術，實際動手應用於產品製作或親身體驗食品產業的運作。

Special Topics and Practical Training in Food Processing

3 E

This course will invite various scholars or specialists with different specialties of food processing to teach the most recent research and development of food processing. The topics may include, but not limit to, microbial fermentation, health foods, dairy processing, meat processing, etc. In addition to lecture in the classroom, the lecturer will also provide students with hand-on practice in the lab or field trip to visit food industry. This course will allow students to utilize the knowledges and techniques learned in classroom for actually hand-on application of food manufacturing in the lab or to visit food industry personally to observe and experience different technologies in food factories.

食品科學海外專業實習

3 選

選送學生赴國外機構進行實習，以加強專業知識，擴展國際視野及增進外語溝通能力。

Career Training of Foods Science on Overseas Institute

3 E

The students will have internship training at overseas institute. During the training, the students will enhance their background knowledge of food science, broaden their global vision and improve their communication ability..

食品生鮮處理技術**3 選**

本課程在探討生鮮食品市場之食品處理技術，其內容包括新鮮魚肉之性質、品質保持處理包裝及衛生安全；蔬果採收後之熟成老化、呼吸率之控制，寒害及腐敗之避免；以及生鮮食品進入市場前之處理、包裝、冷處理等鮮度保持法。

Post-Harvest Technology**3 E**

The course is designed to discuss the skill of treatment needed in the fresh food supply market including appropriate postharvest treatments, packaging and cold storage prior to the market. The subjects include the postharvest physiology of fruits and vegetables, control of respiration, chilling injury and decay through temperature, humidity, gas atmosphere storage, irradiation and edible film technology. The characteristics of fresh meat, seafood and milk are also covered besides quality maintenance, package and sanitation..

食品生鮮處理技術實習**3 選**

本課程配合食品生鮮處理之課程來操作試驗，使學生能深入瞭解處理技術。其內容包括蔬果採收後之處理方法，如保鮮環境（溫度、濕度、氣體組成等）之條件；魚肉類鮮度判斷，影響熟成、自體分解、腐敗速率之因素試驗；生鮮材料之清淨、處理、調理包裝及貯存等實習。

Practice of Post-Harvest Technology**3 E**

The course is designed to match the lecture of “Postharvest Technology” and make students understand the typical technique required in cleaning, package, storage and quality analysis. The skills included the postharvest treatment of fruits and vegetable (proper handling such as storage temperature, humidity, gas environment and edible film) and quality analysis; practices on the test of the freshness of meat, fish and milk. Factors influencing self-decomposition and decay of fish and meat etc. are also covered.

新產品開發與實習**3 選**

本課程主要介紹開發新產品之步驟與方法。結合基本的食品化學、微生物和加工技術於新產品開發。課程並介紹如何應用電腦去設計食品配方。學生必須能夠把以往所學的知識結合與應用於新產品開發。

Food Product Development and Practice**3 E**

The objectives of this course included procedure new product development and the approach to achieve the R&D. The use of food chemistry, microbiology and food processing techniques were combined with the computer formulation methods to formulate new products..

二、工學院

(一) 機械工程系：

專題討論

1 選

本課程安排一系列演講，訓練學生熟悉學術研討會的情況，此為四學期課程，邀請校內教師或校外學者專家演講，或請研究生發表研究成果，後二學期，每一學生必須對其有關碩士論文主題作口頭報告。

Seminar

1 E

A sequence of lectures are arranged in the course to train the students to be familiar with the situation of a academic symposium or a conference. Basically, it is a four semester course. Some lectures are given by the teachers in the department or by the experts invited from outside the department. The lecture may also be given by graduate students who have certain solid concusions drawn from their research. In the last two semesters, each student is required to present on the topic involving his master thesis.

電腦數值控制工具機

3 選

介紹電腦數值控制工具機的基本構造，操作面盤的功能及使用，加工程式的傳輸，工作定位夾持，刀具選用及補正操作。經由實際加工，熟練電腦數控車床和銑床的操作，工件尺寸的測量，完成各類工件的精密加工。

Computer Numerically

3 E

The fundamental construct of a computer numerically controlled machine tool is introduced. The functions and operations of the control panel, the transfer of the manually or automatically created program, the positioning and fixture of a workpiece, the selection of tools and modified length or diameter of tools in machining process are practiced. By conducting the operations in CNC lathe and miller, and learning the measuring methods, most kinds of precision machined components can be achieved.

電腦數值控制工具機實習

1 選

介紹電腦數值控制工具機的基本構造，操作面盤的功能及使用，加工程式的傳輸，工作定位夾持，刀具選用及補正操作。經由實際加工，熟練電腦數控車床和銑床的操作，工件尺寸的測量，完成各類工件的精密加工。

Computer Numerically Controlled Machine Tools and Practice

1 E

The fundamental construct of a computer numerically controlled machine tool is introduced. The functions and operations of the control panel, the transfer of the manually or automatically created program, the positioning and fixture of a workpiece, the selection of tools and modified length or diameter of tools in machining process are practiced. By conducting the operations in CNC lathe and miller, and learning the measuring methods, most kinds of precision machined components can be achieved..

機電系統整合

3 選

本課程主要學習機電整合系統之相關元件及其基本架構。內容包括控制系統架構及微處理器控制系統介紹、機電特性簡介、運算放大器各種應用電路設計與信號調整、電力控制半導體、感測器、機電元件匹配與介面等。

Mechatronics

3 E

This course studies the basic practice of mechatronic system components and structures. It introduces basic control system components and configuration, from feedback control system structure and microprocessor-based control system to components realization such as mechanical system design, power driver circuits design and sensor selection; topics include interface circuits between the mechanics and electronics, operational amplifier design and signal conditioning..

機電系統整合實習

1 選

本課安排電腦實習及機電整合設備來輔助正課重點內容學習。實習設備包含：形狀判別與傳送設備、顏色辨別與姿勢調整設備、姿勢判別與換向設備、材質分揀與加工設備、重量判別與整設備等，並培養學生考取機電整合乙丙級證照並培育機電整合之人才。

Mechatronic Systems Practice

1 E

This course studies the basic practice of mechatronic devices and computer simulation lab is provided to assist major topics study. The devices include skill test unit for shape discrimination and transportation, skill test unit for color identification and status adjustment, skill test unit for status judgment and arrangement, skill test unit for material picking process, skill test unit for weight discrimination and arrangement, etc. The main purpose of this course is to cultivate our students to acquire the professional skills certifications of Mechatronics (Class B or C) from the Ministry of Labor, and train them to become fundamental engineer in mechatronic systems.

可程式控制器

3 選

本課程要旨為介紹近來工業界最常用之可程式控制器，其優點為精確、功能大、價格低、抗高溫及擴充性大。課程內容包括：控制器軟硬體介紹、撰寫程式、安裝及維修。

Programmable Logic Controller

3 E

The purpose of this course is to introduce the most-used programmable controller (PLC) in industries. The advantages of PLC are precision , easy-use , low-cost ,anti high-temp and easy-expand. The course includes as follow : Hardware and software of PLC,Programming of PLC,Maintaing and Installing of PLC.

可程式控制器實習

1 選

本課程要旨為訓練學生能實際操作可程式控制器之能力。包括，程式撰寫，週邊設備架設，系統安裝與維修。

Programmable Logic Controller Internship

1 E

The aim of this course is to develop the students with the ability of operating programmable controller. The course's subjects include the PLC programming , the peripherals setup, and systems installation and maintaing.

機電整合**3 選**

本課程主要學習機電整合系統之相關元件及其基本架構。內容包括控制系統架構及微處理器控制系統介紹、機電特性簡介、運算放大器各種應用電路設計與信號調整、電力控制半導體、感測器、機電元件匹配與介面等。

Mechatronics**3 E**

This course studies the basic practice of mechatronic system components and structures. It introduces basic control system components and configuration, from feedback control system structure and microprocessor-based control system to components realization such as mechanical system design, power driver circuits design and sensor selection; topics include interface circuits between the mechanics and electronics, operational amplifier design and signal conditioning.

機器人手臂的實務**3 選**

本課程內容在培訓學生具有工業機器手臂之實務技術，課程內容強調實作能力技術養成，包括工業手臂維修、保養、應用與實務設計。

手臂應用技術為主要重點內容，學習主題如下：

1. 工業機械手臂結合力覺感測技術
2. 工業機械手臂結合視覺感測技術
3. 工業機械手臂之 3D 量測技術
4. 工業機械手臂之組裝技術
5. 工業機械手臂之農產品深度加工技術。

The Techniques and Practices of Robot Arm**3 E**

The objectives of this course will train students with the practical skills and knowledge of industrial robot arm technique . The contents of practical learning are among robot repair , maintenance , control, application and design and so on. Above all, the learning in practice is the most important in this course . The topics of practical learning are as follows:

- 1.Robot arm with force sensor technique.
- 2.Robot arm with vision sensor technique
- 3.Robot arm applied to 3D measurement technique
- 4.Robot arm applied to ensembling technique
- 5.Robot arm applied to deep processes in the agricultural products.

人工智慧在機器人手臂的應用**3 選**

這門課程向學生介紹了人工智慧在機器人手臂的應用之基礎知識表達、解決問題和學習方法。幫助學生獲得在不同環境下是如何運用將人工智慧應用在機器人手臂。修完課程後，學生將具備以下的知識：人工智慧的理論是如何應用在機器人手臂上。

Artificial Intelligence Application in Robotic Arm**3 E**

This course introduces students to the basic knowledge representation, problem solving, and learning methods of artificial intelligence application in robotic arm. It helps students gain about how artificial intelligence applies to robotic arm under a variety of circumstances. Upon completion of this course, students should be able to understand how artificial intelligence theorems will be applied into robotic arm system.

(二) 水土保持系：**國際水土保持農學技術****3 選**

本課程介紹學生對於世界各地在水土保持農學研究趨勢，上課方式包括課堂講授及於假期赴國外研究機構參觀介紹農場規劃方式與控制農地土壤沖蝕之新技術，以提昇生產、經營與保育效率。課中將由授課教師或邀請專家介紹坡地農場經營原則、坡地灌溉排水及水土保持農藝方法等。

International Agricultural Technology of Soil and Water Conservation**3 E**

This course is designed for graduate students to realize international research trend on agricultural technology of soil and water conservation by classroom discussion and visiting foreign industry and academic institutions, such as slopeland farm management, new technology of soil erosion, and provide promotion for productivity, management and conservation efficiency. The course will be offered by assigned faculty and by experts to discuss about principles of slopeland farm management, slopeland irrigation and drainage, and effective soil and water conservation on agronomic methods etc.

(三) 車輛工程系：**車輛實務講座(1)****3 選****楊榮華 下**

本課程將外聘一些業界之工程師教導學生關於電動車底盤及動力系統之設計，加強設計與加工之實務能力，並透過實務型之技術探討及操作回饋，讓學生更了解電動車底盤及動力系統之理論與實務之結合。

Lectures on Vehicle Ppractice (1)**3 E****J.H.Yang S**

This course aims to the focuses on chassis and power train systems for electrical vehicles. Industrial researchers as well as engineers will be invited to participate in the teaching board. By way of the enhancement of practical capability of design and manufacturing, it will make more understandable to the students regarding the fusion between theory and practice through the feedback from technical discussion and operation.

車輛實務講座(2)**3 選****楊榮華 下**

本課程將延續車輛實務講座(一)之上課模式，邀請一些業界資深之工程師教導學生關於先進電動車智慧科技之實務技能，包括人工智慧、影像追蹤及識別、車道環境辨識、車聯網之通訊及自動駕駛等之實務知能。學生可藉由本課程之學習，熟悉關於人工智慧之感測元件及控制介面之設定、控制演算法之撰寫、以及自動駕駛車輛之基礎技能。

Lectures on Vehicle Ppractice (2)**3 E****J.H.Yang S**

This course is to continue Lectures on vehicle practice (1) which has been finished before. Some well-experienced industrial engineers will be invited in the teaching board. The issues concerning artificial intelligence, image tracking and identification, consciousness of lanes and driving environment, and internet of vehicles will be taught and experimented during the class. Based on the learning of such issues, the students would be familiar with intelligent sensing technology, programming of control interface, as well as fundamental Knowledge on autonomous vehicles.

(四)生物機電工程系：**智慧控制理論 3 選 張仲良，上**

本課程主要在於讓學生學習並利用智慧型演算法來克服較難以數學化的系統。內容將介紹模糊理論、類神經網路、以及遺傳演算法等相關控制方法；並藉由期刊論文研讀與討論，瞭解國內外研究發展方向，最終學生能使用電腦模擬來完成各種智慧型演算機制。

Intelligent Control Theory 3 E C.L. Chang, F

The content consists of up-to-date application techniques of engineering, including fundamentals of fuzzy logic control, neural network, and genetic algorithm etc. Examples intelligent control systems in industry. Students are supposed to work on intelligent control methods and apply it to the literature review related to bio-system and then propose project report in the end of semester..

Python 基礎及 Line bot 應用 2 選 陳建興/李文宗 下

本課程介紹 Python 初學者如何在計算機上設置 Python、Python 變量、Python 註釋、Python 程式中讀寫文件、機器學習及和 Line 機器人應用。學生將於學期末實現打造 Line 控制的機器人。

Python Basics and Line Bot Application 2 E C. H. Chen / W. T. Lee S

This course provides an overview for Python beginners, how to setup Python on your computer, Python variables, Python comments, reading, machine learning and writing files in Python and Line bot application. Students will realize a line bot in the end of semester.

智能化機電整合實務應用 1 選 陳建興/陳怡伶 下

本課程由授課教師與產學研專家共同授課，深入透析機電整合、數位訊號、控制系統及伺服馬達應用案例。以互動教學方式，強化學生智慧自動化系統的整合能力。

Smart Mechatronic Integration Application and Practice 1 E C.H.Chen/I.L.Chen S

The course will have taught by the instructors and experts of industry, universities, and research institutes to deeply analyze the application cases of electromechanical integration, digital signals, control systems and servo motors. With interactive teaching methods, students' ability to integrate intelligent automation systems is enhanced.

物聯網實作概論 1 選 陳建興/張持綜 下

本課程將說明保為物聯網，包含內容端點感知、通訊網路行動裝置及雲端物聯網，此課程可提升相關知識，了解物聯網的意義和重要性。

Introduction to The Internet of Things and Practice 1 E C. H. Chen/C. T. Chang S

This course is going to explain what internet of things represents, what it consists of Nodes, mobile device, cloud, also name some of the most important hardware which make it happen and try to give internet of things a proper understanding of its meaning and importance.

智慧型農業控制系統與應用 1 選 陳韋誠/李柏旻 下

本課程將介紹智慧型農業用機具及感測器等相關設備，內容包括：建置遙控設備、遠端遙控除草機進行田間除草作業、操作模式，此課程可提升學生智慧型農業控制能力。

Intelligent Agricultural Control System and Application 1 E W. C. Chen / P. M. Li S

This course will introduce intelligent agricultural equipment and sensors and other related equipment, including: the establishment of remote control equipment, remote weeding machines for field weeding operations, operation mode. With interactive teaching methods, students' ability to integrate intelligent agricultural control system is enhanced..

三、 管理學院

(一)資訊管理系：

資訊與網路安全

3 選

隨著電腦與網路傳訊技術為商業社會帶來革命性的發展，如何建構安全的資訊環境與提升顧客及企業夥伴的信任感，是資訊安全工作的任務和追求的目標。本課程以安全的服務、安全的機制、危害安全等面向，探討資訊安全的管理與技術課題。透過課堂講解、文獻研讀、個案討論及研究等教學方式，期使學生能認識資訊安全問題的嚴重性，並且學習資訊安全的管理規劃以及相關的安全技術與攻防技巧。

Information and Network Security

3 E

As computer and telecommunication are widely used, security issues become of great concern and are a leading barrier to widespread commerce on the Internet. However, without tackling the problem from a technical as well as a managerial view, the security problem could not be solved thoroughly. The purpose of this course is to help the students to gain an in-depth knowledge on issues regarding computer and network security services, security mechanisms, and security attacks. Topics will be covered including: computer security overview, physical protection, security management and planning, and ethical hacking techniques.

金融科技實務

3 選

本課程是針對金融科技及新金融產品與服務的趨勢與發展，希望透過課程的介紹，幫助學生了解科技數位金融的發展原因及發展趨勢、金融科技實務，以及金融科技行銷組和策略在新科技的協助下如何發展出新的運作模式。

FinTech Introduction

3 E

The purposes of the “FinTech Introduction” are (1) to introduce the fundamental concept and domain knowledge of the related information technologies and financial services, (2) to learn the technology of the related information technologies, and (3) to introduce the business concerns of the creative financial services and new kind of implementations. After studying this course, the students should have the concepts of FinTech and the mechanisms of blockchains.

金融科技應用與實務

3 選

本課程係為金融、資訊、管理等各種科學的綜合應用，以「創新數位科技，打造智慧金融」為主軸，從應用面、管理面、資源面、基礎面等面向探討金融科技議題，並且搭配區塊鏈技術的實務訓練，期望學生具備金融領域知識、科技創新思維、商務發展趨勢以及相關系統開發技術能力。

FinTech: Applications and Practices

3 E

The purposes of the “FinTech: Applications and Practices” are (1) to introduce the fundamental concept and domain knowledge of FinTech, (2) to learn the technology of the related information technologies and Blockchain, and (3) to introduce the business concerns of the creative financial services and new kind of implementation models. After studying this course, the students should have the concepts of FinTech, the mechanisms of operation models, and Blockchain technology and its applications.

(二)時尚設計與管理系：**文化體驗設計****3 選**

本課程教授族群文化、藝術及美學的內涵，並且透過設計應用的創意思維，開發文化體驗行程及商品。再運用現代智慧數位工具進行商品之行銷。讓學生具備文化體驗產業之課程規劃、推廣及行銷之能力。

Cultural Experience Design**3 E**

This course teaches the connotations of culture, art, and aesthetics, and develops cultural experience tours and merchandise through designing creative thinking. Then use modern wisdom digital tools for marketing of goods. Allowing students to have the ability to plan, promote and market the cultural experience industry.

文化產業體驗(微型課程)**1 選**

本課程透過文化產業參訪及體驗方式，學習認識族群文化、藝術及美學的內涵。讓學生瞭解文化創意產業運用方式，瞭解產業規劃文化活動與開發文化體驗商品之過程。俾利學生具備開發文化體驗產品及行銷之實務能力。

Cultural Industry Experience**1 E**

This course learns about the connotation of ethnic culture, art and aesthetics through cultural industry visits and experiences. Allow students to understand the use of cultural and creative industries, understand the industrial planning and cultural activities and the process of developing cultural experience products. Welfare students have the practical ability to develop cultural experience products and marketing.

文化體驗商品實作(微型課程)**1 選**

本課程透過文化產業參訪及體驗方式，學習認識族群文化、藝術及美學的內涵。引發學生創意設計思維，規劃計體驗活動與開發文化體驗商品。讓學生具備開發文化體驗產品及行銷之實務能力。

Cultural Experience Commodity Implementation**1 E**

This course learns about the connotation of ethnic culture, art and aesthetics through cultural industry visits and experiences. Students' creative design thinking, planning and experience activities and cultural experience products are triggered. Let students have the practical ability to develop cultural experience products and marketing.

布料設計(深碗課程)**1 選**

說明梭織物與編織物之種類、構成原理、組織圖的意義、設計應用與編織技法，並講授織物之整理加工、各種織物之特性與分析。

Fabric Design**1 E**

This course will describe the woven fabric & knitted fabric work and its construction principle. This course provides a critical appreciation of the technological developments and scientific understanding related to clothing appearance and fit. It bridges recent active research and development in a number of different areas including fashion aesthetics, garment appearance, measurement technology, fabric objective measurement, garment drape, computer-aided design, human anthropometrics and sizing. It will be of great interest to all those concerned with appearance and fit in the garment industry and for textile and fashion students and researchers.

印花實務

3 選

本課程兼具設計與實用性，將幫助學生了解印花圖案設計與印花列印實務等操作流程，課程內容包含：色彩管理、字體選用、主題圖案設計、版型設計、圖片搭配、電腦軟體應用設計，課程最後會將學生的印花設計作品，實際上機操作印製，實務部分包含：印刷方式(直噴、紙轉昇華、顏料)實機操作以及印花作品製作等。

Practical Textile Printing

3 E

This course combines design and practical lessons. It will help students understand the operation process of printing pattern design and printing and printing. The course content includes: color management, font selection, theme pattern design, layout design, picture matching, and computer software application design. At the end of the course, the student's printed design works will be printed in actual operation. The practical part includes: printing method (direct injection, paper-to-sublimation, pigment), real machine operation and printing works design to real merchandises.

四、人文暨社會科學院

(一)應用外語系：

企業概論

3 選

王瀚陞 陳錦慧 一下

本課程目的是要讓初次學習企業管理的學生，對企業的運作與管理具有一個概括性的認識。具體而言，是要讓學生能夠：

1. 建立企業管理的基本概念。
2. 認識企業的本質與責任。
3. 瞭解企業的外部環境及其對企業之影響。
4. 認識企業內部功能運作與管理。
5. 培養觀察與分析企業活動的能力。

本課將以教師課堂講授、實例討論、與企業報告等方式，達到上述目標。希望修課同學能對企業有概括的認識，做為往後學習企業內各功能活動管理專業知識與技能的基礎。

Introduction to Business

3 E

Han-sheng Wang, Chin-Hui Chen

The purpose of this course is to provide a general understanding of the operation and management of the enterprise for students who begin to learn business management. Specifically, it is to enable students to:

1. Establish basic concepts of business management.
2. Understand the nature and responsibility of the enterprise.
3. Understand the external environment of the enterprise and its impact on the enterprise.
4. Understand the internal operation of the enterprise and its management.
5. Develop the ability to observe and analyze corporate activities.

This class will achieve the above-mentioned goals through teachers' lectures, case discussions, and corporate reports. It is hoped that students can have a better understanding of the enterprise, which will serve as the basis for learning the management expertise of various operations in the enterprise

(二)客家文化產業研究所：

聲音、地景與人地關係

3 選

本課程探討聲音景觀、人地關係、與地理資訊系統跨領域學習的議題與發展潛力。以「聲音景觀」角度出發，重新建構客家音樂裡的聲景，透過文獻探討探究聲景與客庄地方意象形塑的關聯，並邀請業師演講聲景與文創商品的開發。讓學生學習「互動式地圖(ArcGIS Online)」軟體，認識其學術與跨領域應用的潛力，提升學生數位人文研究的能力。藉由「聲音採集」實作，學習基本的田野錄音(field recording)技巧，透過實地參訪、觀察、記錄聲等方式進行反思，探究聲音與環境變遷的關聯。學習評量將以作業、出席率、期中個人報告、及期末分組報告實施。

Soundscape, Landscape, and Man-Land Relationship 3 E

This course aims to investigate the relationship between soundscape, landscape, and Man-Land. Course content includes rebuilding soundscape in the context of Hakka music, conducting a literature review, as well as examining the possible causes for shaping the local images. Guest speakers will address soundscape's development in current cultural and creative Industry. Through in-class training students will establish skills such as field recording and ArcGIS analysis for interdisciplinary study and research. Student assessment includes assignments, attendance, mid-term, and group presentation.

傳閱附件 1-5--本校各學院所屬各系(所)課程中英文摘要-國際學院

五、 國際學院

(一)熱帶農業暨國際合作系：

多變量分析方

2 選

廖世義 下

本課程介紹多變量資料的分析方法與其在實務上的應用。課程內容主要在以統計方法，對同時量測多個變數的資料進行資訊的萃取，資料構面的縮減、排序，及對類似樣本個體分群或關係結構的簡化。透過企業實務問題的說明，來介紹多變量分析技術的使用。如：多變量變異數分析、主成份分析、因素分析、典型相關分析、鑑別分析、集群分析、多元尺度法及線性結構關係模式。本課程教學目標的達成，有助研究架構的建置與分析結果詮釋。

Multivariate Data Analysis

2 E

Based on the view of multivariate data, the purpose of this course is to introduce several analysis methods and empirical applications. Course contents concern with statistical methods designed to eliciting information, data reduction, sorting and grouping similar objects or structural simplification from the data sets include simultaneous measurements on many variables. Through the explanation of empirical problems in business, several applications of multivariate techniques will be introduced like as MANOVA, principal components analysis, factor analysis, canonical correlation analysis, discrimination analysis, clustering analysis, multidimensional scaling method and linear structure relation. Achieving objectives of this course contributes construction of research structure and interpretation of analyses results

六、國際學院

(一) 動物疫苗科技研究所：

動物試驗檢驗分析(特色課程) 2 選 柯冠銘等合授 碩一下

本課程旨在教導學生各種動物研究模式、動物實驗之設計、動物實驗標準作業程序、動物實驗標準檢測方式與分析、動物實驗之禽畜舍管理技術，病包括飼育動物的軟、硬體條件，應具備之公害防範設備與措施。同時課程內容尤其注重於教導學生動物試驗之相關倫理及動物福利相關法規。

Lab. Animal test analysis 2 E G.M.KE S

The aim of this course is to teach student the basic animal trial techniques regarding the varieties of different lab animals, how to develop an animal model, experimental designs for animal studies, the standard analysis method used in the animal experiment, standard operation procedure for animal care, management of animal and poultry care facility. The contents of this course also emphasize the animal welfare and related regulations.

動物疫苗新型佐劑開發(微型課程) 1 選 朱純燕等合授 碩一下

課程內容包括：疫苗製程介紹、抗原製作、新型佐劑介紹、調配、劑型與配方、活毒與不活化疫苗製程介紹、基因工程疫苗製程等，符合優良藥品標準操作規範。全部課程於動物疫苗及佐劑先導工廠與動物製劑試量產中心實地講解，訓練修課學生疫苗製造之實用能力，可直接與產業界人才需求接軌之課程。

Advance Vaccine Adjuvant Manufacture Operation 1 E C.Y.CHU S

The purpose of this course is to teach students the production techniques of various veterinary vaccines. The contents include the manufacture operation training of antigen, new types of adjuvant and vaccine formulation and the new adjuvant application in live vaccines, inactivated vaccines and genetic vaccines. All practice will direct operate at vaccine pilot and animal biologics pilot production center. These courses provide the industry demand training..

動物疫苗油質佐劑設計實作(微型課程) 1 選 朱純燕、鍾曜吉 碩一下

課程內容包括：疫苗製程介紹、抗原製作、油質佐劑介紹、調配、劑型與配方，並實際參與油質佐劑設計與分析，並設計符合優良藥品標準操作規範的製程。全部課程於動物疫苗及佐劑先導工廠與動物製劑試量產中心實地講解，訓練修課學生疫苗製造之實用能力，可直接與產業界人才需求接軌之課程。

Oil Adjuvant Design and Manufacture Operation 1 E C.Y.CHU、Y.C.CHUNG S

The purpose of this course is to teach students the production techniques of various veterinary vaccines. The contents include the manufacture operation training of antigen, oil adjuvant and vaccine formulation. The oil adjuvant application in inactivated vaccines and genetic vaccines. All practice will direct operate at vaccine pilot and animal biologics pilot production center. These courses provide the industry demand training.

佐劑學(深碗課程)**1 選 鍾曜吉、王祥宇 碩一下**

本課程為深碗課程，內容將深入了解疫苗佐劑之應用、佐劑的選擇與生物體各種免疫細胞之交互作用，並評估針對不同病原如何選擇適當之佐劑、不同佐劑之設計與製備，以及佐劑有效性之評估。

Adjuvants**1 E Y.C.CHUNG、H.Y.WANG S**

This objective of this course is to deeply understand the purpose and application of an adjuvant, the acting mechanisms and related characteristics and chemical features of an adjuvant, the interactions of adjuvants with immune cells. The course also introduces the choice of the appropriate adjuvant for specific pathogen and the evaluation method for their efficacy.

(二) 獸醫學系：**大動物超音波學特論****2 選 李旭薰 博一下**

經由本課程之修習，學生可獲得大動物超音波學之實際應用能力，並了解超音波應用於大動物繁殖與疾病之益處。

Advanced Study in Large Animal Ultrasonics**2 E HSU-HSUN, LEE S**

In this course, we provide the opportunity for the student has more exposure to the application of ultrasound on the living cow. In addition, student will know the advances of ultrasound in large animal reproduction and diseases diagnosis.

超音波診斷學**2 選 吳永惠、下**

本課程在提供學生獸醫超音波診斷學之知識與實際技術,其內容包括超音波診斷之原理和掃描技術以及超音波指引穿刺技術,其大綱有胸部、腹部、心臟、肝臟、腎臟、子宮、膀胱、前列腺、腫瘤等之超音波掃描診斷以及妊娠診斷。

Diagnostic Techniques of Ultrasound**2 E Yung-Huey Wu, S**

The purpose of this course is to provide the students with knowledge and practical techniques of veterinary ultrasound diagnosis. The contents include the principles and diagnostic techniques of ultrasonography, and sono-guiding biopsy. The topics include ultrasonography of the thorax, abdomen, heart, liver, kidney, uterus, urinary bladder, prostate, tumors and gestation diagnosis.

超音波診斷學實習**1 選 吳永惠、下**

本課程係配合「獸醫超音波診斷學」而開，藉以提供學生學習正常和異常病例之超音波掃描和判讀之知識和技術。其內容包括超音波機之操作、超音波指引穿刺術、一般腹部和腹部器官和泌尿道和生殖系統和眼之超音波掃描、以及心超音波掃描術。

Diagnostic Techniques of Ultrasound Lab.**1 E Yung-Huey Wu, S**

This course is synchronized with "the veterinary ultrasound diagnosis" to provide students some practical experiences in the technique and knowledge of ultrasonography and diagnosis of the images, including normal and abnormal cases. The contents of the course include operation of machine, ultrasound-guided biopsy, ultrasonographies of the general abdomen, abdominal organs, urinary tract, genital system and

eyes, and echocardiography.

獸醫法醫病理學

1 選

李伊嘉、下

本課程旨在讓學生了解動物法醫病理學及外科病理實務，學習腫瘤病理及各種動物法醫案件類型之病理檢查重點及主要病變，同時比較病理解剖與法醫解剖及採證技巧，並學會研判死亡原因及死亡方式。

Veterinary forensic pathology

1 E

Yi-Chia Li, S

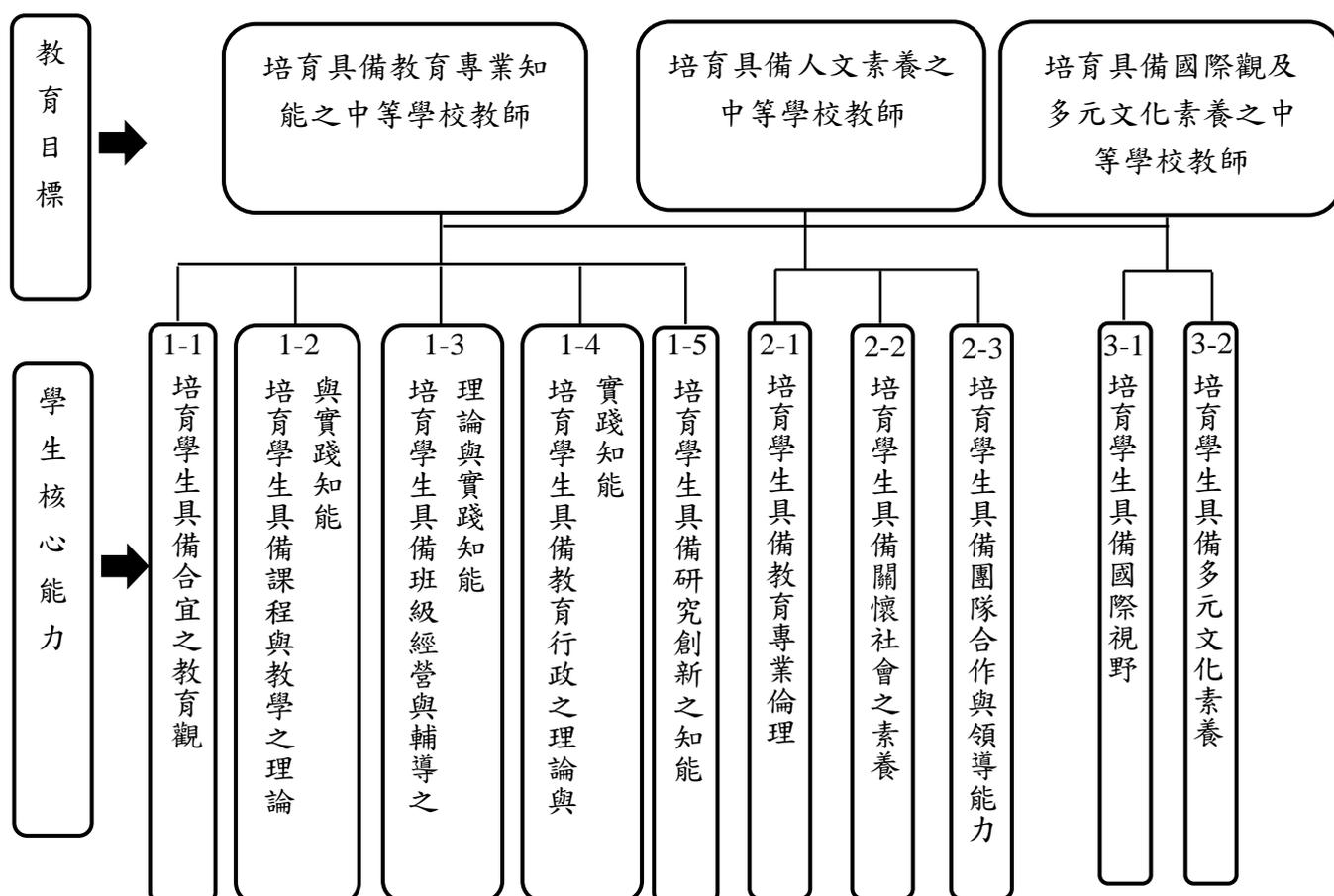
This course is designed to provide students with an understanding of animal forensic pathology and surgical pathology, learning pathological lesions and major pathological changes in animal forensic cases and surgical specimens. Through this course, students could compare the differences between forensic pathology and general pathology, also practice how to collect evidences and identify the causes of death.

師資培育中心之教育目標

依據本校之教育宗旨「專業化、全人化、國際化」，本中心之教育目標如下：

1. 培育具備教育專業知能之中等學校教師。
2. 培育具備人文素養之中等學校教師。
3. 培育具備國際觀及多元文化素養之中等學校教師。

本中心之教育目標與學生核心能力如圖 1-1-2 所示。



中等教育學程課程中、英文摘要（108 學年度適用）

The Program of Secondary Teacher Education

一、必修科目 Required Courses

921001 教育概論 2 必 張碧如

本科目旨在對教育活動的本質與內容，做導論式的引介。教育概論可以從幾個層面加以探討：教育的理論基礎、教育制度、教育研究以及教育專業等。本學科除了強調理論的探討外，尚重視實際教育問題分析。

921001 Introduction to Education 2 R Bih-Ru Chang

The objective of this course is to introduce the essential contents of education. It studies educational fundamental concepts and principles, educational history, the basic theories of education, educational institutions, education study, and education profession, etc. In this course, both theories and current educational issues are discussed.

921002 教育心理學 2 必 鍾鳳嬌

教育心理學係以普通心理學的原理原則，研究如何利用人類行為之一般特質與現實情境，導引行為向所預期的目的改變，以達成教育目標。課程內容包括教學歷程的心理基礎、身心發展理論、學習理論、認知理論以及影響學習的心理因素等幾個層面。

921002 Educational Psychology 2 R Feng-Chiao Chung

This course utilizes the principles of psychology to study how to use the human eneral character and circumstance to conduce toward the desired behavior and accomplish educational goals. Tts contents pertain to those aspects such as mental basis of eaching process, developmental theory, learning theory, cognitive theory, and crucial mental factors about learning.

921003 教育哲學 2 必 鍾鳳嬌

本課程之目的：1.探究教育所根據的哲學的基本原則。2.評析此等原則在教育的理論和實施上所生的影響。3.培養學生對各類教育問題的綜合批判能力。

課程主要內容：1.教育哲學的意義及其研究方法。2.形上學與教育。3.知識論與教育。4.價值論與教育。5.當代教育理論。6.教師個人的教育哲學。

921003 Educational Philosophy 2 R Feng-Chiao Chung

Purpose : 1. To assist students to learn all basic principles of philosophy in education.

2. To assist students to discuss the effects of educational theories and practice based on the principles of philosophy.
3. To enable students to have the ability in criticizing educational issues.

Contents : 1. Background knowledge of the philosophy of education and its research methodology.
2. Metaphysics and Education.
3. Epistemology and Education.

4. Axiology and Education
5. Contemporary Educational Philosophy
6. Teacher Believe and Philosophy

921004 教育社會學 2 必 吳雅玲

本課程旨在探討教育社會學的理论，教育的社會情境脈絡，社會文化與個人發展之互動及教育之專業發展等。期使學生能以社會學為基礎思考並解決教育問題，以促進教育健全發展。

921004 Educational Sociology 2 R Ya-ling Wu

This course contains theories of educational sociology, the social context of education, as well the interaction between society, culture and individual development and the professional development of education. The course helps students to think of and solve educational problem according to sociology of education.

921005 教學原理 2 必 鍾鳳嬌

本課程是為大學教育學程之學生而設計，以培養未來適任優秀之中學教師，其內容大致包含下列幾項：

1. 教學的意義和基本理論。
2. 教學課程之安排和教材之選定。
3. 教學理論和教學方法之運用。
4. 教學工作和輔導。

921005 Principle of Instruction 2 R Feng-Chiao Chung

This course is designed to establish the basic concept of instruction and provide fundamental instructional skills. The major contents were included as follow:

1. The meaning and major principles of instruction.
2. The principles of curriculum development and instructional theory.
3. The selection and application of teaching strategies.
4. Instructional material selection and delivery methods.

921006 課程發展與設計 2 必 吳雅玲

本課程在於協助學生發展課程設計的實作能力，了解我國當前課程設計的趨勢與重要議題，並能妥善規劃與運用課程設計的基本模式、課程目標、課程選擇、課程組織、課程評鑑與課程實施等要素，希望藉由相關單元的講述、討論、參觀與報告，透過教學單元設計演練，協助學生熟悉並統整課程设计的理論與實務。

921006 Curriculum Design 2 R Ya-ling Wu

This course is designed to help students develop practical skills of curriculum design, understand the current trends and important issues in our country, and to properly plan and use of the basic model of curriculum design, curriculum objectives, curriculum selection, curriculum organization, curriculum evaluation and curriculum implement. The course hopes to help students become familiar with and integrated curriculum design theory and practice by class discussions, visits, reports, and the teaching unit designed drill.

921007 學習評量 2 必 廖婉鈞

本課程是為未來的中學教師而設計，授課時間為一學期，其重點如下：

- 1.教學評量的基本精神和原則。
- 2.教學評量範圍和內容。
- 3.評量的方式和功能分析。
- 4.試卷的製作和分析。

921007 Educational Tests and Evaluation 2 R Wan-Chun Liao

This course is offered to college students taking educational courses and preparing to be secondary teachers. It course the following topics:

1. Basic concepts and principles of measurement and evaluation.
2. Elements and scopes of measurement and evaluation in teaching.
3. Analyses of measuring strategies.
4. Development and Improvement of a test.

921008 輔導原理與實務 2 必 鍾鳳嬌

本科目旨協助教學者具備豐富的輔導與諮商知能。課程內容包括二部份，第一部份安排輔導原理的討論，包括輔導的基本概念、輔導的歷史與發展、學校輔導行政、學校輔導人員與資料的搜集與應用；第二部份則有諮商理論、諮商技巧以及團體諮商等的探討。

921008 Guidance and Counseling Theories And Practice 2 R Feng-Chiao Chung

The object of this course is to improve counseling capacity of instructors. This course contains two sections. The first section discusses the basic concept, history and development of counseling, the administration of school counseling, counselor, and data collection and application. The second section deals with counseling theories, practical skill and group counseling.

921009 班級經營 2 必 鍾鳳嬌

班級經營課程之教學目標在於教導學生：瞭解班級經營的理論；運用班級經營的各種方法與技術；結合班級經營理論與實務；成為有效能的班級管理者。其課程內容包括：班級經營的基本概念；導師的任務與素養；班級行政經營；班級教學經營；班級總務經營；學生自治活動；班級常規輔導；教學情境佈置；班級氣氛與學習等。

921009 Classroom Management 2 R Feng-Chiao Chung

The course objective of class management includes: understanding the basic concepts of class management; understanding the skill and technique of classroom management; integrating the theory and practical experience of class management; promoting to be effective class manager. The content of this course includes: the theory of classroom management; the mission and general capacity of a mentor; all kinds of class management; the self-governing of students; the training of the class ordinary rule; the decoration of class environment; the learning atmosphere of classroom.

921010 教學科技與應用 2 必 羅希哲

教學媒體與操作之教學目標在於：瞭解各種媒體的優缺點與使用時機；瞭解教學媒體的種類、特色、及在教學上的應用；培養教學媒體的素養與能力；教學媒體在教學環境上的整合與運用。其課程內容包括：教學媒體的基本概念與理論；印刷教學媒體的製作與應用；視覺教學媒體的製作與應用；動畫與影片教學媒體的製作與應用。

921010 Instructional Technology and application 2 R Shi-Jer Lou

The course objective of instructional media and practice includes: understanding the applications and categories of instructional media; learning the required knowledge and skills of

instructional media; applying the instructional media in teaching. The content of this course includes: the concept and theory of instructional media; the practice and application of instructional print media; the practice and application of instructional vision media; the practice and application of instructional animation and film media.

921011 青少年心理學 2 必 吳雅玲

本課程旨在探討青少年的心理發展，包括認知、道德、情緒、社會、親子關係、性心理與性活動、學習、生涯發展等層面；再者，亦探討青少年心理發展問題。期使學生具備輔導青少年心理發展之知能。

921011 Psychology of Adolescence 2 R Ya-ling Wu

The objective of this course is to explore the psychological development of adolescents, including cognitive development, emotion, relationship, sexual psychology, learning, career development and so on. Besides, the psychological problems of adolescents are also emphasized. The course equips students with knowledge and abilities of guiding adolescents' psychological development.

921012 分科/分領域教材教法-農業群 2 必

本科目之教學目標在於運用教學設計的觀點，以系統化教學方式介紹如何有效運用教學方法與規劃教材，以達成教學目標，提升教學效果。本科目主要內涵包括：教學基的本歷程、學習的特性、教學序列設計、教學活動設計與評估、團體教學、個別教學、教學評鑑等。

921012 Teaching Materials and Methods of Various Subjects of Agricultural group 2 R

Teaching method and teaching material for industrial course. This course based on the view of instructional design, utilizing the systematic instruction method to introduce the teaching about teaching method and material arrangement. The main content of the this course include :instructional process, character of learning, :instructional design, :instructional activity, group instructional, individual instructional evaluation of instruction.

921013 分科/分領域教材教法-土木與建築群 2 必

本科目之教學目標在於運用教學設計的觀點，以系統化教學方式介紹如何有效運用教學方法與規劃教材，以達成教學目標，提升教學效果。本科目主要內涵包括：教學基的本歷程、學習的特性、教學序列設計、教學活動設計與評估、團體教學、個別教學、教學評鑑等。

921013 Teaching Materials and Methods of Various Subjects of Civil Engineering and Architecture Group 2 R

Teaching method and teaching material for industrial course. This course based on the view of instructional design, utilizing the systematic instruction method to introduce the teaching about teaching method and material arrangement. The main content of the this course include :instructional process, character of learning, :instructional design, :instructional activity, group instructional, individual instructional evaluation of instruction

921014 分科/分領域教材教法-食品群 2 必

本科目之教學目標在於運用教學設計的觀點，以系統化教學方式介紹如何有效運用教學方法與規劃教材，以達成教學目標，提升教學效果。本科目主要內涵包括：教學基的本歷程、學習的特性、教學序列設計、教學活動設計與評估、團體教學、個別教學、教學評鑑等。

921014 Teaching Materials and Methods of Various Subjects of Food Group 2 R

Teaching method and teaching material for industrial course. This course based on the view of instructional design, utilizing the systematic instruction method to introduce the teaching about teaching method and material arrangement. The main content of the this course include :instructional process, character of learning, :instructional design, :instructional activity, group instructional, individual instructional evaluation of instruction.

921015 分科/分領域教材教法-家政群 2 必

本科目之教學目標在於運用教學設計的觀點，以系統化教學方式介紹如何有效運用教學方法與規劃教材，以達成教學目標，提升教學效果。本科目主要內涵包括：教學基的本歷程、學習的特性、教學序列設計、教學活動設計與評估、團體教學、個別教學、教學評鑑等。

921015 Teaching Materials and Methods of Various Subjects of Family-Economic group 2 R

Teaching method and teaching material for industrial course. This course based on the view of instructional design, utilizing the systematic instruction method to introduce the teaching about teaching method and material arrangement. The main content of the this course include :instructional process, character of learning, :instructional design, :instructional activity, group instructional, individual instructional evaluation of instruction.

921016 分科/分領域教材教法-商業與管理群 2 必 廖婉鈞

本科目之教學目標在於運用教學設計的觀點，以系統化教學方式介紹如何有效運用教學方法與規劃教材，以達成教學目標，提升教學效果。本科目主要內涵包括：教學基的本歷程、學習的特性、教學序列設計、教學活動設計與評估、團體教學、個別教學、教學評鑑等。

921016 Teaching Materials and Methods of Various Subjects of Business and Management Group 2 R Wan-Chun Liao

Teaching method and teaching material for industrial course. This course based on the view of instructional design, utilizing the systematic instruction method to introduce the teaching about teaching method and material arrangement. The main content of the this course include :instructional process, character of learning, :instructional design, :instructional activity, group instructional, individual instructional evaluation of instruction.

921017 分科/分領域教材教法-機械群 2 必羅希哲

本科目之教學目標在於運用教學設計的觀點，以系統化教學方式介紹如何有效運用教學方法與規劃教材，以達成教學目標，提升教學效果。本科目主要內涵包括：教學基的本歷程、學習的特性、教學序列設計、教學活動設計與評估、團體教學、個別教學、教學評鑑等。

921017 Teaching Materials and Methods of Various Subjects of Machinery Group 2 R Shi-Jer Lou

Teaching method and teaching material for industrial course. This course based on the view of instructional design, utilizing the systematic instruction method to introduce the teaching about teaching method and material arrangement. The main content of the this course include :instructional process, character of learning, :instructional design, :instructional activity, group instructional, individual instructional evaluation of instruction.

921018 分科/分領域教材教法-餐旅群 2 必

本科目之教學目標在於運用教學設計的觀點，以系統化教學方式介紹如何有效運用教學方法與規劃教材，以達成教學目標，提升教學效果。本科目主要內涵包括：教學基的本歷程、學習的特性、教學序列設計、教學活動設計與評估、團體教學、個別教學、教學評鑑等。

921018 Teaching Materials and Methods of Various Subjects of Hospitality Group 2 R

Teaching method and teaching material for industrial course. This course based on the view of instructional design, utilizing the systematic instruction method to introduce the teaching about teaching method and material arrangement. The main content of the this course include :instructional process, character of learning, :instructional design, :instructional activity, group instructional, individual instructional evaluation of instruction.

921019 分科/分領域教材教法-水產群 2 必

本科目之教學目標在於運用教學設計的觀點，以系統化教學方式介紹如何有效運用教學方法與規劃教材，以達成教學目標，提升教學效果。本科目主要內涵包括：教學基的本歷程、學習的特性、教學序列設計、教學活動設計與評估、團體教學、個別教學、教學評鑑等。

921019 Teaching Materials and Methods of Various Subjects of Aquaculture Group 2 R

Teaching method and teaching material for industrial course. This course based on the view of instructional design, utilizing the systematic instruction method to introduce the teaching about teaching method and material arrangement. The main content of the this course include :instructional process, character of learning, :instructional design, :instructional activity, group instructional, individual instructional evaluation of instruction.

921020 分科/分領域教材教法-生物 2 必

本科目之教學目標在於運用教學設計的觀點，以系統化教學方式介紹如何有效運用教學方法與規劃教材，以達成教學目標，提升教學效果。本科目主要內涵包括：教學基的本歷程、學習的特性、教學序列設計、教學活動設計與評估、團體教學、個別教學、教學評鑑等。

921020 Teaching Materials and Methods of Various Subjects of Biology 2 R

Teaching method and teaching material for industrial course. This course based on the view of instructional design, utilizing the systematic instruction method to introduce the teaching about teaching method and material arrangement. The main content of the this course include :instructional process, character of learning, :instructional design, :instructional activity, group instructional, individual instructional evaluation of instruction.

921021 分科/分領域教材教法-英文 2 必 吳雅玲

本科目之教學目標在於運用教學設計的觀點，以系統化教學方式介紹如何有效運用教學方法與規劃教材，以達成教學目標，提升教學效果。本科目主要內涵包括：教學基的本歷程、學習的特性、教學序列設計、教學活動設計與評估、團體教學、個別教學、教學評鑑等。

921021 Teaching Materials and Methods of Various Subjects of English 2 R Ya-ling Wu

Teaching method and teaching material for industrial course. This course based on the view of instructional design, utilizing the systematic instruction method to introduce the teaching about teaching method and material arrangement. The main content of the this course include :instructional process, character of learning, :instructional design, :instructional activity, group instructional, individual instructional evaluation of instruction.

921022 分科/分領域教學實習—農業群 2 必

教學實習之教學目標在於：培養學生教學的基本技能；熟習教案設計的歷程與架構；體驗學校教學現場的實況；培育教學專業的倫理素養；協助學生進行正式教學的訓練。本課程之教學內容包括：教學實習的基本認識；教學實習準備與作法；教育法令規章；教學觀摩與分享；教學練習等。

921022 Teaching Practicum of Agricultural group 2 R

The course objective of teaching interns includes: to learn the teaching skills; to skill in the planning of the process and framework of the lesson plan. ; to be familiar with the teaching field; to learn the necessary ethic code in school. The contents of this course includes: educational principle and system; the introduction of teaching interns; the preparation of teaching interns; design the class plan; school visit; the sharing of teaching experience; teaching practice.

921023 分科/分領域教學實習—土木與建築群 2 必

教學實習之教學目標在於：培養學生教學的基本技能；熟習教案設計的歷程與架構；體驗學校教學現場的實況；培育教學專業的倫理素養；協助學生進行正式教學的訓練。本課程之教學內容包括：教學實習的基本認識；教學實習準備與作法；教育法令規章；教學觀摩與分享；教學練習等。

921023 Teaching Practicum of Civil Engineering and Architecture Group 2R

The course objective of teaching interns includes: to learn the teaching skills; to skill in the planning of the process and framework of the lesson plan. ; to be familiar with the teaching field; to learn the necessary ethic code in school. The contents of this course includes: educational principle and system; the introduction of teaching interns; the preparation of teaching interns; design the class plan; school visit; the sharing of teaching experience; teaching practice.

921024 分科/分領域教學實習—食品群 2 必

教學實習之教學目標在於：培養學生教學的基本技能；熟習教案設計的歷程與架構；體驗學校教學現場的實況；培育教學專業的倫理素養；協助學生進行正式教學的訓練。本課程之教學內容包括：教學實習的基本認識；教學實習準備與作法；教育法令規章；教學觀摩與分享；教學練習等。

921024 Teaching Practicum of Food Group 2 R

The course objective of teaching interns includes: to learn the teaching skills; to skill in the planning of the process and framework of the lesson plan. ; to be familiar with the teaching field; to learn the necessary ethic code in school. The contents of this course includes: educational principle and system; the introduction of teaching interns; the preparation of teaching interns; design the class plan; school visit; the sharing of teaching experience; teaching practice.

921025 分科/分領域教學實習—家政群 2 必

教學實習之教學目標在於：培養學生教學的基本技能；熟習教案設計的歷程與架構；體驗學校教學現場的實況；培育教學專業的倫理素養；協助學生進行正式教學的訓練。本課程之教學內容包括：教學實習的基本認識；教學實習準備與作法；教育法令規章；教學觀摩與分享；教學練習等。

921025 Teaching Practicum of Family—Economic group 2 R

The course objective of teaching interns includes: to learn the teaching skills; to skill in the planning of the process and framework of the lesson plan. ; to be familiar with the teaching field; to learn the necessary ethic code in school. The contents of this course includes: educational principle and system; the introduction of teaching interns; the preparation of teaching interns; design the class plan; school visit; the sharing of teaching experience; teaching practice.

921025 分科/分領域教學實習—商業與管理群 2 必 廖婉鈞

教學實習之教學目標在於：培養學生教學的基本技能；熟習教案設計的歷程與架構；體驗學校教學現場的實況；培育教學專業的倫理素養；協助學生進行正式教學的訓練。本課程之教學內容包括：教學實習的基本認識；教學實習準備與作法；教育法令規章；教學觀摩與分享；教學練習等。

921025 Teaching Practicum of Business and Management Group 2 R Wan-Chun Liao

The course objective of teaching interns includes: to learn the teaching skills; to skill in the planning of the process and framework of the lesson plan. ; to be familiar with the teaching field; to learn the necessary ethic code in school. The contents of this course includes: educational principle and system; the introduction of teaching interns; the preparation of teaching interns; design the class plan; school visit; the sharing of teaching experience; teaching practice.

921026 分科/分領域教學實習—機械群 2 必

教學實習之教學目標在於：培養學生教學的基本技能；熟習教案設計的歷程與架構；體驗學校教學現場的實況；培育教學專業的倫理素養；協助學生進行正式教學的訓練。本課程之教學內容包括：教學實習的基本認識；教學實習準備與作法；教育法令規章；教學觀摩與分享；教學練習等。

921026 Teaching Practicum of Machinery Group 2 R

The course objective of teaching interns includes: to learn the teaching skills; to skill in the planning of the process and framework of the lesson plan. ; to be familiar with the teaching field; to learn the necessary ethic code in school. The contents of this course includes: educational principle and system; the introduction of teaching interns; the preparation of teaching interns; design the class plan; school visit; the sharing of teaching experience; teaching practice.

92027 分科/分領域教學實習—餐旅群 2 必

教學實習之教學目標在於：培養學生教學的基本技能；熟習教案設計的歷程與架構；體驗學校教學現場的實況；培育教學專業的倫理素養；協助學生進行正式教學的訓練。本課程之教學內容包括：教學實習的基本認識；教學實習準備與作法；教育法令規章；教學觀摩與分享；教學練習等。

921027 Teaching Practicum of Hospitality Group 2 R

The course objective of teaching interns includes: to learn the teaching skills; to skill in the planning of the process and framework of the lesson plan. ; to be familiar with the teaching field; to learn the necessary ethic code in school. The contents of this course includes: educational principle and system; the introduction of teaching interns; the preparation of teaching interns; design the class plan; school visit; the sharing of teaching experience; teaching practice.

921028 分科/分領域教學實習—水產群 2 必

教學實習之教學目標在於：培養學生教學的基本技能；熟習教案設計的歷程與架構；體驗學校教學現場的實況；培育教學專業的倫理素養；協助學生進行正式教學的訓練。本課程之教學內容包括：教學實習的基本認識；教學實習準備與作法；教育法令規章；教學觀摩與分享；教學練習等。

921028 Teaching Practicum of Aquaculture Group 2 R

The course objective of teaching interns includes: to learn the teaching skills; to skill in the planning of the process and framework of the lesson plan. ; to be familiar with the teaching field; to learn the necessary ethic code in school. The contents of this course includes: educational principle

and system; the introduction of teaching interns; the preparation of teaching interns; design the class plan; school visit; the sharing of teaching experience; teaching practice.

921029 分科/分領域教學實習—生物 2 必

教學實習之教學目標在於：培養學生教學的基本技能；熟習教案設計的歷程與架構；體驗學校教學現場的實況；培育教學專業的倫理素養；協助學生進行正式教學的訓練。本課程之教學內容包括：教學實習的基本認識；教學實習準備與作法；教育法令規章；教學觀摩與分享；教學練習等。

921029 Teaching Practicum of Biology 2 R

The course objective of teaching interns includes: to learn the teaching skills; to skill in the planning of the process and framework of the lesson plan. ; to be familiar with the teaching field; to learn the necessary ethic code in school. The contents of this course includes: educational principle and system; the introduction of teaching interns; the preparation of teaching interns; design the class plan; school visit; the sharing of teaching experience; teaching practice.

921030 分科/分領域教學實習—英文 2 必 吳雅玲

教學實習之教學目標在於：培養學生教學的基本技能；熟習教案設計的歷程與架構；體驗學校教學現場的實況；培育教學專業的倫理素養；協助學生進行正式教學的訓練。本課程之教學內容包括：教學實習的基本認識；教學實習準備與作法；教育法令規章；教學觀摩與分享；教學練習等。

921030 Teaching Practicum of English 2 R Ya-ling Wu

The course objective of teaching interns includes: to learn the teaching skills; to skill in the planning of the process and framework of the lesson plan. ; to be familiar with the teaching field; to learn the necessary ethic code in school. The contents of this course includes: educational principle and system; the introduction of teaching interns; the preparation of teaching interns; design the class plan; school visit; the sharing of teaching experience; teaching practice.

921045 生涯規劃與職業教育與訓練 2 必 張碧如

在專業日益分化、生涯進路逐漸多元的趨勢下，九年一貫課程及十二年國教同時將生涯發展訂為重大議題，期許各領域教師將生涯輔導融入教學中，因此，生涯發展與輔導已成為中學教師必備之專業知能。本課程透過生涯概論、自我覺察與探索、職涯環境的覺察與探索、生涯教育等面向探討，希望學生除了了解生涯發展的歷程與理論之外，還能達到(1)自我及職涯環境的了解與探索、(2)具備自我生涯規劃的能力，以及(3)具備進行生涯教育的能力。本課程旨在了解職業教育與訓練之基本概念、了解台灣與各國職業教育與訓練之現況，之後進行職業教育的實務演練，包括「自我覺察與探索」、「生涯環境的覺察與探索」、「職涯準備」等。簡言之，透過休息本課程，學生可以：1.了解職業教育與訓練之基本概念；2.了解台灣與各國職業教育與訓練之現況；3.進行職業教育的實務演練，包括自我覺察與探索、生涯環境的覺察與探索、職涯準備。

921045 Career Planning and The vocational education and training 2R Bih-Ru Chang

The major purpose of this course is to transfer the concept of career development, career planning, and career education into practical experience for students in order to plan and develop their career. After taking this course, students may have some changes on their recognition of career, may fulfill what they have learned to their darer development, and may develop the ability to teach career development in their future teaching job.

921032 特殊教育導論 2 必 鍾鳳鏞

1、了解特殊教育的相關理論與概念。 2、了解各種特殊類型兒童的特質與鑑定。 3、了解各種特殊類型兒童的教育與輔導。 4、參與特殊教育機構的義工服務。

921032 The Introduction of Special Education 2S Feng-Chiao Chung

1. Understanding of the relevant theories and concepts of special education
2. Understanding the characteristics and identification of various special types of children.
3. Understand the various types of special education and counseling for children.
4. Participate in special educational institutions volunteer service.

921031 教育議題專題 2 必 廖婉鈞

本課程主要探究當前重要之中等教育議題，包括性別平等教育、十二年國教政策、適性輔導……等議題，使學生瞭解當前中等教育之發展趨勢並具備所需知能。本課程主要以邀請校外學者專家講演方式進行。

921031 Educational Topics 2R Wan-Chun Liao

The course explores the essential issues of the current high school education, such as gender equity education, 12-year compulsory education policy, career guidance and so on. The objectives of the course are to help students to understand the development of the current high school education and to equip them with the necessary knowledge and skills.

921040 適性教學 2 必

本課程主要引導學生理解適性教學之理念與具體實作策略，其內容包括差異化教學，使學生具備應用不同的教學策略以符應不同學習者之能力、需要或興趣的知能。

921039 Adaptive Teaching 2R

The course helps students understand the concept of adaptive teaching and a variety of teaching strategies. Differential teaching is included in this course. The objective of the course is to equip students with the knowledge and skills of employing all kinds of teaching strategies to satisfy individual students' capacity, needs, and interests.

設計思考與教育 2 必

Design thinking and Education

二、選修科目 Elective Courses

921032 發展心理學 2 選 廖婉鈞

本課程乃以 Erik Erikson 的心理社會學理論為一整合性架構，採用系統觀點探討個體由受孕至死亡期間有關生理、智力、社會及情緒各領域的發展。本課程以年齡將人生發展週期劃分為「懷孕及胎兒期」、「嬰兒期」、「嬰幼兒期」、「幼兒期」、「學齡兒童期」、「青少年前期」、「青少年後期」、「成年早期」、「成年中期」、「成年晚期」與「老年期」等十一期，每個人生階段都有獨特的任務需要完成，若未完成，下一階段將會面臨困境。

921032 Developmental Psychology 2S Wan-Chun Liao

This course applies Erik Erikson's theory of psychosocial development as the basic construction to introduce the development of the individual from pregnancy to death. The contents include the biological, intellectual, social and emotional issues. This course will explain eleven stages of human life based on different age range. Each stage builds upon the successful completion of earlier stages, and if the previous stages are not completed, problems and challenges may surface in the following stages.

921034 教育行政與法規 2 選 張碧如

本課程分為兩大部分：一為行政，二為法規。本課程目標在協助學生認識教育行政與法規的基本概念、理論知能和實務經驗，並瞭解教育行政與法規之關係。教育行政部分，本課程藉閱讀教育行政管理文獻，以充實教育學行政管理知能。在教育相關法令部分，則介紹憲法、大法官釋憲與重要教育相關法令。在實務方面，則以日常教育行政運作實況為本，以實例闡明我國教育行政作為之法令依據，期望能培養具備法治基本概念、重視人權之未來師資。

921034 Educational Administration and Regulations 2 S

The purpose of the course is to bring up future teachers with the basic concept of the rule of law and human rights. The course is divided into two parts: one for administration, two for the regulations. This course helps students understand the basic concepts of educational administration and regulations, and the relationship between educational administration and regulations. In the educational administration section, the course enriches students' literacy of education administration by reading educational administration literature. In the part of education law, the course introduces Constitution, constitutional interpretation and important education-related laws to students. In practical terms, the daily administrative operations of education are discussion to clarify the legal basis of educational administration.

921035 教師專業發展 2選

教師專業發展的理念是培養職前教師與在職教師，從專業發展的經驗，產生持久的態度與感知的改變，而不斷提升教師的專業素養的過程。本課程的目標在幫助師資生理解教師專業發展的概念，並透過分組報告，培養團隊合作與獨立思考的精神，進而透過分組報告瞭解重要的教育發展議題，以及未來師資生教學實習需瞭解與思考的議題。

921035 Professional Development 2 S

Teacher professional development is a temporal sequence of events from professional development experiences to enduring change in teachers' attitudes and perceptions, making a steady progress in teacher professional literature. The objective of this course is to help students understand the concept of teacher professional development of teachers, and through the group reports, training teamwork and spirit of independent thinking, and thus understand the importance of education development issues, as well as future teachers teaching practice students need to understand and think through the grouping report issues.

921038比較教育 2選 廖婉鈞

本課程旨在介紹與比較各國教育制度、政策、課程設計及當前教育議題，以了解國內外教育之異同及優劣，一方面可培養學生批判思考之能力，二方面可作為未來從事我國教育工作之參考。

921038 Comparative Education 2 S Wan-Chun Liao

The aims of this course are to introduce different countries' educational systems, policies, curriculums development, and important educational issues, and by comparing, to analyze their pros and cons. This course will cultivate students' capability of critical thinking and provide useful examples for their future teaching job.

學校本位課程發展 2選 張碧如

本課程透過對目前教育評鑑現況的省思、教育評鑑與視導模式的理念探討，期望學生能對教育改革的可能性進行檢視。

School-base curriculum development 2S Bih-Ru Chang

The purposes of this course are to reflect upon the current evolutionary system, and to explore the related theories and models of educational evaluation and supervision.

傳閱附件 3---107 學年度第 1 學期教師申請開授通識課程案

107 學年度第 1 學期教師申請開授通識課程

1. 「台灣教育改革的現況」中、英文課程綱要：

本課程首先在了解目前的教育現況與困境、教育改革的可能方向，以及開放教育的意義、價值與內涵，並思考思想解構的可能性。希望學生能因此對台灣的教育及目前教育改革的方向有深入了解，並成為一個懂得教育，並能從現又教育體制跳脫、成為能獨立思考的人。簡言之，希望同學修畢此堂課後能：

Current trends of education reform in Taiwan

The purpose of this course is to help students understand Taiwan's education system and the suffering challenges, and realized the education reform which taking place right now. After this course, students may re-construct their education thought and develop an alternative educational point of view.

(一) 省思目前教育現況、困境，並檢視自己受到主流思潮的影響情形。

(二) 瞭解開放教育的意義、價值與可能性。

(三) 瞭解目前台灣開放教育的落實現況。

發展成為獨立思考的人。

2. 「創新與智慧財產權」中、英文課程綱要：

本課程針對不同的創新保護，提供一系統性、整體性的智財法觀念架構介紹，並以案例解析的方式來呈現如何利用智財法保護提昇創新的價值。課程內容主要介紹智慧財產權法律包含專利、商標、著作權及營業秘密之基本概念與案例應用，使學生瞭解不同類型的創新應以何種智財法保護。並希望學生能透過創意激發的方法針對生活上問題提出解決方案，並利用專利分析檢索、商標檢索及免費著作資材等智財權的應用，規劃創新物的智財保護方式。

Innovation and Intellectual Property Rights

The purpose of this course is to give the introduction about the concept of intellectual property law applied in different ways of innovation protection, and present how to use intellectual property law to protect and enhance the value of innovation by case study. The course content mainly contains that the introduction of the basic IPRs concepts and practical case applications of IPRs laws including patents, trademarks, copyrights and business secrets and that students can understand which kind of IPRs could be used to protect the innovation suitably. Besides, we also expected that students can propose the solutions from real life problems by using creative methods and plan how to protect innovation by using patent analysis, trademark search and free copyright materials.

3. 「全球政治經濟與南環經濟帶」中、英文課程綱要：

本課程透過探討南環經濟帶新興經濟體的崛起，訓練學生運用國際政治經濟理論分析世界政治經濟情勢發展的基本能力，培養學生探索國際間政治與經濟發展的現況與理論相互應證的實力。

課程以國際政治經濟理論為基礎，分析以西方為核心之世界體系觀的轉變因素及動力，深入探討南環經濟帶新興經濟體崛起的原因，及其在國際互動關係中所將扮演的角色與對世界的影響。

Global Politics, Economy and Global Southern Belt

This course discusses about the emergent drivers in the global economy, shifts in geopolitical and economic importance. It elucidates the processes of socioeconomic and political changes that are progressively transforming the world from a Western centric to multi centric economic society. The emerging economies of the global southern belt are setting new social economic goals and building new alliances to create a brighter future. Therefore, the transformation factors, impetus, roles and effects among international interactions are worth discussing.

4. 「國際關係」中、英文課程綱要：

本課程的目標是帶領學生認識國際關係領域的主要研究途徑與議題：一，國際關係的基本概念。二，國際關係的理論。三，國際安全。四、國際治理。綜言之，乃藉由解說國際關係理論及國際現勢，使學生了解當代國際社會及國際關係的發展脈絡、認識台灣在國際外交的挑戰，並培養學生作為現代公民應具有的思辨分析能力及放眼天下的宏觀視野。

International Relations

The goal of this course is to lead students to understand the main research approaches and topics in the field of international relations: First, the basic concepts of international relations. Second, the theory of international relations. Third, international security. Fourth, international governance. The course, from the general introduction on international relations to deeper analysis of every sub-issue, is expected not only to help students comprehend the important concepts and operations of international relations but to cultivate students' concerning and broad-minded view on international affairs. Besides, the instruction approach of the course will be carried out by both lecturing and discussing. After lectured by the teacher through power point, it will be discussed and inquired on the topics about the course by students.

5. 「民法概論」中、英文課程綱要：

民法不僅攸關我們日常生活的法律效力，突顯個人在世界上的種種法律關係和作用，從出生到死亡均有民法的適用。如買賣、租屋、旅遊、結婚、車禍、收養、和解...，作為現代人，應學習民法以掌握人是法律行為主體性的意義和內涵。

Introduction to Civil Law

This is a basic and required course, through which students may have a general understanding of our Civil Code and private law system. This course is designed to enhance students' methodology of legal analysis, especially by emphasizing the principles of contract law and various categories of contracts. One purpose of this course design is for students' future advanced studying of business law and other financial law courses.

6. 「刑事法案例運用」中、英文課程綱要：

- (一)刑法總則案例內容:從日常生活常見案例說明刑法總則基本原理、犯罪構成要件、有責性、違法性、刑罰論等概念。
- (二)刑法分則個人法益內容:從日常生活常見侵害刑法個人法益之案例，說明個人法益重要規定，使學生遵守規範不逾矩。
- (三)刑法分則社會法益內容:從日常生活常見侵害刑法社會法益之案例，說明社會法益重要規定，使學生遵守規範不逾矩。
- (四)刑法分則國家法益內容:從日常生活常見侵害刑法國家法益之案例，說明國家法益重要規定，使學生遵守規範不逾矩。
- (五)刑事訴訟法原理基礎案例內容:從日常生活常見刑事案件，說明刑事訴訟程序之基本原理等概念。
- (六)刑事訴訟法偵查程序案例內容:從日常生活常見刑事案件，說明刑事偵查程序重要規定，使學生明瞭相關規範。
- (七)刑事訴訟法審判程序案例內容:從日常生活常見刑事案件，說明刑事審判程序重要規定，使學生明瞭相關規範。

The Use of Criminal Law Cases

- (1) General principles of criminal law Case content: From the common cases of daily life, the concepts of the general principles of criminal law, the constitutional elements of crime, the responsibility, the illegality, and the theory of penalty are explained.
- (2) The criminal law sub-individual law benefit content: from the common daily life of criminal law violations of personal legal interests of the case, to illustrate the important provisions of individual legal interests, so that students abide by the rules are not overstepped.

- (3) Principles of criminal law The content of social law: From the common cases of everyday life that infringe criminal law and social law, the important provisions of social law are explained, so that students can not abide by the rules.
- (4) The contents of national laws and interests of the criminal law: From the cases of common national law violations of daily life that infringe on the criminal law, the important provisions of the national laws and interests are explained, so that students can not abide by the rules.
- (5) Principles of the Criminal Procedure Law Basic case content: From the common criminal cases in daily life, the concepts of principles and principles of the criminal procedure are explained.
- (6) Contents of the investigation procedure of the criminal procedure law: From the common criminal cases of daily life, the important provisions of the criminal investigation procedure are explained so that the students can understand the relevant regulations.
- (7) Contents of the trial procedure of the criminal procedure law: From the common criminal cases in daily life, the important provisions of the criminal trial procedure are explained, so that the students understand the relevant regulations

7. 「舌尖上的安全」中、英文課程綱要：(課名擬修正為：食品安全緒論)

經由上課強化學生對食品之安全之知識，以協助學校及社會推展食品安全之教育。透過問題導向討論，使學生明白台灣曾發生的食安問題與案件。讓學生在選修課程後，對發生的食安問題有妥善的理解與分析能力。

A Bite of Safety in food

By this class, students' knowledge of food safety is strengthened to assist schools and society in promoting food safety education. Through problem-based learning and discussions, students are made aware of food safety problems and cases that have occurred in Taiwan. Students have a proper understanding and analysis of food safety problems after they have taken elective courses.

8. 「從昆蟲看世界」中、英文課程綱要：

本課程擬自昆蟲與人類的關係出發，探索昆蟲的有趣型態、行為，揭開世界上多樣性最豐富的昆蟲世界的面紗。另外亦介紹入門昆蟲世界方法，如何與蟲接近；並結合昆蟲詩詞、漫畫，探討古今中外文學家、漫畫家、作家筆下的昆蟲世界，尋訪不同的視角。除此，本課程擬借由古董文物、古畫、雕塑、卡通、漫畫、電影、音樂...，探討藝術、時尚、人文界中的昆蟲，瞭解昆蟲在藝術創作中的角色，培養對昆蟲的新視野。另外，本課程並藉野外觀察，引導同學親身體驗六足世界有一趟知性、挑戰的歷程。

Interesting things about insects

This course tends to explore the relationship between insects and humans, indicating the interesting facts and behaviors of insects. In addition, it will approach insects through anthropology, industry and combines insect poetry and comics to explore the world of insects by literary writers, cartoonists and writers in ancient and modern times, and seek out different perspectives. At the same time, this course will demonstrate antique artifacts, ancient paintings, sculptures, cartoons, movies, music to explore the insects in art, fashion and humanities, to understand the role of insects in artistic creation. In addition, by field observation and group discussions, this course guides students to experience intellectual and challenging insight knowledge refer to six-leg creatures.

9. 「大數據分析導論」中、英文課程綱要：

隨著資通訊科技應用日益普及，伴隨而生的大量資料變成企業運作的重要資產，如何有效的分析、利用這些資料，從其中萃取出有價值的資訊，成企業競爭力的重要來源。本課程介紹大數據資料分析技術的方法，課程內容涵蓋資料科學、資料探勘、大數據分析、機器學習與人工智慧等相關技術概念，以各種實務案例為課程核心詳細介紹大數據分析技術，並輔以簡易的軟體應用，做為學生日後學習進階大數據分析技術的基礎。

Introduction to Big Data Analysis

Information and communication technologies (ICTs) have been widely used in every filed of

modern society. With the accompanying large amount of data, how to collect, analyze, and use the data effectively has been an important task of an enterprise. In this course, we introduce the concepts and technologies of big data analysis (BDA). It will covers the concepts of data science, data mining, big data analysis, machine learning and artificial intelligence in this course. We will introduce BDA concepts by lecturing practical cases and software applications in enterprises. This course will be the foundation for students to learn advanced BDA technologies in the future.

10. 「數理藝術」中、英文課程綱要：

本課程主要讓學生了解藝術與數學及物理所創造的風格與本質，並揭示數理與藝術之間的複關係，闡述數理是一種理性的藝術觀點，俾建立學生科學知識及美學鑑賞等之能力。

Art of Mathematics-Physics

This course is designed to let students understand the style and essence created by art, mathematics and physics. And reveal the complex relationship between mathematics-physics and art. It expounds that mathematics-physics and science is a rational art point of view, and establishes scientific knowledge and aesthetic appreciation for students.

11. 「科技新知與現代生活」中、英文課程綱要：

因應大數據時代的到來，多元解讀未來科技之思維模式與發展研究等相關課題的脈動及影響，並通過結合時事課題之省思探討，非常有助於建構學生對於科技新知之新視域與新思維，與進一步培養因應科技發展，相應於生活、人性、自然、與未知世界，所應面對及承擔的正義責任。

本課程聚焦於當代科技之演進與發展，由資訊科技及生活科技兩大面向，自從主體自身之食、衣、住、行等面向進行探索，復延伸至人際、社會、國際、自然乃至外太空相關之科技新知的詮釋實踐，使學生體現廣泛地理解現代科技各項層面的生活應用。

Novel Technology and Modern life

This course will explore the development of modern science and technology, leading students to understand the application of technology from the foods, clothing, houses, even life trivia. Extend new knowledge about science and technology from self, interpersonal, social, international, natural and even outer space.

This course will also interpret the Model of Thinking and Field of Application about "Future Science and Technology Development and Research". By interactive discussions, construct students' curiosity and interest with a new vision about new knowledge of science and technology. Moreover, we will discuss the responsibility for the life, humanity, nature, the future, and the unknown world under the impact of development of new science and technology.

12. 「風險評估」中、英文課程綱要：

本課程是以在校學生為對象之未來職場導入性學習，內容包括職業場所與生活環境中健康風險概論、安全風險概論與系統安全概論，並以實例介紹生活與職場中之風險，以期提早養成學生風險管理之基本概念及實務。主要課程內容包括四部分：(1) 安全評估與量化風險、(2) 系統安全與安全設計、(3) 環境污染與健康風險、(4) 暴露評估與量化風險。

Risk Assessment

This course is intended to serve the introductory learning for students whose future professional work requires a sound knowledge regarding the fundamentals of health risk, safety risk and system safety in the workplace and living environments. Furthermore, some cases will be also addressed in the course to teach the risk assessment and management for the students in the early career stage. In brief, this course includes the following parts: (1) Safe evaluation and quantitative risk, (2) System safety and safety design, (3) Environmental pollution and health risk, and (4) Exposure assessment and quantitative risk.

