資 訊 工 程 系 （四 技 部） 課 程 中 英 文 簡 介

專 業 必 修 科 目（講 授 時 數 - 實 習 時 數 - 學 分 數）

微積分(一)

Calculus (一) 3 0 3

介紹基本函數之極限與連續等相關特性，以及代數函數與超越函數的導函數。進而介紹微分的
觀念技巧以及相關之應用。並訓練學生在相關科學之理用此觀念解決與分析相關問題之能力。

To introduce the main features of basic functions including limitation and continuous, and the
differential analysis in algebraic functions. And to train up students to own the technologies in
analysis and resolve questions in other relational subjects.

微積分(二)

Calculus (二) 3 0 3

介紹積分的基本定義及性質，以及相關之應用。並進而介紹無窮級數包含泰勒級數與麥客勞林
級數與偏導函數與二重積分之之基本概念與相關應用及技巧。並訓練學生在相關科學之理用此
觀念解決與分析相關問題之能力。

To introduce the main features of integral theory and the related applications. And introduce
the infinite progressions theory and the related applications. And to train up students to own
the technologies in analysis and resolve questions in other relational subjects.

程式設計(一) Programming(1) 2 2 3

本門課程主要目的在於教導學生如何分析問題並透過撰寫程式來解決問題，學習物件導向程式
設計的基本觀念，並透過上機方式鍛煉實作技巧，加強學生思考邏輯與判斷能力。

This course intended to teach the students to analysis problem and write program to solve
the question and learn the basic concept of object-oriented programming. Besides, students
need to write program on the computer in class to train the writing skills to enhance their
logic and decision ability.

程式設計(二) Programming(2) 2 2 3

本課程延續上學期之程式設計(一)，預計從函數開始講解直到多執行緒的部份，並於期末透過
考古題鍛煉學生解題技巧，期望學生能順利通過 Java 國際認證考試拿到 SCJP 的證照。

This course continue the class, programming(1), which had opened at previous semester. We
expect to teach from the method to the multi-thread, and train the student's skills to solve
the questions using some ancient exam. Finally, we hope that students can pass the Sun
Certified Programmer for Java2 Platform and get the certification of SCJP.

數位邏輯與實習 Digital Logic and Practice 2 2 3

協助學生理解目前電腦系統與網路基本概念與原理、操作常見的網路服務工具並同時培養架設網站與設計網頁的能力。

In this course, we will introduce the fundamental concept and theory of each popular computer system and network. Meanwhile, we will let students to practice using network service tools to help them be able to construct their own website and develop the capability of website design by theirselves.

資訊工程導論 Outline of Information Technology Concepts 3 0 3

本課程內容涵蓋目前 IT 科技相關知識，包括了電腦應用、數位系統、計算器組織、數位邏輯、系統程式、作業系統、程式語言、軟體工程、資料結構、演算法、檔案結構、資料庫系統、電腦網路、無線通訊、網際網路及資訊安全等範疇。主要目的在於引導學生對於資訊工程有正確的觀念，並培養學生自主學習的能力；教材部分則以教科書為主，參考資料為輔。

This program includes most knowledge of information technology. It contains applications of computer, digital logic, system program, operation system, programming language, software engineering, data structure, algorithm, information security and database. After finished this program, students should have correct concepts of information engineering and self-learning.

可程式邏輯與實習 Programmable Logic and Practice 2 2 3

使學生熟悉以 Verilog 硬體程式語言為主的程式設計觀念,並搭配 Xilinux ISE 來合成及模擬 FPGA 的各種相關設計結構. 課程內容包括: 數位邏輯設計-Verilog 設計風格與觀念講述、Verilog HDL 設計結構、Logic Gate Level 描述、Dataflow Modelling、程式與硬體之行為描述、函數及任務的撰寫、自定邏輯電路與狀態機的撰寫。

This course enables students to be familiar with program design concept of Verilog hardware description language, which is associated with Xilinx ISE to achieve the task of synthesis and behavior simulation in FPGA design structure. Subjects of the course include digital logic design-Verilog design concept, Verilog HDL design structure, logic gate level description, dataflow modeling, program and hardware behavior simulation, function and task, user defined primitives and finite state machine.

電子電路實習 Course outline of Microelectronic Circuits and Practice 2 2 3

讓學生擁有基本的電子學知識，以實作的方式加強印象。並透過實驗，使學生瞭解一些電子電路的應用。 。

The purpose of this course is to introduce the fundamental principles of electronic circuits to students. Some experiments are designed in the course for the students to reinforce the impression of electronic circuits, and make they realized the applications.

線性代數 Linear Algebra 3 0 3

線性代數是利用向量與矩陣特性，解決任何以線性方程式描述之系統，譬如電路系統、通訊系統、控制系統；藉由線性代數之特徵值與特徵向量，更能深入瞭解系統之內涵；藉由線性代數正交基底，則能深入瞭解向量訊號之組成與其轉換特性。

The course will introduce the basic theory of Linear Algebra including linear equations, Matrix theory and vector space concept. Eigenvalues and eigenvectors are used for describing the characteristics of the system. A set of orthogonal basis vectors represent the vector components and transformation characteristics.

資料結構 Data Structure 3 0 3

本課程透過對一些特定問題的探討，解釋每個演算法或資料結構的作法與計算時間，並詳盡的介紹會影響執行時間的實作細節，希望學生能透過本門課程學習到正確的程式開發與演算法分析技巧，讓每個人都能夠在最有效率的情況下開發複雜的程式。

This course explains how to implement the algorithms or data structures one by one and calculate the complexity by exploring some specific problem. This course also describes the implement steps that will affect the execution time. We hope that the students can learn the correct techniques to write a program and analyze the algorithm in this class. And everyone can develop a complex program using the most efficient way.

計算器網路 Computer network 3 0 3

本課程目的在於訓練學員網路架構的各種軟硬體組成。在網路硬體方面，主要教導學員熟悉router、switch、各種伺服器如 proxy server、mail server、DNS server、web server 的原理及相關協議。在網路軟體方面，主要教導學員基本網路架構(區域網路、廣域網路、網際網路、無線網路)與 OSI 模型、TCP/IP 協定組(Application layer: Http、FTP、SMTP/POP3、DHCP，Transport Layer: TCP 與 UDP，Internetworking Layer:IP，ICMP，ARP/RARP、IPv6)。本課程也包括網路管理(SNMP/RMON、MIB)與網路安全(Firewall、IDS、IPS)的基本主題。

This course will focus on the basic computer network architecture, protocols, and related theorems. The goal is to let the student understand the basic of computer network as well as the state-of-the-art in network protocols, architectures and applications. The course touches on the OSI reference model, TCP/IP protocol, LAN, WAN, Internet, wireless and mobile communication. This course also include topics of basic network management(SNMP/RMON、MIB) and network security(Firewall、IDS、IPS)。

計算器結構 Computer Architecture 3 0 3

旨在使學生瞭解計算器結構。內容包含: 基本計算器組織與設計，微程式控制設計，資料路徑設計，管線與向量處理設計，多處理器系統設計，精簡指令集電腦設計等。

The main purpose of this course is to let students know the computer architectures. Contents

include basic computer architecture design, microprogramming control design, data path design, pipelined and vector processing design, multiprocessor design, reduced instruction set computers design… etc.

資訊倫理與智慧財產權 Information Ethic and Intellecture Property Protection 2 0 2
以傳授資訊科技相關新知、倫理與智財權保護，藉此激勵技職學生習得一技之長，為就業建立良好基礎。
Teaches new knowledge related the information science and technology as well as the ethic and the intellectual property protection. With the experiences, students could learn the professional skill actively for the future career development.

離散數學 Discrete Mathematics 3 0 3
本課程主要介紹計算器科學上所探討到相關數學課題及其解決方式,它涵蓋代數、邏輯、組合數學、圖論、有限狀態機及演算法...等，內容相當廣，而且各個主題間大多不具相關性，學習上雖不會太困難，但由於涵蓋範圍相當廣泛，所以對學生而言，是一門易學但繁雜的科目。
The lecture is to introduce related mathematical issues and solutions studied in computer science. Discrete mathematics covers algebra,logic,combination mathematics,Graphs,finite-state machine and algorithm, etc.. The content is rather wide and each topic mostly does not have the relativity. Although it is not too difficult for learning, the scope is rather extensively for students.

作業系統 Operating System 3 0 3
協助學生瞭解現代作業系統之關鍵機制、內部設計原理與理論，同時針對幾個具代表性之作業系統進行個案介紹。建立學生對於作業系統之專業知識。
In this course, the purpose is to help students understanding the fundamental design theories, critical techniques and the common implementations of modern operating systems. Meanwhile, we also provide the case study of some representative operating systems to reinforce their knowledge.

微算機原理與實習 Course outline of the Principles of Micro-processors and Lab 2 2 3
讓學生瞭解微算機的基本架構原理與微算機系統架構。課程內容包括微算機的基本組織架構，指令集，功能特性、應用方法與實驗。
Let students realize the fundamental principles and architecture of microprocessors. Include the architecture and organization of a microprocessor, instruction set, characteristics of function, applications, and Lab.

嵌入式系統與實習 Course outline of Embedded System and Lab 2 2 3
簡介嵌入式系統的架構與發展方法。課程內容包括介紹嵌入式系統定義、嵌入式系統的組織與

結構、嵌入式系統的元件、嵌入式系統的軟體與硬體設計方法入門、嵌入式系統的應用程式發展方法與實驗。

Introduction to the architecture and development method of embedded systems. Let students understand the definition, the architecture and organization, the parts, the designed methods of embedded system. In addition, a lot of experiments are given.

系統程式 System Programming 3 0 3
本科目的核心主題在於探討機器架構與系統軟體之間的關係，並介紹組譯器、載入器、連結器、宏處理器、以及編譯器等相關流程與處理技術。另外也探討現行作業系統如 Windows, Linux 中的相關設計與系統架構。

The main targets of this subject are focus in the research of the relationship between machine architecture and system software, and introduce these process flows including assembler, loader, linker, micro processor and compiler. Moreover, to research the main design and framework of present OS such as Windows and Linux.

專題製作（一）Special Topics (1) 0 3 1
旨在使學生瞭解如何規畫專題、執行、撰寫報告、及撰寫簡報。內容包含: 專題製作之程式，專題製作之研究與執行，專題製作之階段報告之撰寫，專題製作之階段報告之簡報內容等

The main purpose of this course is to let students know how to plan the project, how to research and implement the design, how to write a good report and how to presentation. Contents include the process of the project lifecycle, the research and execution of the project, the report writing techniques, the presentation techniques …. etc.

專題製作（二）Special Topics (2) 0 3 1
本課程為專題製作(一)的延續，強調學生基礎能力的實務應用，培養學生資訊系統開發之實作能力，期由專題執行過程中學習項目管理之技能及團隊合作之精神。專題題目的研擬由各組組員專長及興趣，主動與系上相關領域的專任老師討論適當之主題。

This course which is the extension of Special Topic (I), emphasize the practical implement and application of the student's fundamental IT abilities and train the student's practical ability of design and implement an IT system. We hope the students can acquire the skill of project management and the spirit of team work in this course. The topic of each team is based on the members' special skill and interest with a teacher's guidance.

軟體工程 Software Engineering 3 0 3
軟體工程課程的目的將為專案開發工程師的技能教育。課程目的在於教導專案開發工程師在真實中應用系統發展的複雜難懂流程一套知識體系。內容包括專案管理技術與實務，需求分析，軟體架構系統分析與設計，系統測試和維護。

The purpose of the software engineering is to educate and train student for the profession of

software engineer. The process of developing real-world applications is complex, and it requires knowledge of a broad set of activities. This course will provide a knowledge framework for student. These are project management, requirements analysis, software architecture, system analysis and design, testing and maintenance.

專題研究 Project Research 0 2 1

本課程主要在結合理論實務，以提升教學品質，驗收學生的學習成果；進一步培養學生畢業後之競爭實力以因應職場變遷。

The course is to combine theory and project realization for raising the teaching quality and examining learning results of students. Furthermore, because the job market changes day after day, the course is to increase the competition capability of students after graduation.

專業選修科目（講授時數-實習時數-學分數）

基本電學與實習 Course outline of Electricity and Lab 2 2 3

讓學生能夠認識基本的電路元件特性與簡單的應用電路分析方法。課程內容
包括基本電子元件如電阻、電容、電感的介紹；基本電路分析方法；電路暫態；電錶使用；電源供應器使用，基本元件與電阻電路的實習。

Let students understand the principles of electricity. This lesson includes introductions to resistors, capacitors, conductors, analysis methods about resistor circuits, usage of meters and power supply, lab.

網頁程式設計 Web Hompage Design 3 0 3

市場上有很多的網頁編輯軟體，可以協助使用者開發各式各樣的網站，但是這些制式的功能，對於想要求新求變的網路新人類而言，確實有點不符需求。本課程介紹 HTML 和 JavaScript，最後學生都可隨心所欲的設計出所要的網站。

This course will not only introduce HTML, but also Javascript descript language. The content covers Javascript operators, functions, event control and so on. Each student will learn the skill to conduct a dynamic web homepage and the ability to complete a practical web project.

爪哇程式設計 Java Programming 3 0 3

這門課程目的在於訓練學員的 Java 程式設計技術與物件導向的開發與設計原則。透過整合開發環境(IDE)的實務開發,本課程將提升學員 Java 程式設計技術。課程內容包括 Java 基本語法、控制架構、Java 物件導向的程式技術與實務、多執行緒程式技術、圖形化介面程式規畫以及開發、資料庫存取技術等內容。

This course introduces principles of object-oriented programming in Java and object-oriented

design. It will allow understanding of language constructs in Java, the principles of designing OO software, and an Integrated Development Environment (IDE) for Java. This Course include the following topics: basic data type、control structure、OO programming practices、multithread programming、GUI programming and Database。

組合語言 Assembly Langguage Programming 3 0 3
本課程旨在使學生瞭解低階程式語言與微處理器機器腳本映對的關係，以組合語言撰寫程式直接控制微處理器的運作，除基本資料處理、算術與邏輯運算等基本指令外，同時介紹組合語言程式流程控制、迴圈、查表與排序等程式寫作技巧。
This course introduces the relation between low-level program language and machine code and how to manipulate the embedded microprocessor with assembly programs. In addition to the instruction set architecture, it also provides the program skills like flow control, loop control, look-up, sorting and so on.

Linux 作業系統實務 Linux Operating System 3 0 3
本課程的主要目標是說明同學們瞭解 Linux 的系統架構，並教導同學們學習架設及使用 Linux 作業系統。
The essential goal of this course is helping schoolmates to understand the architecture of the Linux operating system. This course also teaches schoolmates to work with the Linux operating system.

資料庫導論 Database Concepts 3 0 3
本門課主要介紹資料庫原理，ER model 與 SQL 語言。本門課的內容包含：1.資料庫系統基本概念。2.資料模型的建立。3.SQL Language 語法及其使用。
This course teaches its students how to design and implement a complete database concept using ER model and SQL language in a modern relational database system. It covers the contents as follows: 1.basic DBS concepts 2.ER model, and 3.the syntax and use of SQL language

伺服網頁程式設計 Server Web Hompage Design 3 0 3
本課程除了介紹網路主從式架構外，將介紹.NET 技術架構，其中包含 VB.NET，Web Forms 的使用、各種物件的使用、及 ADO.NET 等 ，使學生都能具備動態網路程式撰寫及網路資料庫存取技術的能力，並建制一完整的動態網頁。
This course will not only introduce client-server concept, but also the .NET technology. The .NET technology introduced in this class includes VB.NET, Web Forms, Objects, and ADO.NET. Each student will learn the skill to conduct a dynamic web programming and the ability to access the web database. At the end of the semester, students will complete a practical web project.

手機程式設計 Programming Design for Cell Phones 3 0 3

此課程配合目前 Android 手機的 layout 設計 與 API 的介紹，讓學生可以設計出符合 Android Framework 的程式, 如表單設計, 對話方塊設計, 多媒顯示, 照片藝廊

This course focuses on Android layout design and API implementation to let students construct a well-designed framework such as list, dialog box, multi-media display,and photo gallery.

視窗程式設計 Windows Programming with MFC 3 0 3

協助學生瞭解如何撰寫在 Microsoft Windows 環境下執行之程式。由基本視窗程式之執行原理、各種視窗訊息類型傳遞與處理。學習如何利用 MFC 類別庫協助撰寫複雜之視窗程式，建立學生將來撰寫專題系統展示介面之基本能力。

We help students to program in the Microsoft Windows in this course. We introduce the Windows programming from the fundamental theory of a simple windows program, the message routing and processing, interface controls, and so on. Meanwhile, we introduce Microsoft Foundation Class library to support the Windows programming to establish the capability of design the interface of any project.

數值方法 Numerical Method 3 0 3

這門課程目的在使學生瞭解如何使用計算器解決工程上所遇到問題。內容包含: Excel 套裝軟體使用於數值方法與分析，誤差分析，方程式的根，線性代數方程，優化，曲線擬合，數值微分與積分等。

The main purpose of this course is to let students know how to solve engineering problems using computers. Contents include the using of Excel package to solve the numerical problems, error analysis, the roots of the equations, linear algebra equations, optimizations, curve fitting, numerical differential and integral.

機率與統計 Probability and Statistics 3 0 3

從集合、基礎機率理論出發，接著介紹隨機變數，緊接之各式常用離散與連續機率密度分佈，配合實例應用，讓學生理解各項組成間之關連性，以為接下來之統計學之學習背景知識。

After introducing the set and probability theory, we will explain the random variable, discrete and continuous density distributions to students. Then, the students could learn the statistics in the following course.

積體電路設計導論 Introduction to VLSI Design 3 0 3

以 CMOS 電路為主。內容包含: 制程技術、CMOS 電路之電路圖設計技術、CMOS 電路之佈局技術、CMOS 電路之驗證技術、CMOS 電路之模擬技術。

The course introduces techniques for CMOS circuit. Techniques including manufacture

techniques, CMOS circuit design techniques, CMOS circuit layout techniques, CMOS circuit verification techniques, CMOS circuit simulation techniques.. etc.

AJAX 程式設計 AJAX Programming 3 0 3

介紹 Ajax 的程式設計模式,再引進 Ajax 程式設計框架,進而簡化開發 client 與 server 端的工作。

The primary goal of this course is to introduce Ajax Design Pattern, and also reduce the development works of client-server sides through the use of Ajax framework.

網際網路系統與應用 Internet Application 3 0 3

使學生得以瞭解電腦的基礎架構與設計原理,以備將來修習計算器結構、系統程式、組合語言與作業系統等課程。

This course is aimed at teaching the fundamentals of digital systems. From introducing the number system, complement and Boolean algebra, we introduce each basic concept step-by-step. Then, the switching function and its optimization techniques are explained through the simplification theorems as well as Karnaugh maps. Besides, we prepare practices about the contents taught in the course. Through appropriate lectures and enough practices, we will help students prepare for other advanced courses, such as computer architecture, system program and operating system.

演算法 Introduction to Algorithms 3 0 3

本課程的目標在於將演算法的知識,作一個基礎性的介紹,從演算法的歷史出發,說明長久以來的發展及其對於資訊科技發展的重要性。接下來,針對不同設計概念的演算法類型進行說明,讓參與本課程的學生可以對於程式設計上所需要參考、應用的演算法理論有基本之認知,以利未來在本身所面對的工作上有所幫助。

This course aims to introduce the fundamentals of computer algorithm, including the history of the computer algorithm, and the development and its associated importance of the information technology. The students taking the lesson will obtain the knowledge of how to programming and the computer algorithm to improve their ability of entering the occupation.

行動網路程式設計 Network Programming for Mobile Devices 3 0 3

介紹於行動裝置上的網路程式設計, 藉由不同的溝通方式,如何播放遠端的多媒體串流與 拮取影片, 且行動裝置之間如何相互溝通.

This course is focused on networking programming to communicate with mobile devices and servers. This is an attempt to play an remote multi-media and retrieve a snapshot via different communication protocols.

積體電路系統設計 VLSI Design Practice 3 0 3

旨在整合 CMOS 電路、佈局、驗證與模擬技術，以實際去實現一個數位系統晶片。內容包含: CMOS 基本邏輯電路設計技術、CMOS 記憶單元電路之設計技術、CMOS 電路之 PLA 設計技術、CMOS 資料路徑之設計技術、I/O Pad 之設計技術。

The main purpose of this course is to provide a practicing environment for integrating techniques for CMOS circuit, layout, verification and simulation to implement a digital system chip. Practicing techniques including basic gates, memory element, PLA, data path and I/O pads…. etc.

數位訊號處理 Digital Signal Processing 3 0 3
介紹數位信號處理基本理論與應用,以建立基本的數位信號處理概念，並能熟悉數位信號處理技巧及應用，做為其它研究之基礎。

The objective of this course is providing student the basic theory of the Digital Signal Processing. All students will learn and realize the basic concept, technique and application of the Digital Signal Processing which provides a lot of elementary knowledge for projects reaserch.

介面設計與實習 Interface Design and Practice 2 2 3
介面設計與實習將介紹電腦系統中介面與周邊的關係，並以一些實際的範例，如 LED、LCD、鍵盤、ADC、串列等介面讓同學來實習，以實際的瞭解介面設計的問題，並由這些介面與周邊，如 GSM、GPS 等實際連接範例的應用，瞭解介面應用的技術。

This course will introduce the relationship between the interface and the peripheral of a computer system. Some practical examples such as LCD, keypad, ADC, and serial interface will be introduced. Student can realize the interface design concept after practicing these examples. As well some applications, such as GSM, GPS interfacing will introduce to student. Applications of interface technique can be real practiced in this course.

無線網路實務 Wireless Networks 3 0 3
本課程首先會解釋何謂無線網路，其特色及限制為何，接著說明無線通訊的背景及採用之基本技術，最後介紹目前較為熱門的無線通訊網路之特色及規格。

This course explains what is wireless network and what is the characteristics and limits of it at first. Then we will describe the background of wireless network and the basic technique it used. Finally, we introduce the specification and characteristic of some wireless networks that are most popular today.

多媒體網路應用與實習 Multimedia Network Application and Practice 2 2 3
介紹多媒體與網路結合後所達成的多媒體網路傳輸之相關技術，讓學生瞭解其中之基本原理並啟發學生對於相關議題的改進與應用之興趣。

In this course, we introduce the fundamental theories and techniques of multimedia

resources and internet. They are the properties of audio and video resources, wired/wireless network protocols, security techniques, audio/video compression techniques, and so on. After attending this course, the students may be more interested on these issues and be able to study related topics.

物件導向程式設計 Object-Oriented Programming 3 0 3
從生活實例出發，引領學生體會物件導向之基本概念。再進一步由傳統結構化之程式設計角度切入，帶領學生從簡單的範例中理解物件導向程式設計的特色，並啟發其自行以物件導向之角度開發應用程式之能力。

In this course, we introduce the concept of object-oriented technique from some cases in daily life. After introducing the traditional structural programming, we lead the students to the paradigm of object-oriented programming to help them be able to develop applications from the perspective of object-oriented concept.

資訊安全 Information Security 3 0 3
擬介紹密碼學與資訊安全重要之基礎觀念。期建立學生基礎資訊安全知識，分別就資訊安全、網路安全與系統安全面加以介紹，讓學生能有全面性的瞭解，並學習各種網路上常面臨的資訊安全相關議題。

This is to introduce the important basic concepts of cryptography and information security. We expect to develop students' fundamental knowledge of information security. Information security, Internet security and System security are to be introduced respectively to have students comprehended comprehensively, and to have them teach different relevant subjects about information security which are frequently encountered.

影像處理 Image Signal Processing 3 0 3
影像與視訊處理課程的目標為培養學生具備影像與視訊處理的技能教育。課程目的在於教導如何處理數位影像與影像信號的一套知識體系。內容包括影像的強化，影像模糊、邊緣測試，影像資料分析。

The course purpose of the image and video signal processing is to educate and train student for the profession of image processing techniques. This course will provide a knowledge framework for student. These are image sharp, histogram, edge detection, and so on.

語音訊號處理 Speech Signal Processing 3 0 3
使學生熟悉語音訊號處理的基本概念與方法。課程內容包括: 語音的產生, 語音處理的技術、聽覺系統、聲學原理:、短時段語音處理、短時段語音處理、線性預估分析、倒頻譜分析、倒頻譜的應用、語音訊號量化、語音編碼。

This course enables students to be familiar with fundamental concept and various approaches of speech signal processing. Subjects of the course include generation of sound acoustic,

techniques of speech signal processing, human auditory, theories of speech, short time speech signal processing, linear prediction analysis, cepstrum analysis and applications Quantization of speech and speech coding.

模糊理論與應用 Fuzzy Theory and Application 3 0 3

模糊理論與應用的目的為處理資訊的軟體工程師的技能教育。課程目的在於教導軟體工程師模糊理論與應用方法。內容包括模糊化，推論方式，反模糊化，範例探討。

The purpose of the fuzzy theory and application is to educate and train student for the profession of signal processing technique. This course will provide a knowledge framework for student. These are fuzzilize methods, fuzzy inference, unfuzzilize method.

圖訊識別 Pattern Recognition 3 0 3

介紹一些圖訊辨別的基本觀念及理論，包含貝氏分類法則、線性辨別函數、參數分類器、特徵抽取、叢聚分析及圖形識別、類神經網路的影像辨認應用等。

The course will introduce some basic theory of Pattern recognition including Bayes theory, linear recognition function, parameter classifier, characteristics retract, cluster gather analysis and neural networks for pattern recognition application and so on.

工廠實習 Shop Work 0 3 1

本課程主要安排學生至南部科學園區資訊相關廠商參與研發與生產工作，提供學生難得知工作經驗。實習內容與時程由本系與廠商共同擬訂之，以配合學生在學校之學習課程。實習過程中由廠商安排資深人員擔任實習導師親自指導並提供相關實習設備及福利，並由學校或廠商提供學生實習津貼。此外，由學校辦理相關保險。

This course provides students to get the practical training from these companies in the south science park. The process and period of practical training is defined by these companies and school according these school's programs. Students can get the guidance, emolument, and welfare in the period of practical training.

電子商務 Electronic Commerce 3 0 3

本課程說明如何利用網際網路的特性，來提升企業的競爭力或創造新的產業。此外，為了防止網路上的商業犯罪，本課程也將說明如何替電子商務建立安全機制。

This course shows how using Internet's characteristic, to promote enterprise's competitive power or create the new industry. In addition, to prevent in network's commercial crime, this course also describes several security mechanisms to secure the electronic commerce.

類神經網路 Neural Networks 3 0 3

本課程主要介紹一些類神經網路的基本觀念及原理，包括感知機、倒傳遞網路、學習向量量化網路、自組織映射網路、霍普菲爾網路、退火神經網路及其應用等。

This course will introduce some basic theory and application of Neural Networks including Perceptron, Back Propagation Network, Learning Vector Quantization, Self-Organizing Map, Hopfield neural networks and Annealed neural networks and so on.

機器人程式設計 Robot Programming 3 0 3
運用不同單元的課程主題，循序的由建構發展環境開始，逐一的學習基本機器人關鍵模組控制程式的設計與控制原理。使學生最終能夠于課程後實作一個簡單的居家巡邏機器人。
The course introduces a series of robot programming topics. Students can learn basic programming techiques of controlling mobile robots and acquiring sensor data step by step. In addition, the students can also learn the knowledge about handling a robot programming development tool.

人工智慧 Artificial Intelligence 3 0 3
人工智慧課程融合數學、電腦科學、心理、認知等知識，在科技中扮演特殊的角色。本課程的目的為培養學生在解決工程問題時能選擇適當的人工智慧技術。內容包括人工智慧的簡介、推論的方法、機器學習的方法和演化計算等。
Artificial intelligence has a unique place in science, sharing borders with mathematics, computer science, philosophy, psychology, biology, cognitive science and others. The aim of the course is to give a broad overview of AI techniques, so that when students go into industry or research, they will be able to choose the correct AI techniques for the problems which arise. There will be four main parts to the course: (1) Fundamentals (2) Automated reasoning (3) Machine learning (4) Evolutionary approaches。