

National Chin-Yi University of Technology Continuing Education Division Curriculum for 2024 Department of Computer Science
and Information Engineering Four-Year Bachelor Program of Elite Program in Smart Technology Application

114.02.26 系課程暨系務會議審議通過
114.05.07 院課程會議審議通過
114.05.20 校課程委員會議及 114.06.05 臨時教務會議審議通過
114.11.06 系課程會議審議通過
114.11.10 系務會議審議通過
114.11.13 院課程會議審議通過
114.12.4 校課程委員會議及 114.12.23 臨時教務會議審議通過

| 科目 | Courses | 上學期 First Semester | | | 下學期 Second Semester | | |
|---|--|--------------------|---------------|------------------|---------------------|---------------|------------------|
| | | 學分 Credits | 正課 Lecture | 實習 Internship | 學分 Credits | 正課 Lecture | 實習 Internship |
| 共同必修科目 (24 學分) General Required Courses (24credits hours) | | | | | | | |
| 第一學年First Year | | | | | | | |
| 國文(一) | Chinese (I) | 2 | 2 | 0 | | | |
| 科技英文(一) | English for Science and Technology (I) | 2 | 2 | 0 | | | |
| 藝術鑑賞 | Art Appreciation | 1 | 1 | 0 | | | |
| 職場職能與倫理 | Occupational Competency and Ethics | 2 | 2 | 0 | | | |
| 體育(一) | Physical Education (I) | 0 | 2 | 0 | | | |
| 國文(二) | Chinese (II) | | | | 2 | 2 | 0 |
| 科技英文(二) | English for Science and Technology (II) | | | | 2 | 2 | 0 |
| 體育(二) | Physical Education (II) | | | | 0 | 2 | 0 |
| 微積分(一) | Calculus (I) | | | | 3 | 3 | 0 |
| 第二學年Second Year | | | | | | | |
| 憲法與民主 | Constitution and Democracy | 2 | 2 | 0 | | | |
| 微積分(二) | Calculus (II) | 3 | 3 | 0 | | | |
| 體育(三) | Physical Education(III) | 0 | 2 | 0 | | | |
| 體育(四) | Physical Education(IV) | | | | 0 | 2 | 0 |
| 音樂鑑賞 | Music Appreciation | | | | 1 | 1 | 0 |
| 第三學年Third Year | | | | | | | |
| 歷史與文化 | History and Culture | 2 | 2 | 0 | | | |
| 人際關係與溝通協調 | Interpersonal Communication and Coordination | 2 | 2 | 0 | | | |
| 第四學年Fourth Year(無必修課程No General Required Courses) | | | | | | | |
| 專業必修科目 (67 學分) Department Required Courses(67credits hours) | | | | | | | |
| 第一學年First Year | | | | | | | |
| △程式設計與實習(一) | Computer Programming and Experiment (I) | 2 | 1 | 2 | | | |
| 計算機概論 | Introduction to Computer | 3 | 3 | 0 | | | |
| 產業實務實習(一) | Industrial Practice Internship (I) | 3 | 0 | 6 | | | |
| △數位邏輯概論 | Introduction to Digital Logic | 3 | 3 | 0 | | | |
| △程式設計與實習(二) | Computer Programming and Experiment (II) | | | | 2 | 1 | 2 |
| 產業實務實習(二) | Industrial Practice Internship (II) | | | | 3 | 0 | 6 |
| △數位邏輯與實習 | Digital Logic and Experiment | | | | 2 | 1 | 2 |
| 基本電學 | Basic Electricity | | | | 3 | 3 | 0 |
| 第二學年Second Year | | | | | | | |
| 產業實務實習(三) | Industrial Practice Internship (III) | 3 | 0 | 6 | | | |
| △資料結構 | Data Structures | 3 | 3 | 0 | | | |
| 電子電路與實習 | Experiment of Electronics Circuit | 2 | 1 | 2 | | | |
| △Web 程式設計與實習 | Web Programming | 2 | 1 | 2 | | | |
| 單晶片原理 | Theory of Microcontroller | 3 | 3 | 0 | | | |
| 線性代數 | Linear Algebra | | | | 3 | 3 | 0 |
| 離散數學 | Discrete Mathematics | | | | 3 | 3 | 0 |
| 產業實務實習(四) | Industrial Practice Internship (IV) | | | | 3 | 0 | 6 |
| 計算機組織與結構 | Computer Organization and Architecture | | | | 3 | 3 | 0 |
| 第三學年Third Year | | | | | | | |
| 工程數學 | Engineering Mathematics | 3 | 3 | 0 | | | |
| 資料庫概論 | Introduction to Database System | 3 | 3 | 0 | | | |
| 產業實務實習(五) | Industrial Practice Internship (V) | 3 | 0 | 6 | | | |
| 產業實務實習(六) | Industrial Practice Internship (VI) | | | | 3 | 0 | 6 |
| 作業系統 | Operating System | | | | 3 | 3 | 0 |
| 第四學年Fourth Year | | | | | | | |
| 產業實務實習(七) | Industrial Practice Internship (VII) | 3 | 0 | 6 | | | |
| 產業實務實習(八) | Industrial Practice Internship (VIII) | | | | 3 | 0 | 6 |
| 科目 | Courses | 上學期 First Semester | | | 下學期 Second Semester | | |
| | | 學分 Credits | 正課 Lecture | 實習 Internship | 學分 Credits | 正課 Lecture | 實習 Internship |
| 專業選修科目 Department Electives Courses | | | | | | | |

| 第一學年 First Year | | | | | | | |
|------------------|--|---|---|---|---|---|---|
| 單晶片概論 | Introduction to Microcontroller | | | | 3 | 3 | 0 |
| 第二學年 Second Year | | | | | | | |
| 電腦網路概論 | Introduction to Computer Network | 3 | 3 | 0 | | | |
| 資訊與多媒體工程實務 | Information and Multimedia Engineering | 3 | 2 | 2 | | | |
| 晶片設計實務 | Chip Design Practice | 3 | 3 | 0 | | | |
| 可編程系統晶片設計 SOPC | SOC Chip Design SOPC | 3 | 3 | 0 | | | |
| 電子儀表學 | Electronic Instruments | 3 | 3 | 0 | | | |
| 物件導向系統分析 | Object-Oriented System Analysis | 3 | 3 | 0 | | | |
| 生理工程導論 | Introduction to Physiological Engineering | 3 | 3 | 0 | | | |
| △C 語言程式設計 | C Programming Language | 3 | 3 | 0 | | | |
| 計算機圖學 | Generalization of Computer Graphics | 3 | 3 | 0 | | | |
| 介面技術與實習 | Interface Technology and Experiment | 3 | 2 | 2 | | | |
| 多媒體概論 | Introduction to Multimedia | 3 | 3 | 0 | | | |
| 電腦軟體應用與設計 | Application and Design of Computer Software | 3 | 3 | 0 | | | |
| 人際溝通 | Interpersonal Communication | | | | 3 | 3 | 0 |
| 勞動法規 | Labor Standards Act and its Enforcement Rule | | | | 3 | 3 | 0 |
| 單晶片應用 | Application of Microcontroller | | | | 3 | 3 | 0 |
| 機電整合 | Mechatronics | | | | 3 | 3 | 0 |
| 工作研究 | Work Study | | | | 3 | 3 | 0 |
| △C#程式語言 | C# Programming Language | | | | 3 | 3 | 0 |
| 物件導向系統設計 | Object-Oriented System Design | | | | 3 | 3 | 0 |
| 網路協定分析 | Internet Protocols Analysis | | | | 3 | 3 | 0 |
| 多媒體編碼概論 | Introduction to Multimedia Coding | | | | 3 | 3 | 0 |
| 生醫訊號處理 | Biomedical Signal Processing | | | | 3 | 3 | 0 |
| 網頁設計與網站管理 | Web Design | | | | 3 | 3 | 0 |
| 平面顯示器導論 | Introduction to Flat-Panel Displays | | | | 3 | 3 | 0 |
| 使用者介面設計 | User Interface Design | | | | 3 | 3 | 0 |
| △verilog 硬體描述語言 | Verilog Hardware Description Language | | | | 3 | 3 | 0 |
| 系統整合設計與實習 | System Conformity Design and Practice | | | | 3 | 2 | 2 |
| 可編程矽智財設計 | IP Design | | | | 3 | 3 | 0 |
| 第三學年 Third Year | | | | | | | |
| 信號與系統 | Signals and Systems | 3 | 3 | 0 | | | |
| 數位邏輯設計 | Digital Logic Design | 3 | 3 | 0 | | | |
| 嵌入式系統概論 | Introduction to Embedded Systems | 3 | 3 | 0 | | | |
| 實務專題(一) | Project Study (I) | 2 | 0 | 4 | | | |
| 積體電路概論 | Introduction to Integrated Circuit | 3 | 3 | 0 | | | |
| 3D 電腦動畫 | 3D Computer Animation | 3 | 3 | 0 | | | |
| Linux 系統實務 | Practical Guide to Linux Administration | 3 | 3 | 0 | | | |
| 網路程式設計 | Network Programming | 3 | 3 | 0 | | | |
| 感測資訊擷取技術 | Data Mining and Information Sensoring Techniques | 3 | 3 | 0 | | | |
| 計算機系統與效能 | Computer System and Performance | 3 | 3 | 0 | | | |
| 多媒體安全導論 | Introduction to Multimedia Security | 3 | 3 | 0 | | | |
| 動態網站應用與設計 | Web Applications and Design | 3 | 3 | 0 | | | |
| 虛擬實境設計 | Virtual Reality Design | 3 | 3 | 0 | | | |
| 多平台遊戲設計實務 | Multi-Platform Game Design Practice | 3 | 2 | 2 | | | |
| 智慧生活科技概論 | Introduction to Smart Living Technologies | 3 | 3 | 0 | | | |
| 系統分析與設計實務 | System Analysis and Design Practice | 3 | 3 | 0 | | | |
| 系統性創新與應用 | Systematic Innovation and Application | 3 | 3 | 0 | | | |
| 色彩學概論 | Introduction to Color Science | 3 | 3 | 0 | | | |
| 機率 | Probability | 3 | 3 | 0 | | | |
| 數位影像處理導論 | Introduction to Digital Image Processing | 3 | 3 | 0 | | | |
| 視訊技術處理 | Introduction to Video Signal Processing | 3 | 3 | 0 | | | |
| 語音控制原理 | Concept of Speech Controlling | 3 | 3 | 0 | | | |
| 人工智慧概論 | Introduction to Artificial Intelligence Systems | 3 | 3 | 0 | | | |
| 數位信號處理與實習 | Digital Signal Processing and Experiment | 3 | 2 | 2 | | | |
| 多媒體設計 | Multimedia Design | 3 | 3 | 0 | | | |
| 物聯網概論 | Introduction to IoT | 3 | 3 | 0 | | | |
| 巨量資料處理概論 | Introduction to Big Data and its Processing | 3 | 3 | 0 | | | |
| △Scripting 程式語言 | Scripting Language | 3 | 3 | 0 | | | |
| △演算法 | Algorithms | | | | 3 | 3 | 0 |
| 嵌入式系統與實習 | Embedded System and Experiment | | | | 3 | 2 | 2 |
| 生涯規劃 | Career Planning and Development | | | | 3 | 3 | 0 |
| 電子元件與材料 | Electronic Components and Materials | | | | 3 | 3 | 0 |
| 基礎電漿原理與應用 | Basic Plasma Principles and Applications | | | | 3 | 3 | 0 |
| RF 設計概論 | Introduction to RF Circuit Design | | | | 3 | 3 | 0 |
| 實務專題(二) | Project Study (II) | | | | 2 | 0 | 4 |
| 雲端應用實務 | Practice of Cloud Application | | | | 3 | 2 | 2 |
| 3D 電腦動畫實務 | 3D Computer Animation Practice | | | | 3 | 2 | 2 |

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|------------|--|--|--|--|---|---|---|
| 3D 列印技術 | 3D Printing Technology | | | | 3 | 3 | 0 |
| 無線網路概論 | Introduction to Wireless Network | | | | 3 | 3 | 0 |
| 資訊安全導論 | Introduction to Information Security | | | | 3 | 3 | 0 |
| 智慧電子應用設計概論 | Introduction to Innovative Electronic Design | | | | 3 | 3 | 0 |
| 軟式計算 | Soft Computing | | | | 3 | 3 | 0 |
| 生物辨識導論 | Introduction to Biometrics Identification | | | | 3 | 3 | 0 |
| 電腦繪圖 | Computer Graphics | | | | 3 | 3 | 0 |
| 數值分析 | Numerical Analysis | | | | 3 | 3 | 0 |
| 影像辨識 | Image Recognition | | | | 3 | 3 | 0 |
| 雲端運算概論 | Introduction to Cloud Computing | | | | 3 | 3 | 0 |

計畫型選修

| | | | | | | | |
|-----------|--|--|--|--|---|---|---|
| 雲端環境管理與維護 | Cloud Environment Management and Maintenance | | | | 3 | 3 | 0 |
|-----------|--|--|--|--|---|---|---|

第四學年 Fourth Year

| | | | | | | | |
|-------------------|---|---|---|---|---|---|---|
| 電子構裝技術概論 | Introduction to Electronic Assembly Technology | 3 | 3 | 0 | | | |
| 顯微鏡結構觀察及其試片準備 | Microscopic Structure Observation and Sample | 3 | 3 | 0 | | | |
| 科技報告寫作 | Technical Report Writing | 3 | 3 | 0 | | | |
| 無線感測網路應用與設計 | Wireless Sensor Network Applications and Design | 3 | 3 | 0 | | | |
| 程式方法概論 | Introduction to Programming Methodology | 3 | 3 | 0 | | | |
| 專業證照輔導-網路架設乙級 | Professional License Counseling- Network Setup, Level B | 3 | 3 | 0 | | | |
| 企業資源規劃 | Enterprise Resource Planning | 3 | 3 | 0 | | | |
| 管理資訊系統 | Management Information Systems | 3 | 3 | 0 | | | |
| 擴增實境設計 | Augmented Reality Design | 3 | 3 | 0 | | | |
| 神經網路概論 | Introduction To Neural Network | 3 | 3 | 0 | | | |
| 電腦視覺導論 | Introduction To Computer Vision | 3 | 3 | 0 | | | |
| △機器人控制與感測 | Robot Control and Sensing | 3 | 3 | 0 | | | |
| 電子設計自動化(EDA) | Electronic Design Automation (EDA) | | | | 3 | 3 | 0 |
| 半導體製程 | Semiconductor Manufacturing Process | | | | 3 | 3 | 0 |
| 電子產品品質一制性 | Quality Assurance and Consistency in Electronic Product Manufacturing | | | | 3 | 3 | 0 |
| △MatLab 程式開發與工程應用 | MATLAB Program Development and Project Application | | | | 3 | 3 | 0 |
| △.net 程式設計實務 | Practice of .NET Programming | | | | 3 | 3 | 0 |
| 車載網路技術與應用 | Vehicle Network Technologies and Application | | | | 3 | 3 | 0 |
| 機器視覺應用 | Machine Vision Applications | | | | 3 | 3 | 0 |
| 高動態範圍影像處理 | High Dynamic Range Image Processing | | | | 3 | 3 | 0 |
| 網路認證輔導 | Network Certification Training Program | | | | 3 | 3 | 0 |
| 網路安全技術 | Introduction to Network Security | | | | 3 | 3 | 0 |
| 國際證照輔導：OCP JP | International Certification Training - OCPJP | | | | 3 | 3 | 0 |
| 供應鏈資訊系統 | Supply Chain Information System | | | | 3 | 3 | 0 |
| 節能電路設計與應用 | Energy-saving Circuit Design and Application | | | | 3 | 3 | 0 |
| 高動態影像處理技術 | High Dynamic Image Processing Technology | | | | 3 | 3 | 0 |
| 電腦視覺家庭保全之應用 | Computer Vision with Applications in Home Security | | | | 3 | 3 | 0 |
| 系統性創新方法導論 | Introduction to Systematic Innovation Methods in TRIZ | | | | 3 | 3 | 0 |
| 電腦視覺實務 | Implementation of Computer Vision | | | | 3 | 2 | 2 |

共同選修科目 General Electives Courses

第一學年 First Year

| | | | | | | | |
|---------------|--|---|---|---|---|---|---|
| 全民國防教育軍事訓練(一) | All-Out Defense Education Military Training (I) | 1 | 2 | 0 | | | |
| 工程實務訓練(一) | Engineering Practice Training (I) | 3 | 3 | 0 | | | |
| 全民國防教育軍事訓練(二) | All-Out Defense Education Military Training (II) | | | | 1 | 2 | 0 |
| 工程實務訓練(二) | Engineering Practice Training (II) | | | | 3 | 3 | 0 |

第二學年 Second Year

| | | | | | | | |
|---------------|---|---|---|---|---|---|---|
| 全民國防教育軍事訓練(三) | All-Out Defense Education Military Training (III) | 1 | 2 | 0 | | | |
| 生命關懷實務 | Life Concerns | 3 | 3 | 0 | | | |
| 工程實務訓練(三) | Engineering Practice Training (III) | 3 | 3 | 0 | | | |
| 全民國防教育軍事訓練(四) | All-Out Defense Education Military Training (IV) | | | | 1 | 2 | 0 |
| 工程實務訓練(四) | Engineering Practice Training (IV) | | | | 3 | 3 | 0 |

第三學年 Third Year

| | | | | | | | |
|-----------|------------------------------------|---|---|---|---|---|---|
| 體育選修 | Physical Elective Course | 1 | 2 | 0 | | | |
| 工程實務訓練(五) | Engineering Practice Training (V) | 3 | 3 | 0 | | | |
| 工程實務訓練(六) | Engineering Practice Training (VI) | | | | 3 | 3 | 0 |

第四學年 Fourth Year

| | | | | | | | |
|-----------|--|---|---|---|---|---|---|
| 體育選修 | Physical Elective Course | 1 | 2 | 0 | 1 | 2 | 0 |
| 科技越南語(一) | Vietnamese for Science and Technology (I) | 3 | 3 | 0 | | | |
| 工程實務訓練(七) | Engineering Practice Training (VII) | 3 | 3 | 0 | | | |
| 工程實務訓練(八) | Engineering Practice Training (VIII) | | | | 3 | 3 | 0 |
| 科技越南語(二) | Vietnamese for Science and Technology (II) | | | | 3 | 3 | 0 |

| 學分學時總數計算表 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|-----|----|----|-----|----|----|-------------|-----|----|----|-----|----|----|-------------|-----|----|----|-----|----|----|-------------|-----|----|----|-----|----|----|
| 第一學年 | | | | | | | 第二學年 | | | | | | | 第三學年 | | | | | | | 第四學年 | | | | | | |
| | 上學期 | | | 下學期 | | | | 上學期 | | | 下學期 | | | | 上學期 | | | 下學期 | | | | 上學期 | | | 下學期 | | |
| | 學分 | 學時 | | 學分 | 學時 | | | 學分 | 學時 | | 學分 | 學時 | | | 學分 | 學時 | | 學分 | 學時 | | | 學分 | 學時 | | 學分 | 學時 | |
| | | 正課 | 實習 | | 正課 | 實習 | | | 正課 | 實習 | | 正課 | 實習 | | | 正課 | 實習 | | 正課 | 實習 | | | 正課 | 實習 | | 正課 | 實習 |
| 必修科目學分/時數 | 18 | 14 | 10 | 16 | 13 | 10 | 必修科目學分/時數 | 17 | 14 | 10 | 13 | 12 | 6 | 必修科目學分/時數 | 13 | 10 | 6 | 8 | 5 | 6 | 必修科目學分/時數 | 3 | 0 | 6 | 3 | 0 | 6 |
| 最低選修科目學分/時數 | 0 | 0 | 0 | 0 | 0 | 0 | 最低選修科目學分/時數 | 3 | 3 | 0 | 6 | 6 | 0 | 最低選修科目學分/時數 | 6 | 6 | 0 | 9 | 9 | 0 | 最低選修科目學分/時數 | 9 | 9 | 0 | 9 | 9 | 0 |
| 總學分數及時數累計 | 18 | 14 | 10 | 16 | 13 | 10 | 總學分數及時數累計 | 20 | 17 | 10 | 19 | 18 | 6 | 總學分數及時數累計 | 19 | 16 | 6 | 17 | 24 | 6 | 總學分數及時數累計 | 12 | 9 | 6 | 12 | 9 | 6 |

備註 Note:

一、畢業至少應修滿 131 學分【必修 91 學分，選修至少 40 學分(須含本系專業選修至少 30 學分)】

Students should complete at least 131 credits before graduation, including 91 required credits, 40 elective credits (elective credits should have at least 30 credits from department elective courses).

二、進修部與通識教育學院共同開設之新生「基礎數學」課程學分數(時)為 2 學分 2 學時，可認列為非專業選修畢業學分數。

三、課程名稱前有標示「△」符號者，為「程式設計課程」。

Courses with a "△" refers to an application design course.

四、課程名稱前有標示「●」符號者，為「職能專業課程」。

Courses with a "●" refer to a professional competence course.

五、課程名稱前有標示「AI」符號者，為「人工智慧相關課程」。

Courses with an "AI" refer to an artificial intelligence related course.