

課程簡介 Course Introduction

開課班級 Department	電機工程學系
授課方式 Instructional Method	課堂教學、中文
課程代號 Course Reference Number	182069
課程名稱(中文) Course Title (Chinese)	計算機程式設計與實習(二)
課程名稱(英文) Course Title (English)	Computer Programming and Practice(II)
學分數/時數 Credit Hours	3 / 3
必(選)修 Requirement / Elective Course	必修
授課老師 Instructor	梁家銘
上課教室 Classroom	ZB302

課程目標 Learning Objectives

This course is for students with little or no programming experience. It aims to provide students with an understanding of the role computation can play in solving problems. It also aims to help students to feel justifiably confident of their ability to write small programs that allow them to accomplish useful goals. The class will use the C programming language. Moreover, this course will introduce basic concepts of data structures and object oriented programming.

先修（前置）課程 Prerequisite

計算機程式設計與實習(一)

課程大綱 Course Syllabus

週次 Week	課程單元大綱 Unit	教學方式 Instructional Method/Style/Teaching Style	參考資料或相關作業 References or Related Materials	評量方式 Grading
1	C Arrays: defining arrays, passing arrays to functions	lecture, case study, and labs	review	exams and labs
2	C Arrays: sorting arrays, searching arrays	lecture, case study, and labs	Lab6-1	exams and labs
3	Chapter 8. Algorithms	lecture, case study, and labs	Quiz	exams and labs
4	Chapter 11. Data Structures	lecture, case study, and labs	Lab6-2	exams and labs
5	C Arrays: multiple-subscripted arrays	lecture, case study, and labs	Lab6-3	exams and labs
6	C Pointers: pointer variable definitions and initialization, passing	lecture, case study, and labs	Lab6-4	exams and labs

	arguments to functions by reference			
7	Chapter 6. Computer networks: Internet Applications	lecture, case study, and labs	Lab7-1	exams and labs
8	Chapter 6. Computer networks: Internet Protocols	lecture, case study, and labs	Lab7-2	exams and labs
9	Midterm exam	Midterm exam		Midterm exam
10	Chapter 12. Abstract Data Types: Abstract Data Type, Stack, Queue, and Linear List	lecture, case study, and labs	lab7-3	exams and labs
11	C Pointers: sizeof Operator, relationship between pointers and arrays, arrays of pointers	lecture, case study, and labs	Lab7-4	exams and labs
12	C Structures	lecture, case study, and labs	Lab8-1	exams and labs
13	Chapter 12. Abstract Data Types: Tree, Binary Tree, Binary Search Tree, Graph, and Huffman coding (An application of Binary tree)	lecture, case study, and labs	Lab8-2	exams and labs
14	C Unions, Bit Manipulations, and Enumerations	lecture, case study, and labs	Lab8-3	exams and labs
15	Chapter 7. Operating Systems	lecture, case study, and labs	Lab8-4	exams and labs
16	Chapter 18. Artificial Intelligence	lecture, case study, and labs	Lab8-5	exams and labs
17	C File I/O	lecture, case study, and labs	more labs	exams and labs
18	Final exam	Final exam		Final exam

單一課程對應校能力指標程度

The Degree to Which Single Course Corresponds to School Competence

編號 No.	校核心能力 School Core Competencies	符合程度 Degree of conformity
1	道德力 (Morality)	2
2	自學力 (Self-learning)	5
3	創造力 (Creativity)	4
4	溝通力 (Communication)	3
5	就業力 (Employability)	4

單一課程對應系能力指標程度

The Degree to Which Single Course Corresponds to Department Competence

代碼 No.	類別 Category	系核心能力 Department Core Competencies	符合程度 Degree of conformity
01	系所	運用數理、邏輯及基本電機之能力	5
02	系所	熟悉電機軟硬體專業技術之能力	4
03	系所	獨立思考、主動求知與研究創新之能力	5
04	系所	培養實作與分析實驗成果之能力	4
05	系所	理解社會責任與學術倫理之能力	2
06	系所	有效溝通表達與團隊合作之能力	3
07	系所	中英文語文及寫作之能力	3
08	系所	資訊蒐集、分析及彙整之能力	4

單一課程對應院能力指標程度

The Degree to Which Single Course Corresponds to College Competence

編號 No.	院核心能力 College Core Competencies	符合程度 Degree of conformity
1	語文能力	3
2	溝通與合作能力	3
3	創新與實踐能力	4
4	專業知能	5

教科書或參考用書(備註) Textbooks or Reference Books(Remarks)

教科書:

1. Paul Deitel and Harvey Deitel, "C: How to Program," Pearson International, 8th edition (2016), ISBN-10: 129211097X, ISBN-13: 978-1292110974. (全華)
2. Behrouz Forouzan, "Foundations of computer science," Cengage Learning EMEA, 4th edition (December 15, 2017). (歐亞書局)

參考書:

1. Brian W. Kernighan and Dennis M. Ritchie, "C Programming Language," Prentice Hall, Publication Date: April 1, 1988, ISBN-10: 0131103628, ISBN-13: 978-0131103627, 2nd Edition.
2. "計算機概論: 探索未來 (Introduction of Computer Science)," 陳錦輝、陳湘揚 著, 博碩, 2013/06/12, 8th Edition, ISBN13 : 9789862017555.
3. "Computer Science Illuminated," Nell Dale and John Lewis, 6th Edition. (滄海圖書)
4. "Connecting with Computer Science," Greg Anderson, David Ferro and Robert Hilton, 2nd Edition. (高立圖書)
5. "Computer Science: An Overview," J. Glenn Brookshear and Dennis Brylow, 12th Edition, Pearson. (東華書局)

教學方法 Teaching Method

教學方法	百分比
Teaching Method	Percentage
Lecture	50.0
Labs	35.0
Exams & Quizzes	15.0
總和 Total	100.0

成績評量方式(舊版) Grading

*授課教師有修改教學大綱及調整配分之權利。

成績評量方式 Grading

評量方式	百分比
Grading	Percentage
Midterm exam	35.0
Final exam	40.0
Labs	15.0
Quiz	10.0
Attendance	0.0
授課教師有修改教學大綱及調整配分之權利	0.0
總和 Total	100.0