國立東華大學

教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	資料結構			學年/學期 Academic Year/Semester	105/1
課程名稱(英文) Course Name in English	Data Structures				
科目代碼 Course Code	CSIEB0100	系級 Department & Year	學二	開課單位 Course-Offering Department	資訊工程學系
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0/3.0		
授課教師 Instructor	/吳秀陽				
先修課程 Prerequisite					

課程描述 Course Description

A data structure is a way of organizing and storing data so that it can be processed efficiently by a computer program. The Data Structures course is therefore about the organization, storage and effective processing of data for computer programs. It plays a central role in computer science and software development.

課程目標 Course Objectives

學習 Abstract Data Type，各種基本資料結構，及相關演算法

	系專業能力 Basic Learning Outcomes	課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
A	資訊專業終身學習能力Profound professional knowledge and skills	●
B	實驗驗證資訊科學能力Sound and free spirit; simple and generous quality	●
C	資訊工具整合運用能力Ability to appreciate beauty and think creatively	●
D	資訊系統應用設計開發能力Sense of democracy, the rule of law, and civil responsibility	●
E	團隊合作溝通協調能力Ability of communication, teamwork, and social practice	○
F	資通訊科技問題解決能力Possess both domestic and global perspectives	○
G	瞭解資訊科技多元影響能力Knowledgeable and possess the quality of humanism	○
H	肩負資訊人社會責任能力Ability of verbal expression and information organization and application	

圖示說明Illustration ：● 高度相關 Highly correlated ○中度相關 Moderately correlated

授 課 進 度 表 Teaching Schedule & Content

週次Week	內容 Subject/Topics	備註Remarks
1	Data structures and abstract data types.	
2	C++ review and algorithms	

3	Arrays and strings	
4	Stacks and queues	
5	Linked lists (basics and singly linked lists)	
6	Linked lists (doubly linked lists and algorithms)	
7	Trees (basic facts, binary trees)	
8	Trees (search, heap)	
9	期中考試週 Midterm Exam	
10	Graphs (basic facts, representations)	
11	Graphs (shortest paths, spanning trees)	
12	Internal sorting (insertion, quick, and merge)	
13	Internal sorting (heap, radix), external sorting	
14	Hashing*	
15	Priority queues*	
16	Priority queues*	
17	Efficient search structures*	
18	期末考試週 Final Exam	

教 學 策 略 Teaching Strategies

☑ 課堂講授 Lecture ☐ 分組討論Group Discussion ☐ 參觀實習 Field Trip

☑ 其他Miscellaneous: With associated lab class

學期成績計算及多元評量方式 Grading & Assessments

配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗會考	實作觀察	口頭發表	專題研究	創作展演	卷宗評量	證照檢定	其他
平時成績 General Performance									
期中考成績 Midterm Exam	30%	✓							
期末考成績 Final Exam	30%	✓							
作業成績 Homework and/or Assignments	40%		✓						
其他 Miscellaneous (_____)									

評量方式補充說明
Grading & Assessments Supplemental instructions

教科書與參考書目（書名、作者、書局、代理商、說明）
Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

Ellis Horowitz, Sartaj Sahni and Dinesh P. Mehta. Fundamentals of Data Structures in C++, 2nd Edition, 2007, Silicon Press.

課程教材網址（教師個人網址請列在本校內之網址） Teaching Aids & Teacher's Website (Personal website can be listed here.)
http://web.csie.ndhu.edu.tw/showyang/DS2016f/index.html
其他補充說明 (Supplemental instructions)