



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	演算法		學年/學期 Academic Year/Semester		114/2				
課程名稱(英文) Course Name in English	Algorithm Design and Analysis								
科目代碼 Course Code	CSIEB0120	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	/張紘睿								
先修課程 Prerequisite									

課程描述 Course Description

This course is the fundamental class for the computer science student, introduce the basic concepts and idea of algorithms.

This course covers the following topics: Introduction to Algorithms, Growth of functions and recurrences, Divide-and-Conquer strategy, Dynamic Programming, Greedy Method, Backtracking, Branch-and-Bound, and Complexity, etc.

課程目標 Course Objectives

Practice the design and analysis of algorithms to understand how various algorithms are made

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Ability of lifetime learning in information profession	●
B	實驗驗證資訊科學能力Ability of validate experimental result validation in information science field	●
C	資訊工具整合運用能力Ability of integrated applications of information technology	●
D	資訊系統應用設計開發能力Ability of information application system design and development	●
E	團隊合作溝通協調能力Ability of teamwork, communication, and coordination	○
F	資訊科技問題解決能力Ability of problem solving regarding information and communication technology	○
G	瞭解資訊科技多元影響能力Ability to understand information technology's multiple influences	○
H	肩負資訊人社會責任能力Ability of bearing the social responsibilities being among information professionals	

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	Introduction to this course (Syllabus)	

2	Algorithm design and analysis	
3	Divide-and-Conquer	
4	Divide-and-Conquer	
5	Dynamic programming	
6	Dynamic programming	
7	Holiday	
8	Greedy approach	
9	Midterm Exam	
10	Backtracking	
11	Backtracking	
12	Graph algorithms	
13	Graph algorithms	
14	Computational complexity and Intractability	
15	Computational complexity and Intractability	
16	Computational complexity and Intractability	
17	Final Exam	
18	Final Exam Review	

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:

教 學 創 新 自 評 Teaching Self-Evaluation

創新教學 (Innovative Teaching)

問題導向學習 (PBL) 團體合作學習 (TBL) 解決導向學習 (SBL)
 翻轉教室 Flipped Classroom 磨課師 Moocs

社會責任 (Social Responsibility)

在地實踐 Community Practice 產學合作 Industy-Academia Cooperation
 跨域合作 Transdisciplinary Projects

跨界教學 Transdisciplinary Teaching 跨院系教學 Inter-collegiate Teaching
 業師合授 Courses Co-taught with Industry Practitioners

其它 other:

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
平時成績(含出缺席) General Performance (Attendance Record)								
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.)

Textbook: Foundations of Algorithms 5/e (Richard E. Neapolitan)

Reference Books: Introduction to Algorithms 4/e (Thomas H. Cormen, etc.)

課程教材網址(含線上教學資訊, 教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website (Including online teaching information.

Personal website can be listed here.)

<https://elearn4.ndhu.edu.tw/moodle/>

其他補充說明 (Supplemental instructions)