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②图 i 東華大學 教學計劃表 Syllabus

課程名稱(中		12 1 -1 -1 10								
Course Name in (原任 七年 第年 声学		nester	114/1						
課程名稱(英 Course Name in I		Discrete Mathematics								
科目代碼 Course Cod	e CSIEBO	系級 Department & Year	資	資訊工程學系						
修別 Type	學程 Prog	學程 Program 學分數/時間 Credit(s)/Hour(s) 3.0/3.0								
授課教師 Instructor	/張紘睿	/張紘睿								
先修課程 Prerequisite										
課程描述 Course Description										
In this course, we will teach the fundamental mathematical tools used in the computer science, including the basic concepts of logical thinking, relational thinking, recursive thinking and quantitative thinking. We will use examples to illustrate each concept, each tool and each types of proving skills to build the fundamental techniques for handling the advance courses in the future.										
		課程目標 Cou	ırse Object	ives						
本課程主要目標以為離散數學課程或是相關課程之基礎。 Provide a foundation for study of discrete mathematics and related courses.										
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t	E 團隊合作溝通協調能力Ability of teamwork, communication, and coordination									
F 資通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						\bigcirc				
influences		II								
influences		bearing the social	responsibil	ities being among						
Influences Influences Influences Information p	professionals			ities being among 度相關 Moderatel	y corre					
Influences Influences Influences Information p	orofessionals ation :● 高度相		lated 〇中	度相關 Moderatel	y corre					

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Introduction to Discrete Mathematics

2	Propositional logic · Truth table · Equivalence · Necessary sufficient and normal forms · Quantifiers · Inference rules					
3	Direct proofs Proof by contraposition and contradiction					
4	Holiday					
5	Holiday					
6	Sets · Set builder					
7	Introduction to Graph Theory/ Functions/Relations					
8	Recurrence Relations/ Recursive definitions					
9	期中考試週 Midterm Exam					
10	Closed-Form Solutions and Induction					
11	Proof by Induction					
12	Basic Counting Techniques					
13	Selections and Arrangements					
14	14 Counting with Functions/ Generating Functions					
15	15 Discrete Probability					
16	Counting Operations in Algorithm					
17	7 期末考試週 Final Exam					
18	Extended teaching week					
	教學策略 Teaching Strategies					
✓ 課堂講	授 Lecture 分組討論Group Discussion 參觀實習 F	ield Trip				
其他Mis	scellaneous:					
	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)					
一 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 othe	r: 					

學期成績計算及多元評量方式 Grading & Assessments									
配分項目	配分比例 Percentage	多元評量方式 Assessments							
Items		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(含出缺席) General Performance (Attendance Record)	30%	>							
期中考成績 Midterm Exam	35%	~							
期末考成績 Final Exam	35%	>							
作業成績 Homework and/or Assignments									
其他 Miscellaneous									

評量方式補充說明

Grading & Assessments Supplemental instructions

In this course, we will have one paper-based midterm (35%) and one paper-based final exam (35%), and few in-class short quiz (30%).

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.)

Essentials of Discrete Mathematics (3 rd /4 th edition, David J. Hunter 2022 , Jones & Bartlett Learning , 開發圖書 kaifabook.com.tw)

Discrete Mathematics and Its Applications (8 ed) by Kenneth H. Rosen 2018 McGraw Hill Education 新月圖書 https://www.tunghua.com.tw/

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)