國立東華大學

教學計畫表　Syllabus

課程名稱(中文) Course Name in Chinese	微積分(一)		學年/學期 Academic Year/Semester	2024/3
課程名稱(英文) Course Name in English	Calculus (I)		授課教師 Instructor	姚懷捷
科目代碼 Course Code		系級 Department & Year	開課單位 Course-Offering Department	資工系
修別 Type	■ 必修 Required □ 選修 Elective □ 學程 Program	學分數/時數 Credit(s)/ Hour(s)	3.0/3.0	
先修課程 Prerequisite	The prerequisites are high school algebra and trigonometry. It's recommended that students read Chapter 0 - Preliminaries before class begins.			
課程描述 Course Description	This introductory calculus course covers differentiation and integration of functions of one variable, with applications. Topics include: Concepts of Function, Limits and Continuity, Differentiation Rules, Definite and Indefinite Integration, The Fundamental Theorem of Calculus, Techniques of Integration, Applications of the Definite Integral			

課程目標 Course Objectives	The purpose is to facilitate the students with tools in higher mathematics for later use in computer science.
系專業能力 Basic Learning Outcomes	A.　統合資工知識技術之能力 Ability to integrate knowledge and technologies of computer science and information engineering. B.　設計技術理論驗證實驗之能力 Ability to design and conduct science experiments and to validate hypotheses. C.　資訊軟硬體設計開發之能力 Ability to design and develop computer software and hardware. D.　團隊專案開發之能力 Ability to design and develop team projects. E.　批判性思考與創新研發之能力 Ability of analytical thinking, creative research planning, and innovative development.

課程目標與系專業能力相關性 Correlation between Course Objectives and Basic Learning Outcomes	A	B	C	D	E
	●	●	●	●	○

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	Lines and Exponential and Logarithmic Functions	
2	Concept of limits	
3	Continuous Functions	
4	Tangent Lines and Rates of Change	
5	Techniques of derivatives	
6	The Chain Rule and Implicit Differentiation	
7	Derivatives of Logarithmic Functions	
8	Applications of the Derivative	
9	Midterm	
10	The Mean Value Theorem	
11	Concavity and Inflection Points	
12	Optimization Problems	
13	l'Hôpital's Rule	
14	Indefinite Integrals	
15	Integration by Substitution	
16	The Fundamental Theorem of Calculus	
17	Applications of the Definite Integral	
18	Final	

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: _____

學期成績計算及多元評量方式 Grading&assessme-nts

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	50%								
期末考成績 Final Exam	50%								
作業成績 Homework and/or Assignments									
其他 Miscellaneous （ 專題發表 ）									

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.)

"Calculus - early transcendentals" by Soo T. Tan.

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.)