朝陽科技大學 096學年度第1學期教學大綱
Calculus 微積分

當期課號	3780	Course Number	3780
授課教師	陳隆昇	Instructor	CHEN,LONG SHENG
中文課名	微積分	Course Name	Calculus
開課單位	資訊管理系(四進)一A	Department	
修習別	必修	Required/Elective	Required
學分數	3	Credits	3
課程目標	本課程之目的在使學生能瞭解微積分的基本原理和應用的技術，課程內容包含1.實數、函數與其圖形 2.導函數與微分 3.微分的應用 4.指數函數與對數函數的微分 5.反導函數和積分的定義 6.三角函數的微分&積分 7.積分技術	Objectives	The main purpose of this course is to let students understand the fundamental principles of the differential integral calculus and its basic techniques of applications. The content involves real numbers, functions and graphs, the derivative and its applications, derivatives of exponential and logarithmic functions, derivative the trigonometric functions, and techniques of integration.
教材	1. 教材課本: Daniel D. Benice, Calculus and its Applications, 2ed, Houghton Mifflin, ISBN: 0-395-77684-8 2. 參考書籍: Berkey, Applied Calculus, 3ed, Ting Lung Book Co., ISBN 986-7696-12-3	Teaching Materials	1.Daniel D. Benice, Calculus and its Applications, 2ed, Houghton Mifflin, ISBN: 0-395-77684-8 2. Berkey, Applied Calculus, 3ed, Ting Lung Book Co., ISBN 986-7696-12-3
成績評量方式	1.平時成績:含隨堂測驗、出缺勤、學習態度 40% 2.期中成績：30 % 3.期末成績： 30 %	Grading	1.Quizs, atenandance & attitude 40% 2.Mid-term Exam 30% 3.Final Exam 30%
教師網頁	https://www.cyut.edu.tw/~lschen		
教學內容	第一週 函數與圖形 第二週 極限概念 第三週 連續性，單邊極限 第四週 無窮極限 第五週 微分規則 第六週 變率問題 第七週 邊際問題 第八週 鏈鎖法則 第九週 期中考試 第十週 高階微分 第十一週 隱函數微分 微分量 第十二週 增、減函數 第十三週 極值.與作圖 第十四週 二階微分與凹性、極大極小應用 經濟學上彈性需求 第十五週 指數、對數函數微分 第十六週 指數、對數函數微分 第十七週 反微分、積分 第十八週 期末考試	Syllabus	Week 1 Review: real numbers，algebra functions and graphs. Week 2 Functions in economics, Introduction to limits Week 3 Continuity, One-side limits. Week 4 Limits at infinity, Infinity limits. Week 5Introduction to derivative, Basic rules for differentiation. Week 6 Basic rules for differentiation, Rates of change. Week 7 Marginal analysis & the product and quotient rules. Week 8 The chain rule of differentiation. Week 9 Mid-term exam. Week 10 Higher－order derivatives. Week 11 Implicit differentiation & Differentials. Week 12 Increasing and decreasing critical numbers of functions Week 13 Relative extrema and curve sketching Week 14 Concavity，the second derivative test，and curve sketching. Additional applications，applied maximum＆minimum. Elasticity of demand in economics. Week 15 Differentiation of exponential logarithmic functions. Week 16 Exponential functions and logarithmic functions. Week 17 Anti-defferentiation Week 18 Final exam