國立台灣科技大學 114學年 第2學期　課程大綱

Spring 2026 NTUST Course Outline

授課教師：Iman Adipur

Instructor:Iman Adipurnama

課程名稱：工程數學(二)

Course Title：Engineering Mathematics (II)

2026/11/3

課程代號： TE3001301 Course Code 學分數： 3 Credits	必選修：必修/半學年 Required/Electve:Required/Half Yr. 先修課程： Prerequisites
節次教室： Time/Location	R2(TR-515) W1(TR-515) W2(TR-515)
專業核心能力： Core Professional Competencies	培養工程學理基礎。 □運用數學、科學及工程知識的能力。 □執行工程實務所需技術、技巧的能力。 □能發掘、分析、應用研究成果及因應複雜且整合性工程問題的能力。
課程網址： Course Website	
課程宗旨： Course Objectives	The course is aimed at developing the basic and advanced Mathematical skills for Engineering students that are imperative for effective understanding of Engineering subjects. Students should understand and be able to use the language and methods of mathematics in the description, analysis and design of engineering systems.
課程大綱： Outline of Lectures	Outline of the Course - Linear Algebra: Matrices, Vectors, Determinants. Linear Systems • Inverse of a Matrix. Gauss－Jordan Elimination - The Matrix Eigenvalue Problem. Determining Eigenvalues and Eigenvectors. Diagonalization. - System of Differential Equations - Solving through Diagonalization - Vector Differential Calculus. Grad, Div, Curl • Line Integrals. Path Independence of Line Integrals • Green’s Theorem in the Plane • Surface Integrals • Divergence Theorem of Gauss
授課方式： Method of Instruction	講授 Lecture：40% 分組討論 Group discussion：15% 案例研討 Case study：20% 操做練習 Practical exercises：25% 講授 Lecture：%
教科書： Textbooks	Dennis G. Zill, Advanced Engineering Mathematics, 7th edition, Jones & Bartlett Learning, 2022
參考書目： References	

	1. Dennis G. Zill, Advanced Engineering Mathematics, 7th edition, Jones & Bartlett Learning, 2022 2. Erwin Kreyszig, Advanced Engineering Mathematics, 10th edition, John Wiley & Sons, Inc., 2011 3. Mathematica: http://www.wolframalpha.com/?source=nav 4. Geogebra: http://www.geogebra.com
修課須知： Notice	The course will be finished in 16 weeks. The course may adjusted to Online Class if there is an emergency. There will be some supplemental videos during the semester.
評量方式： Grading	Quiz 15% + Midterm 40% + Attendance 5% + Participation 10% + Final Exam 30%
備註說明： Notes	Prerequisite knowledge: Single Variable and Multi Variable Calculus. Students are expected to know the fundamental concepts in Calculus and basic mathematics. Course will be delivered in English.