

授課教師：Iman
Adipur

Instructor: Iman Adipurnama

課程名稱：工程數學(二)

Course Title : Engineering Mathematics
(II)

2026/5/5

課程代號： TE3001301 Course Code 學分數： 3 Credits	必選修：必修/半學年 Required/Elective: Required/Half Yr. 先修課程： Prerequisites
節次教室： R2(TR-515) W1(TR-515) W2(TR-515) Time/Location	
專業核心能力： 培養工程學理基礎。 Core Professional Competencies <ul style="list-style-type: none"> <input type="checkbox"/> 運用數學、科學及工程知識的能力。 <input type="checkbox"/> 執行工程實務所需技術、技巧的能力。 <input type="checkbox"/> 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： The course is aimed at developing the basic and advanced Mathematical skills for Engineering students that are imperative for effective understanding of Engineering subjects. Course Objectives 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 the Course Outline of Lectures <ul style="list-style-type: none"> - Linear Algebra: Matrices, Vectors, Determinants. Linear Systems <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Line Integrals. Path Independence of Line Integrals • Green' s Theorem in the Plane • Surface Integrals • Divergence Theorem of Gauss 	
授課方式： 講授 Lecture：40% Method of Instruction 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： Dennis G. Zill, Advanced Engineering Mathematics, 7th edition, Jones & Bartlett Learning, 2022 Textbooks	
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： The course will be finished in 16 weeks. The course may adjusted to
Notice Online Class if there is an emergency. There will be some supplemental videos during the semester.

評量方式： Quiz 15% + Midterm 40% + Attendance 5% + Participation 10% + Final Exam
Grading 30%

備註說明： Prerequisite knowledge: Single Variable and Multi Variable Calculus.
Notes Students are expected to know the fundamental concepts in Calculus and basic mathematics. Course will be delivered in English.