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：林鼎聂

Instructor:LIN DING-ZHENG

課程名稱：材料力學

Course Title：Mechanics of Materials

2026/11/3

課程代號： ME2106304 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	M2(華夏恆毅樓D406) M3(華夏恆毅樓D406) M4(華夏恆毅樓D406)
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	介紹結構體在受到拉力，壓力，剪力，扭力及彎矩等外力狀況下之應力、應變及變形的分析方法。範圍含蓋平面應力，平面應變，樑的彎曲分析，樑的扭轉分析問題等。 --- Introduction to the fundamental mechanics of materials by analyzing stress, strain, and deformation caused by tension, compression, shear, and torsion. The scope covers plane stress, plane strain, beam bending, and beam torsion analysis problems.
課程大綱： Outline of Lectures	瞭解材料受力時產生形變的行為以及安全之考量，本學科的基礎為基本力學，以自由體圖的分析方法建立力學模型，討論彈性體承受拉力、壓力、剪力等受到應力與應變的關係，主要考慮樑受到軸向力、扭力、剪力與彎矩的形變等材料受力之特性。 1. 應力與應變及其關係 2. 軸向力與扭力對桿件之力分析 3. 剪力與彎矩之力分析 4. 樑之應力與形變 5. 應力應變關係 6. 其他相關問題之討論 --- To understand the deformation behavior of materials under external forces and the associated safety considerations. Grounded in the fundamentals of mechanics, this discipline utilizes free-body diagram analysis to establish mechanical models. It explores the relationships between stress and strain in elastic bodies under tension, compression, and shear, focusing on the material characteristics of beams subjected to axial loads, torsion, shear forces, and bending moments. Course Topics: 1. Stress, Strain, and Their Relationships 2. Analysis of Axial and Torsional Loading on Members 3. Analysis of Shear Force and Bending Moment 4. Stress and Deflection in Beams 5. Stress-Strain Transformations/Relationships 6. Discussion of Other Related Topics
	講授 Lecture：80%

授課方式： Method of Instruction	分組討論 Group discussion：0% 案例研討 Case study：20% 操做練習 Practical exercises：0% 講授 Lecture：%
教科書： Textbooks	Mechanics of Materials, 9th Edition (SI Edition), James M. Gere & Barry J. Goodno, CL Engineering. (ISBN：9781337093354)
參考書目： References	1、Mechanics of Materials SI Edition (Brief 2nd Edition), (ISBN：9789579282475) 2、Mechanics of Materials, 9th Edition, R.C. Hibbeler, N.J.: Prentice Hall, 2014
修課須知： Notice	
評量方式： Grading	1次期中考45 %， 1次期末考45%， 課堂點名與小考10% 考試以英文出題，題意有問題可用中文解釋。
備註說明： Notes	材料力學為靜力學的延伸，建議可預先複習靜力學概念(自由體圖與靜平衡、樑之內力與內彎矩、形心(分佈力的應用)、面積慣性矩(平行軸定理)...etc)