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：陳正劭

Instructor:Cheng-Sao Chen

課程名稱：工程材料(一)

Course Title：Engineering Materials (1)

2026/11/3

課程代號： ME3401301 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	T6(T3-301) T7(T3-301) T8(T3-301)
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	原子結構、原子間之鍵結、晶體結構、晶體結構分析方法、晶體缺陷、固體擴散、晶體結構及材料機械性質、材料之電性、半導體材料、材料之磁性、材料之光電性質、熱性質、相平衡圖、腐蝕環境損傷及其防制 The course covers important subjects pertinent to basic principles in engineering materials. Atomic structure, atomic bonding, crystal structure, analysis of crystal structure, crystal defects, solid diffusion, mechanical properties of materials with different crystal structures, electric properties of materials, semiconductor materials, magnetic properties of materials, thermal properties of materials, phase equilibrium diagrams, corrosion and corrosion mitigation are systematically explained and discussed in one semester. With course arrangement from fundamentals to applications, students can expect to receive essential knowledge about engineering materials and will be able to put it into practice as needed. (Every subject would require 1-to-2-week lecture time.)
課程大綱： Outline of Lectures	原子結構、原子間之鍵結、晶體結構、晶體結構分析方法、晶體缺陷、固體擴散、晶體結構及材料機械性質、材料之電性、半導體材料、材料之磁性、材料之光電性質、熱性質、相平衡圖、腐蝕環境損傷及其防制 The course covers important subjects pertinent to basic principles in engineering materials. Atomic structure, atomic bonding, crystal structure, analysis of crystal structure, crystal defects, solid diffusion, mechanical properties of materials with different crystal structures, electric properties of materials, semiconductor materials, magnetic properties of materials, thermal properties of materials, phase equilibrium diagrams, corrosion and corrosion mitigation are systematically explained and discussed in one semester. With course arrangement from fundamentals to applications, students can expect to receive essential knowledge about engineering materials and will be able to put it into practice as needed. (Every subject would require 1-to-2-week lecture time.)
授課方式： Method of Instruction	講授 Lecture：100% 分組討論 Group discussion：0% 案例研討 Case study：0% 操做練習 Practical exercises：0% 講授 Lecture：%

教科書： Textbooks	Materials Science and Engineering, William D. Callister Jr. and David G. Rethwisch, Wiley
參考書目： References	
修課須知： Notice	
評量方式： Grading	期中考40% 期末考40% 上課出席20%
備註說明： Notes	-出席：課堂上不定時點名。上課期間，請將手機及其他電子設備調至靜音模式，以免干擾其他同學 -誠信政策：考試中嚴禁作弊。學生有義務在所有學術作業和軟體/應用程式使用中保持誠實。期中考、期末考皆請攜帶工程計算器或已安裝在任何電子設備中的相關應用程式，考試時間預計為70-80分鐘，具體時間視學生程度而定。除重大疾病、受傷或緊急意外等特殊情況(需有相關證明)外，不安排補考。