

材料行為學 (Mechanical Behavior of Materials)

2025/2

任課教師: 潘煌鏗

學分: 3

先修科目: 工程材料, 材料科學, 材料力學 (其中任何一科)

1. 參考資料

- (1). M. A. Meyers & K. K. Chawla, Mechanical Behavior of Materials, 2/E, Cambridge University Press, 2009.
- (2). J. P. Schaffer, A. Saxena, S. D. Antolovich, T. H. Sanders, Jr. and S. B. Warner, The Science and Design of Engineering Materials, McGraw-Hill Co., 1999.
- (3). D. R. Askeland, The Science and Engineering of Materials, 3/E, Intl. Thomson Publishing.
(材料科學與工程, 全華科技, 蔡丕椿/蔡明雄/陳文照/廖金喜 譯)
- (4). William D. Callister, Jr., Fundamentals of Materials Science and Engineering/An Interactive (e.Text), John Wiley & Sons Inc., 2001.
(材料科學與工程, 歐亞書局, 陳俊生/張柳春/楊子毅/簡仁德 譯)

2. 上課內容

- (1). 簡介 (Introduction)
- (2). 材料結構 (Structure of Materials)
- (3). 材料力學性質 (Mechanical Properties of Materials)
 - [1] 彈性 (Elastic Properties)
 - [2] 塑性 (Plastic Properties)
 - [3] 黏-彈性 (Viscoelastic Properties)
 - [4] 黏-塑性 (Viscoplastic Properties)
- (4). 破壞、韌性及疲勞 (Fracture, Toughness and Fatigue)
- (5). 材料性質 (Properties of Materials)
 - [1] 電性 (Electrical Properties)
 - [2] 光學性質 (Optical and Dielectric Properties)
 - [3] 磁性 (Magnetic Properties)
 - [4] 熱性質 (Thermal Properties)
- (6). 材料微觀行為 (Microscopic Aspects of Materials)
- (7). 變形與加工硬化 (Deformation and Work-Hardening)
- (8). 材料相變行為 (Behavior of Martensitic Transformation)
- (9). 奈米材料行為 (Behavior of Nano-materials)
- (10). 複合材料 (Composite Materials)

3. 成績考核

- (1) 出席 (20 %)
- (2) 期末考 (30 %)
- (3) 專題研讀 (50 %)