

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：施劭儒

Instructor:Shao-Ju Shih

課程名稱：生醫陶瓷

Course Title : Bioceramics

2026/5/6

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| 課程代號：TX5012701 Course Code | 必選修：選修/半學年 Required/Elective: Elective/Half Yr. |
| 學分數：3 Credits | 先修課程： Prerequisites |
| 節次教室：T2(TR-210) T3(TR-210) T4(TR-210) Time/Location | |
| 專業核心能力： Core Professional Competencies | |
| <ol style="list-style-type: none"> 1. 具備基礎科學與材料工程專業知識之整合、創新能力。 2. 具備執行專題研究、應用研究成果，以及口頭發表與報告撰寫之能力。 3. 具備語文能力及良好之國際觀，尊重多元價值觀點。 | |
| 課程網址： Course Website | |
| 課程宗旨： Course Objectives | |
| <p>This course focuses on the bioceramics, a class of ceramic materials employed in medical and dental applications. Initially, various types of bioceramics are introduced. Afterwards, the corresponding preparation and characterization methods are discussed. Finally, the new concept of materials design is discussed to design the next generation bioceramic materials. The details of the course outline are listed below.</p> | |
| 課程大綱： Outline of Lectures | |
| <ol style="list-style-type: none"> 1. Introduction; 2. Classification and structures of bioceramics; 3. Preparation methods; 4. Common characterization methods; 5. Inert ceramics; 6. Porous ceramics; 7. Bioactive and resorbable ceramics; 8. Radial distribution function and simulation of bioactive glasses; 9. Novel ceramic-polymer composites; 10. Advanced radiotherapy glasses | |
| 授課方式： Method of Instruction | |
| <p>講授 Lecture：80%</p> <p>分組討論 Group discussion：0%</p> <p>案例研討 Case study：20%</p> <p>操做練習 Practical exercises：0%</p> <p>講授 Lecture：N. A. %</p> | |
| 教科書： Textbooks | |
| 教科書：Slides | |
| 參考書目： References | |
| <ol style="list-style-type: none"> 1. "An introduction to bioceramics" edited by Larry L. Hench, Imperial College Press, Second Edition, London (2007) (ISBN: 978-1-908977-15-1). 2. "Bioceramics: Properties, characterizations and applications" written by Joon Park, Springer, New York (2008) (ISBN:978-0-387-09545-5) 3. "Bio-glasses an introduction" edited by J. R. Jones and A. G. Clare, Wiley, Chichester (2012) (ISBN: 978-0-047-71161-3). | |
| 修課須知： Notice | |
| 修課須知：TA is available. | |
| 評量方式： Grading | |

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| Content Loading (%) | |
| Midterm Exam | 30 |
| Final Exam | 40 |
| Report | 20 |
| Attendance | 10 |
| Total | 100 |

備註說明：
Notes

1. Students need the English level of above CEFR B2, which is recommended
2. Students require the fundamental knowledge of materials science.