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：鄭詠馨

Instructor:YUNG-HSIN CHENG

課程名稱：生醫材料

Course Title：Biomaterials

2026/11/3

課程代號： TX6721701 Course Code 學分數： 3 Credits	必選修：選修/半學年 Required/Electve:Elective/Half Yr. 先修課程： Prerequisites
節次教室： Time/Location	W7(E1-306) W8(E1-306) W9(E1-306)
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	The mission of this course is to provide students with a comprehensive foundation in the multidisciplinary field of biomedical materials, bridging the gap between material science and clinical medicine. Students will first explore the critical principles of biocompatibility and regulatory frameworks, ensuring a deep understanding of the biological response to foreign implants and the standards required for clinical translation. The curriculum delves into the structural and functional properties of biomedical polymers, equipping students with the knowledge to design and synthesize materials tailored for physiological environments. Building upon these fundamentals, the course examines the frontiers of tissue engineering, where advanced scaffolds and cellular interactions are utilized to restore or replace damaged biological functions. Finally, through the analysis of diverse biomedical applications, students will develop the analytical skills necessary to implement innovative material solutions in real-world healthcare, from drug delivery systems to prosthetic devices.
課程大綱： Outline of Lectures	1. Biocompatibility and regulation 2. Biomedical polymers 3. Tissue engineering 4. Other biomedical applications
授課方式： Method of Instruction	講授 Lecture：70% 分組討論 Group discussion：0% 案例研討 Case study：30% 操做練習 Practical exercises：0% 講授 Lecture：%
教科書： Textbooks	Slides
參考書目： References	

	1. ISO 10993 2. Lanza, R., Langer, R., Vacanti, J., & Atala, A. (Eds.). (2020). Principles of tissue engineering (5th ed.). Academic Press. 3. Farag, M. M., & Al-Rashidy, Z. M. (2025). Biomaterials for tissue regeneration: Advances and challenges for fabrication and clinical translation. Springer Nature Switzerland.
修課須知： Notice	
評量方式： Grading	Midterm exam 50% Final report 50%
備註說明： Notes	N/A