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：江偉宏

Instructor:Wei-Hung Chiang

課程名稱：高等化工動力學

Course Title：Advanced Chemical Engineering Kinetics

2026/11/3

課程代號：CH5203702 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：M2(IB-408) M3(IB-408) M4(IB-408) Time/Location	
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	This course focused on the core concepts and fundamental understanding of advanced-level of chemical engineering kinetics. Special attention will give for non-ideal reactor design and novel reactor design for nanomaterials synthesis.
課程大綱： Outline of Lectures	1.Introduction of Reactor Design 2.Elements of Reaction Kinetics (review) 3.Steady-state Non-isothermal Reactor Design 4.Diffusion and Reaction 5.Distributions of Residence Times for Chemical Reactors 6.Models for Non-ideal Reactors 7.Molecular Dynamics of Chemical Reactions 8.Microreator design for nanomaterials production
授課方式： Method of Instruction	講授 Lecture：30% 分組討論 Group discussion：30% 案例研討 Case study：20% 操做練習 Practical exercises：20% 講授 Lecture：%
教科書： Textbooks	H. Scott Fogler, 'Elementals of Chemical Reaction Engineering,' 4th edition, Prentice-Hall, New Jersey, 2020.
參考書目： References	J. E. House,‘ Principles of Chemical Kinetics,‘ Wm. C. Brown Publishers, 1997, McGraw-Hill Taiwan. R. W. Missen, C. A. Mims and B. A. Saville,‘ Introduction to Chemical Reaction Engineering and Kinetics,‘ John Wiley & Sons, 1999.
修課須知： Notice	
評量方式： Grading	Homework : 40% Midterm : 30% Final project : 30%
備註說明： Notes	College-level chemical engineering kinetics Physical chemistry