

2021 Spring Semester Department of Chemical Engineering & Biotechnology

Ph.D Program Qualifying Exam Syllabus

Subject Title	Date	Place	AM 9 : 00 ~ 12 : 00	PM 1 : 30 ~ 4 : 30
Advanced Chemical Reaction Engineering	2021 July 6 (Tue)	Chemical Engineering Building 1F Room 102		<p>A. Reference books:</p> <p>Elements of Chemical Reaction Engineering, 4th Edition H. Scott Fogler, University of Michigan</p> <p>B. Topics:</p> <ul style="list-style-type: none"> ● Mole Balances ● Conversion and Reactor Sizing ● Rate Law and Stoichiometry ● Isothermal Reactor Design ● Collection and Analysis of Rate Data ● Multiple Reactions ● Reaction Mechanisms, Pathways, Bioreactions and Bioreactors ● Catalysis and Catalytic Reactors ● External Diffusion Effects on Heterogeneous Reactions ● Diffusion and Reaction in Porous Catalysts ● Distributions of Residence Times for Chemical Reactors

				C.Other information: 1. Access to the Internet, printed materials, and electronic devices is prohibited during the exam. 2. Close book. 3. Calculator and ruler are allowed.
Subject Title	Date	Place	AM 9 : 00 ~ 12 : 00	PM 1 : 30 ~ 4 : 30
Biomaterials	2021 July 6 (Tue)	Chemical Engineering Building 1F Room 102		A.Reference books: Biomaterials Science: An Introduction to Materials in Medicine, 2e, Buddy Ratner , Allan Hoffman , Frederick Schoen , Jack Lemons, Academic Press, San Diego, Cal. USA. B.Topics: 1. Materials Science and Engineering 2. Biology and Medicine 3. Practical Aspects of Biomaterials C.Other information: 1. 禁止攜帶影印資料、筆記本及智慧型手機 2. Close Book 3. 可帶計算機、直尺