

**18 APR 2018 CC/ 28 MAY 2018 UC**

DEPARTMENT OF CHEMICAL ENGINEERING  
College of Engineering  
University of the Philippines Diliman, Quezon City

**COURSE SYLLABUS**  
**ChemE 103 Chemical Engineering Practice I**

**A. Course Catalogue Description**

1. **Course Number:** ChemE 103
2. **Course Title:** Chemical Engineering Practice I
3. **Course Description:** History and emerging trends in various fields of chemical engineering
4. **Prerequisite:** none
5. **Semester Offered:** First Semester
6. **Course Credit:** 1u
7. **Number of Hours:** 1h
8. **Meeting Type:** lecture
9. **Course Goals:** To provide an adequate introduction to the study and practice of chemical engineering as a profession

**B. Rationale**

This course provides an introduction of chemical engineering as a field of study and as a profession. It presents the contributions of chemical engineering to society, the various fields of study that chemical engineers can pursue, and the pertinent laws governing the chemical engineering practice.

**C. Course Outline**

**1. Course Outcomes (CO)**

Upon completion of the course, students must be able to:

- CO 1.** identify the scope of work for chemical engineers;
- CO 2.** describe the various fields in chemical engineering;
- CO 3.** summarize existing Philippine and international laws relevant to the practice of the chemical engineering profession; and
- CO 4.** discuss the impact of chemical engineering to modern society.

**Course Outcomes and Relationship to Program Learning Objectives**

Course Outcomes	Program Learning Objectives*				
	A	B	C	D	E
Identify the scope of work for chemical engineers					
Describe the various fields in chemical engineering					
Summarize existing Philippine and international laws relevant to the practice of the chemical engineering profession					
Discuss the impact of chemical engineering to modern society					

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- \* **A** Equip students with strong technical education in chemical engineering necessary to succeed in their chosen careers and to become responsive citizens.
- B** Develop the students' ability to effectively communicate technical information to any audience.
- C** Train students to function in multidisciplinary teams, manage projects, and take leadership roles in their respective fields.
- D** Engage students in research, innovation, and life-long learning to identify opportunities, and address issues and challenges in their respective spheres of influence.
- E** Instill in students a strong commitment to the ethical practice of their profession; to health, safety, and environment; and to service to society.

### 2. Course Content

Lecture Topics	No. of Hours
<b>Definition and scope of chemical engineering</b> 1. Definition and scope 2. History and development	2
<b>Milestone contributions of chemical engineering to the society</b> 1. Historical milestones 2. Role of chemical engineers in the industry 3. Contributions of chemical engineering to the society	4
<b>Chemical engineering as a profession</b> 1. Academic requirements 2. Licensure/professional examinations 3. Laws and ethics in the professions 4. Local and international organizations	4
<b>Current fields of study in chemical engineering</b> 1. Biochemical and bioprocess engineering 2. Environmental and environmental process engineering 3. Materials science and engineering 4. Energy and thermal systems engineering 5. Process systems engineering 6. Process safety and loss prevention 7. Electrochemical engineering	6
<b>Total number of hours</b>	<b>16</b>

### 3. Course Coverage

Week	CO	TOPIC	ESSENTIAL/ KEY QUESTIONS	Suggested Teaching and Learning Activities	Suggested Assessment Tools
1-2	1	<b>Definition and scope of chemical engineering</b> 1. Definition and scope 2. History and development	What is chemical engineering?	student-led discussions	reaction paper
3-6	4	<b>Milestone contributions of chemical engineering to the society</b> 1. Historical milestones 2. Role of chemical engineers in industry 3. Contributions to the society	What are the most significant contributions of chemical engineers to the society in the past?	student-led discussions	reaction paper

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Week	CO	TOPIC	ESSENTIAL/ KEY QUESTIONS	Suggested Teaching and Learning Activities	Suggested Assessment Tools
7-10	3	<b>Chemical engineering as a profession</b> 1. Academic requirements 2. Licensure/professional examinations 3. Laws and ethics in the professions Local and international organizations	What are the requirements to become a practicing chemical engineer?	seminar	reaction paper
11-16	2	<b>Current fields of study in chemical engineering</b>	What are the different research fields in chemical engineering?	seminar	synthesis paper, oral presentation

#### 4. Course Requirements

1. Reaction papers
2. Synthesis paper
3. Oral presentation

#### REFERENCES:

- Felder, R. M. and Rousseau, R. W. (2016). *Elementary Principles of Chemical Processes* 4<sup>th</sup> Ed. New Jersey: John Wiley and Sons, Inc.
- Hipple, J. (2017). *Chemical Engineering for Non-Chemical Engineers*. NJ: John Wiley and Sons, Inc.
- Jose, W. I. (2011). *Introductory Concepts in Chemical Engineering*. Manila.
- Olaño, S., et al. (2006). *Chemical Engineering Law Primer*. Manila: Merriam and Webster.
- Theodore, L. (2014). *Chemical Engineering: The Essential Reference*. NY: McGraw-Hill Education.