

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 104 Chemical Engineering Practice I

A. Course Catalogue Description

1. **Course Number:** ChemE 104
2. **Course Title:** Chemical Engineering Practice II
3. **Course Description:** Professional practice and ethical issues in 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 Stipulation:** must have completed at least 38 units of required courses
10. **Course Goals:** To provide an adequate introduction on the concept of ethics and professionalism in relation to the practice of chemical engineering, as well as to discuss how to generate innovative ideas for solving chemical engineering-related problems

B. Rationale

This course focuses on studying cases on ethical issues related to chemical engineering, as well as on the code of conduct and professionalism for chemical engineers. It also covers discussions on the generation of innovative ideas that may lead to design of products or processes.

C. Course Outline

1. Course Outcomes (CO)

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

- CO 1.** summarize existing Philippine laws on ethics for the chemical engineering profession;
- CO 2.** recognize the importance of ethics and professionalism to the chemical engineering practice;
- CO 3.** survey the latest advances in the various fields of research in chemical engineering;
- CO 4.** distinguish highly innovative companies worldwide; and
- CO 5.** demonstrate understanding on how innovations happen and how ideas are generated.

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Course Outcomes and Relationship to Program Learning Objectives

Course Outcomes	Program Learning Objectives*				
	A	B	C	D	E
Summarize existing Philippine laws on ethics for the chemical engineering profession					
Recognize the importance of ethics and professionalism to the chemical engineering practice					
Survey the latest advances in the various fields of research in chemical engineering					
Distinguish highly innovative companies worldwide					
Demonstrate understanding on how innovations happen and how ideas are generated					

- * **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
Chemical engineering ethics 1. Why is ethics relevant to the chemical engineering profession? 2. Ethical issues related to chemical industry practice 3. Case studies	5
Professionalism in the chemical engineering workplace 1. Academic and research ethics 2. Commitment to safety 3. Environmental and global ethical issues 4. Case studies	3
Intellectual property 1. Definition of intellectual property 2. Patents, copyrights 3. Case studies	3
Innovation 1. Readings on innovative ideas 2. Idea generation	5
Total number of hours	16

3. Course Coverage

Week	CO	TOPIC	ESSENTIAL/ KEY QUESTIONS	Suggested Teaching and Learning Activities	Suggested Assessment Tools
1-5	1	Chemical engineering ethics 1. Why is ethics relevant to the chemical engineering profession? 2. Ethical issues related to chemical industry practice 3. Case studies	Why is ethics relevant to the chemical engineering profession? What are the ethical issues related to chemical industry practice?	lecture, seminar, readings	long quiz
6-8	2	Professionalism in the chemical engineering workplace 1. Academic and research ethics 2. Commitment to safety 3. Environmental and global ethical issues 4. Case studies	How do chemical engineers observe academic and research ethics? How do chemical engineers ensure they remain committed to promoting health, safety, and the environment in their workplace?	lecture, seminar	case study report
9-11	1,3	Intellectual property 1. Definition of intellectual property 2. Patents, copyrights 3. Case studies	What is intellectual property? What are the different rules and laws regarding intellectual property?	lecture, seminar	patent search
12-16	3,4,5	Innovation 1. Readings on innovative ideas 2. Idea generation	How do chemical engineers generate innovative ideas to solve current problems?	seminar, readings, colloquium participation	innovation report

4. Course Requirements

1. Long quiz
2. Patent search
3. Case study report
4. Innovation report.

REFERENCES:

- Hipple, J. (2017). *Chemical Engineering for Non-Chemical Engineers*. NJ: John Wiley and Sons, Inc.
- Theodore, L. (2014). *Chemical Engineering: The Essential Reference*. NY: McGraw-Hill Education.
- Lindeburg, M. R. (2013). *Chemical Engineering Reference Manual 7th Ed.* CA: Professional Publications Inc.
- Olanio S., et. al. (2006). *Chemical Engineering Law Primer*. Manila: Merriam and Webster.
- Senate and House of Representatives (2004). *Republic Act No. 9297 Chemical Engineering Law*. Manila, Philippines.