



Master of Engineering major in Chemical Engineering (M.Engg.Ch.E.)

Academic Year 2020-2021

Reference: Final Draft of CMO – PSG for graduate degree programs in Engineering

PROGRAM DESCRIPTION

The Master of Engineering is an applications – or project – oriented degree that emphasizes the application of theories and methods to actual problems in industry and academe. It is designed to develop engineering graduates their expertise through advanced courses and specialized electives.

PROGRAM EDUCATIONAL OBJECTIVES

The graduates of Master of Engineering after graduation shall:

1. successfully practice as chemical engineering specialists in their respective fields for the welfare of society;
2. demonstrate a high degree of professionalism in the workplace.

STUDENT OUTCOMES

The graduate of Master of Engineering should have the ability to:

- a. Demonstrate a comprehensive and in-depth understanding of engineering principles and apply advanced knowledge on the specific discipline;
- b. Analyze, synthesize, create and evaluate engineering systems;
- c. Design components, devices and systems to meet specified engineering needs under real – world constraints;
- d. Communicate effectively technical knowledge, both orally and in writing, on complex multidisciplinary activities
- e. Function effectively as a dynamic individual, a team member, or as a leader in multi-cultural/cross-cultural work environment;
- f. Contribute to the generation, dissemination and preservation of engineering knowledge, methodologies, techniques, and processes;
- g. Engage in professional development and life-long learning;
- h. Conduct oneself within professional and ethical standards; and
- i. Perform independent industry research that results in innovation and practical application.

CURRICULUM OUTLINE

MASTER OF ENGINEERING MAJOR IN CHEMICAL ENGINEERING

Core Courses (9 units)		
Course Code	Course Title	Credit Units
ENGG 501	Computational Mathematics 1	3
ENGG 502	Computational Mathematics 2	3
ENGG 503	Design of Experiments and Data Analytics	3
Major Courses (9 units)		
Course Code	Course Title	Credit Units
ENGG 504	Applied Materials Science and Engineering	3
MChE 501	Advanced Transport Phenomena	3
MChE 502	Advanced Chemical Reaction Engineering	3
Elective Courses (12 units)		
Course Code	Course Title	Credit Units
	Petrochemical	
MChE 503	Trends in Petrochemical Engineering	3
MChE 504	Polymer Engineering	3
MChE 505	Plastic Technology	3
MChE 506	Petroleum Engineering	3
	Biotechnology	
MChE 507	Enzyme Technology	3
MChE 508	Molecular Biology	3
MChE 509	Biochemical Engineering	3
MChE 510	Biomass Technology	3
	Energy and Environment	
MChE 511	Renewable Energy Technologies	3
MChE 512	Water and Wastewater Management Technology	3
MChE 513	Hazardous Waste Management	3
MChE 514	Air Pollution Control	3
Capstone Project (6 units)		
Course Code	Course Title	Credit Units
ENGG 505	Industry - based Capstone Project 1	3
ENGG 506	Industry - based Capstone Project 2	3

* 2 – 3 electives may be GIVEN CREDITS from RPL

MAPPING OF CURRICULAR COURSES TO STUDENT OUTCOMES

Course Code	Course Title	Student Outcomes								
		a	b	c	d	e	f	g	h	i
ENGG 501	Computational Mathematics 1	x								
ENGG 502	Computational Mathematics 2	x								
ENGG 503	Design of Experiments and Data Analytics		x	x	x					
ENGG 504	Applied Materials Science and Engineering	x			x					
MChE 501	Advanced Transport Phenomena	x	x	x						
MChE 502	Advanced Chemical Reaction Engineering	x	x	x						
	Petrochemical									
MChE 503	Trends in Petrochemical Engineering					x		x		
MChE 504	Polymer Engineering					x		x		

MChE 505	Plastic Technology						X	X		
MChE 506	Petroleum Engineering						X	X		
	Biotechnology									
MChE 507	Enzyme Technology						X	X		
MChE 508	Molecular Biology						X	X		
MChE 509	Biochemical Engineering						X	X		
MChE 510	Biomass Technology						X	X		
	Energy and Environment									
MChE 511	Renewable Energy Technologies						X	X		
MChE 512	Water and Wastewater Management Technology						X	X		
MChE 513	Hazardous Waste Management						X	X		
MChE 514	Air Pollution Control						X	X		
ENGG 505	Industry - based Capstone Project 1							X		X
ENGG 506	Industry - based Capstone Project 2			X				X		X

SUGGESTED PROGRAM OF STUDY

Year 1		
First Semester		
Course Code	Course Title	Credit Units
ENGG 501	Computational Mathematics 1	3
MChE 501	Advanced Transport Phenomena	3
MChE 502	Advanced Chemical Reaction Engineering	3
SUBTOTAL		9
Second Semester		
Course Code	Course Title	Credit Units
ENGG 502	Computational Mathematics 2	3
ENGG 503	Design of Experiments and Data Analytics	3
ENGG 504	Applied Materials Science and Engineering	3
SUBTOTAL		9
Year 2		
First Semester		
Course Code	Course Title	Credit Units
MChE 5xx	Elective 1	3
MChE 5xx	Elective 2	3
SUBTOTAL		6
Second Semester		
Course Code	Course Title	Credit Units
MChE 5xx	Elective 3	3
MChE 5xx	Elective 4	3
SUBTOTAL		6
Comprehensive Examination		
Year 3		
First Semester		
Course Code	Course Title	Credit Units
ENGG 505	Industry - based Capstone Project 1	3
SUBTOTAL		3
Second Semester		
Course Code	Course Title	Credit Units
ENGG 506	Industry - based Capstone Project 2	3
SUBTOTAL		3
TOTAL		36