Master of Engineering major in Civil Engineering (M.Engg.C.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 civil 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 CIVIL 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
MCE 501	Finite Element Methods in Civil Engineering	3
MCE 502	Technology and Innovation in Construction and Project Management	3
Elective Courses (12 units)		
Course Code	**Course Title**	**Credit Units**
MCE 503	Urban Hydrology	3
MCE 504	Water Supply Distribution and Treatment Design	3
MCE 505	Design of Pavement System	3
MCE 506	Transportation Systems Analysis and Planning	3
MCE 507	Environmental Benefits and Costs in Civil Engineering Projects	3
MCE 508	Matrix of Theory of Structures	3
MCE 509	Prestressed Concrete Design and Applications	3
MCE 510	Ground Improvement Techniques	3
MCE 511	Groundwater Flow and Contaminant Transport	3
MCE 512	Geotechnical Testing and Instrumentation (Laboratory)	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**	**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					
MCE 501	Finite Element Methods in Civil Engineering						x	x		
MCE 502	Technology and Innovation in Construction and Project Management					x		x		
MCE 503	Urban Hydrology							x		
MCE 504	Water Supply Distribution and Treatment Design			x				x		

MCE 505	Design of Pavement System			x				x		
MCE 506	Transportation Systems Analysis and Planning					x		x		
MCE 507	Environmental Benefits and Costs in Civil Engineering Projects							x		
MCE 508	Matrix of Theory of Structures			x				x		
MCE 509	Prestressed Concrete Design and Applications							x		
MCE 510	Ground Improvement Techniques						x	x		
MCE 511	Groundwater Flow and Contaminant Transport							x		
MCE 512	Geotechnical Testing and Instrumentation (Laboratory)						x	x		
ENGG 505	Industry - based Capstone Project 1						x		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
MCE 501	Finite Element Methods in Civil Engineering	3
MCE 502	Technology and Innovation in Construction and Project Management	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**
MCE 5xx	Elective 1	3
MCE 5xx	Elective 2	3
	SUBTOTAL	**6**
Second Semester		
Course Code	**Course Title**	**Credit Units**
MCE 5xx	Elective 3	3
MCE 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**