



CURRICULUM

Master of Science in Computer Engineering (M.S.Cp.E.)

Academic Year 2020-2021

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

PROGRAM DESCRIPTION

The Master of Science in Computer Engineering is a research degree with strong emphasis on contribution to knowledge and to mastery of the field of computer engineering.

PROGRAM EDUCATIONAL OBJECTIVES

The graduates of Master of Science in Computer Engineering after graduation shall:

1. successfully practice as computer engineering specialists for the welfare and advancement of society;
2. demonstrate a high degree of professionalism in the workplace.

STUDENT OUTCOMES

The graduates of Master of Science in Computer 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 scientific research that results in innovation with application.

CURRICULUM OUTLINE

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 (CpE Research)	3
Major Courses (9 units)		
Course Code	Course Title	Credit Units
ENGG504	Applied Materials Science and Engineering	3
MCpE 501	VLSI Circuit Design with HDL	3
MCpE 502	Microprocessor Design and FPGA	3
MCpE 503	Distributed Computer Systems	3
MCpE 504	High Performance & Parallel Computer Architectures	3
MCpE 505	Wireless Networks	3
Elective Courses (12 units)		
Course Code	Course Title	Credit Units
MCpE 506	Artificial Intelligence with Python	3
MCpE 507	Advanced Broadband Communication Systems	3
MCpE 509	Computer Networks and Security	3
MCpE 511	Fuzzy Logic	3
MCpE 516	Operating System Design and Implementation	3
MCpE 517	Advanced Software Engineering	3
MCpE 519	Advanced Computer Architecture	3
GECE 517	Machine Learning	3
GECE 518	Neural Networks	3
Thesis (6 units)		
Course Code	Course Title	Credit Units
MCpE 520	Seminars in Thesis Writing in Computer Engineering	3
MCpE 521	Thesis Writing in Computer Engineering	3

* 2 – 3 electives may be GIVEN CREDITS from RPL

MAPPING OF CURRICULUM COURSES TO STUDENT OUTCOMES

Course Code	Course Title	Program 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						
ENGG504	Applied Materials Science and Engineering	x			x						
MCpE 501	VLSI Circuit Design with HDL		x	x							
MCpE 502	Microprocessor Design and FPGA		x	x							
MCpE 503	Distributed Computer Systems		x								
MCpE 504	High Performance & Parallel Computer Architectures	x		x							
MCpE 505	Wireless Networks	x		x							

MCpE 506	Artificial Intelligence with Python	x	x							
MCpE 507	Advanced Broadband Communication Systems		x	x						
MCpE 509	Computer Networks and Security	x	x							
MCpE 511	Fuzzy Logic	x	x							
MCpE 516	Operating System Design and Implementation	x	x							
MCpE 517	Advanced Software Engineering	x	x							
MCpE 519	Advance Computer Architecture	x	x							
GECE 517	Machine Learning				x		x			
GECE 518	Neural Networks				x		x			
MCpE 520	Seminars in Thesis Writing in Computer Engineering	x	x	x	x	x	x	x	x	x
MCpE 521	Thesis Writing in Computer Engineering	x	x	x	x	x	x	x	x	x

SUGGESTED PROGRAM OF STUDY

Year 1		
First Semester		
Course Code	Course Title	Credit Units
ENGG 501	Computational Mathematics 1	3
MCpE 5xx	Major Course 1	3
MCpE 5xx	Major Course 2	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
MCpE 5xx	Elective 1	3
MCpE 5xx	Elective 2	3
SUBTOTAL		6
Second Semester		
Course Code	Course Title	Credit Units
MCpE 5xx	Elective 3	3
MCpE 5xx	Elective 4	3
SUBTOTAL		6
Comprehensive Examination		
Year 3		
First Semester		
Course Code	Course Title	Credit Units
MCpE 520	Seminars in Thesis Writing in Computer Engineering	3
SUBTOTAL		3
Second Semester		
Course Code	Course Title	Credit Units
MCpE 521	Thesis Writing in Computer Engineering	3
SUBTOTAL		3
TOTAL		36