Republic of the Philippines
BATANGAS STATE UNIVERSITY
Pablo Borbon Main II, Alangilan Batangas City
COLLEGE OF ENGINEERING, ARCHITECTURE & FINE ARTS
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Master of Engineering major in Mechanical Engineering (M.Engg.M.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 mechanical engineering specialists for the welfare of society;
2. demonstrate a high degree of professionalism in the workplace.

STUDENT OUTCOMES

The graduates 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 MECHANICAL 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
MME 501	Advanced Thermodynamics	3
MME 502	Advanced Heat and Mass Transfer	3
Elective Courses (12 units)		
Course Code	**Course Title**	**Credit Units**
MME 503	Sustainable Energy Sources	3
MME 504	Energy Conversion and Utilization	3
MME 505	Energy Systems Modeling and Design	3
MME 506	Advanced Fluid Mechanics	3
MME 507	Advanced Refrigeration System	3
MME 508	Advanced Airconditioning System	3
MME 509	Material Failure Analysis	3
MME 510	Computational Nanotechnology	3
MME 511	Smart Materials	3
MME 512	Biomechanics and Biomaterials	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					
MME 501	Advanced Thermodynamics	x	x							
MME 502	Advanced Heat and Mass Transfer	x	x							
MME 503	Sustainable Energy Sources					x		x		
MME 504	Energy Conversion and Utilization					x		x		
MME 505	Energy Systems Modeling and Design			x		x		x		

Course Code	Course Title								
MME 506	Advanced Fluid Mechanics				x		x		
MME 507	Advanced Refrigeration System		x		x		x		
MME 508	Advanced Airconditioning System		x		x		x		
MME 509	Material Failure Analysis				x		x		
MME 510	Computational Nanotechnology				x		x		
MME 511	Smart Materials				x		x		
MME 512	Biomechanics and Biomaterials				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
MME 501	Advanced Thermodynamics	3
MME 502	Advanced Heat and Mass Transfer	3
	SUBTOTAL	**9**
Second Semester		
Course Code	**Course Title**	**Credit Units**
ENGG 502	Computational Mathematics 2	3
ENGG 504	Applied Materials Science and Engineering	3
ENGG 503	Design of Experiments and Data Analytics	3
	SUBTOTAL	**9**
Year 2		
First Semester		
Course Code	**Course Title**	**Credit Units**
MME 5xx	Elective 1	3
MME 5xx	Elective 2	3
	SUBTOTAL	**6**
Second Semester		
Course Code	**Course Title**	**Credit Units**
MME 5xx	Elective 3	3
MME 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**