Republic of the Philippines
BATANGAS STATE UNIVERSITY
Pablo Borbon Main II, Alangilan Batangas City
COLLEGE OF ENGINEERING, ARCHITECTURE & FINE ARTS
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CURRICULUM

Master of Science in Electronics Engineering (M.S.E.C.E.)

Academic Year 2020-2021
Reference: Final Draft of CMO – PSG for graduate degree programs in Engineering

PROGRAM DESCRIPTION

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

PROGRAM EDUCATIONAL OBJECTIVES

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

1. successfully practice as electronics 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 Electronics 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	3
Major Courses (9 units)		
Course Code	**Course Title**	**Credit Units**
ENGG 504	Applied Materials Science and Engineering	3
GECE 501	Linear Systems Theory	3
GECE 502	Modern Control Theory and Applications	3
Elective Courses (6 units)		
Course Code	**Course Title**	**Credit Units**
GECE 503	Management of Technology	3
GECE 504	Advanced Digital Signal Processing	3
GECE 505	Advanced Electromagnetic Theory	3
GECE 506	Antennas and Radiowave Propagation	3
GECE 507	Optical Fiber Communications	3
GECE 508	Special Topics in Communications	3
GECE 509	Adaptive Control	3
GECE 510	Digital Control	3
GECE 511	Multivariable Control System	3
GECE 512	Nonlinear Systems	3
GECE 513	Optimal Control	3
GECE 514	Advanced Image Processing	3
GECE 515	Artificial Intelligence for Cyber-physical Systems	3
GECE 516	Data Mining	3
GECE 517	Machine Learning	3
GECE 518	Neural Networks	3
GECE 519	Advanced Analog IC Design	3
GECE 520	Advanced Digital IC Design	3
GECE 521	Mixed-Signal IC Design	3
GECE 522	Special Topics in Electronics	3
GECE 523	Special Topics in Systems and Control	3
Thesis (6 units)		
Course Code	**Course Title**	**Credit Units**
GECE 601	Master's Thesis 1	3
GECE 602	Master's Thesis 2	3

*2 electives (6 units) may be given credits from Recognition of Prior Learning

MAPPING OF CURRICULUM COURSES TO STUDENT OUTCOMES

Course Code	Course Description	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					
ENGG 504	Applied Materials Science and Engineering	x			x					
GECE 501	Linear Systems Theory	x			x					
GECE 502	Modern Control Theory and Applications	x	x		x					
GECE 503	Management of Technology				x	x		x		
GECE 504	Advanced Digital Signal Processing				x	x		x		
GECE 505	Advanced Electromagnetic Theory				x	x		x		

GECE 506	Antennas and Radiowave Propagation				x	x		x		
GECE 507	Optical Fiber Communications				x	x		x		
GECE 508	Special Topics in Communications				x	x		x		
GECE 509	Adaptive Control				x	x		x		
GECE 510	Digital Control				x	x		x		
GECE 511	Multivariable Control System				x	x		x		
GECE 512	Nonlinear Systems				x	x		x		
GECE 513	Optimal Control				x	x		x		
GECE 514	Advanced Image Processing				x	x		x		
GECE 515	Artificial Intelligence for Cyber-physical Systems				x	x		x		
GECE 516	Data Mining				x	x		x		
GECE 517	Machine Learning				x	x		x		
GECE 518	Neural Networks				x	x		x		
GECE 519	Advanced Analog IC Design				x	x		x		
GECE 520	Advanced Digital IC Design				x	x		x		
GECE 521	Mixed-Signal IC Design				x	x		x		
GECE 522	Special Topics in Electronics				x	x		x		
GECE 523	Special Topics in Systems and Control				x	x		x		
GECE 601	Master's Thesis 1						x		x	x
GECE 602	Master's Thesis 2			x			x			x

SUGGESTED PROGRAM OF STUDY

Year 1		
First Semester		
Course Code	**Course Title**	**Credit Units**
ENGG 501	Computational Mathematics 1	3
GECE 501	Linear Systems Theory	3
GECE 502	Modern Control Theory and Applications	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**
Midterm		
Course Code	**Course Title**	**Credit Units**
GECE 5xx	Elective 1	3
GECE 5xx	Elective 2	3
	SUBTOTAL	**6**
Comprehensive Examination		
Year 2		
First Semester		
Course Code	**Course Title**	**Credit Units**
GECE 601	Master's Thesis 1	3
	SUBTOTAL	**3**
Second Semester		
Course Code	**Course Title**	**Credit Units**
GECE 602	Master's Thesis 2	3
	SUBTOTAL	**3**
	TOTAL	**30**