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

Bachelor of Science in Electronics Engineering (BSECE)

Academic Year 2018-2019

Reference CMOs: CMO No. 101 s. 2017, CMO No. 4 s. 2018 and CMO No. 20 s. 2013

Curriculum Description

Electronics Engineering is the branch of engineering that integrates available and emerging technologies with knowledge of mathematics, natural, social and applied sciences to conceptualize, design, and implement new, improved, or innovative electronic, computer and communication systems, devices, goods, services and processes.

Program Educational Objectives

The electronics engineering alumni three to five years after graduation shall:

1. Be engaged in the practice of electronics engineering.
2. Promote culture of professionalism, environmental awareness, social and ethical responsibility in engineering practice.
3. Contribute to the technological advancement for the welfare of the humanity.

Student Outcomes

The following skills, knowledge, and behaviors are expected to be attained by students as they progress through the program:

a. Ability to apply knowledge of mathematics and science to solve engineering problems.
b. Ability to design and conduct experiments, as well as to analyze and interpret data.
c. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability, in accordance with standards.
d. Ability to function on multidisciplinary teams.
e. Ability to identify, formulate, and solve engineering problems.
f. Understanding of professional and ethical responsibility.
g. Ability to communicate effectively.
h. Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
i. Recognition of the need for, and an ability to engage in life-long learning.
j. Knowledge of contemporary issues.
k. Ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
l. Knowledge and understanding of engineering and management principles as a member and leader in a team, to manage projects and in multidisciplinary environments.

CURRICULUM COMPONENTS

Classification/ Field / Course	No. of Hours/Week		Credit Units
	Lec	Lab	
I. TECHNICAL COURSES			
A. Mathematics			
Differential Calculus	3	0	3
Integral Calculus	3	0	3
Engineering Data Analysis	3	0	3
Differential Equations	3	0	3
Sub-total	**12**	**0**	**12**
B. Natural/Physical Sciences			
General Chemistry	3	3	4
Modern Biology	2	3	3
Physics 1	3	3	4
Sub-total	**8**	**9**	**11**
C. Basic Engineering Sciences			
Introduction to Engineering	0	3	1
Engineering Drawing	0	3	1
Computer-Aided Design	0	3	1
Engineering Economics	3	0	3
Technopreneurship	3	0	3
Engineering Management	2	0	2
Sub-total	**8**	**9**	**11**
D. Allied Courses			
Computer Programming 1	0	3	1
Discrete Mathematics	3	0	3
Circuits 1	3	3	4
Circuits 2	3	3	4
Basic Occupational Safety and Health	3	0	3
Material Science and Engineering	3	0	3
Environmental Science and Engineering	3	0	3
Physics 2	3	3	4
Sub-total	**21**	**12**	**25**
E. Professional Courses			
1. Core Courses			
Electromagnetics	4	0	4
Programming for Electronic Tests and Designs	0	3	1
Advanced Engineering Mathematics for ECE	3	0	3
Electronic Devices and Circuits	3	3	4
Digital Principles and Logic Design	3	3	4
Electronic Circuit Analysis and Design	3	3	4
Principles of Communication Systems	3	3	4
Feedback and Control Systems	3	3	4
Electronic Systems and Design 1	2	3	3
Electronic Systems and Design 2	1	3	2
Modulation and Coding Techniques	3	3	4
Data Communications	3	3	4
Transmission Media and Antenna Systems	3	3	4
Signals, Spectra and Signal Processing	3	3	4
Microprocessor and Microcontroller Systems and Design	3	3	4
ECE Capstone Design 1	0	3	1
ECE Review with Comprehensive Examination	0	6	2
ECE Seminars/Colloquium	0	3	1
ECE Capstone Design 2	0	3	1
ECE Laws and Professional Ethics	3	0	3
Numerical Methods and Analysis	2	3	3
Research Methods	3	0	3
Sub-total	**48**	**57**	**67**

2. Technical Electives			
ECE Elective 1	2	3	3
ECE Elective 2	2	3	3
ECE Elective 3	2	3	3
Sub-total	**6**	**9**	**9**
F. On-the Job Training	320 hrs		4
Total (Technical Courses)	**103**	**96**	**139**
II. NON-TECHNICAL COURSES			
A. General Education Course			
Understanding the Self	3	0	3
Mathematics in the Modern World	3	0	3
The Contemporary World	3	0	3
Readings in Philippine History	3	0	3
Purposive Communication	3	0	3
Ethics	3	0	3
Art Appreciation	3	0	3
Science, Technology and Society	3	0	3
Sub-total	**24**	**0**	**24**
B. Filipino/Literature/Mandated Courses			
Kontekstwalisadong Komunikasyon sa Filipino	3	0	3
Filipino sa Iba't Ibang Disiplina	3	0	3
ASEAN Literature	3	0	3
Life and Works of Rizal	3	0	3
Sub-total	**12**	**0**	**12**
C. Physical Education			
Physical Fitness, Gymnastics and Aerobics	2	0	2
Rhythmic Activities	2	0	2
Individual and Dual Sports	2	0	2
Team Sports	2	0	2
Sub-total	**8**	**0**	**8**
D. National Service Training Program			
NSTP 1	3	0	3
NSTP 2	3	0	3
Sub-total	**6**	**0**	**6**
Total (Non-Technical Courses)	**50**	**0**	**50**
GRAND TOTAL	**153**	**96**	**189**

SUMMARY	
Courses	**Number of Units**
I. Technical Courses	
A. Mathematics	12
B. Natural/Physical Sciences	11
C. Basic Engineering Sciences	11
D. Allied Courses	25
E. Professional Courses	
1. Core Courses	67
2. Elective Courses	9
F. OJT	4
II. Non-Technical Courses	
A. General Education Courses	24
B. Filipino/Literature/Mandated Courses	12
C. Physical Education	8
D. NSTP	6
GRAND TOTAL	**189**

PROGRAM OF STUDY

FIRST YEAR						
First Semester						
Course Code	**Course Title**	**No. of Hour/s**		**Unit/s**	**Pre-requisite/s**	**Co-requisite/s**
		Lec	**Lab**			
MATH 401	Differential Calculus	3	0	3		
SCI 401	General Chemistry	3	3	4		
ENGG 401	Introduction to Engineering	0	3	1		
GEd 102	Mathematics in the Modern World	3	0	3		
GEd 101	Understanding the Self	3	0	3		
GEd 105	Readings in Philippine History	3	0	3		
GEd 106	Purposive Communication	3	0	3		
PE 101	Physical Fitness, Gymnastics and Aerobics	2	0	2		
NSTP 111	National Service Training Program 1	3	0	3		
	Total	**23**	**6**	**25**		
FIRST YEAR						
Second Semester						
Course Code	**Course Title**	**No. of Hour/s**		**Unit/s**	**Pre-requisite/s**	**Co-requisite/s**
		Lec	**Lab**			
MATH 402	Integral Calculus	3	0	3	MATH 401	
SCI 403	Physics 1	3	3	4	MATH 401	MATH 402
ENGG 402	Engineering Drawing	0	3	1		
CpE 401	Computer Programming 1	0	3	1		
GEd 104	The Contemporary World	3	0	3		
GEd 108	Art Appreciation	3	0	3		
GEd 109	Science, Technology and Society	3	0	3		
PE 102	Rhythmic Activities	2	0	2	PE 101	
NSTP 121	National Service Training Program 2	3	0	3	NSTP 111	
	Total	**20**	**9**	**23**		
FIRST YEAR						
Midterm						
Course Code	**Course Title**	**No. of Hour/s**		**Unit/s**	**Pre-requisite/s**	**Co-requisite/s**
		Lec	**Lab**			
SCI 402	Modern Biology	2	3	3		
GEd 103	Life and Works of Rizal	3	0	3		
GEd 107	Ethics	3	0	3		
	Total	**8**	**3**	**9**		
SECOND YEAR						
First Semester						
Course Code	**Course Title**	**No. of Hour/s**		**Unit/s**	**Pre-requisite/s**	**Co-requisite/s**
		Lec	**Lab**			
ECE 401	Electromagnetics	4	0	4		MATH 404, SCI 404
ECE 402	Programming for Electronic Tests and Designs	0	3	1	CpE 401	
MATH 403	Engineering Data Analysis	3	0	3	MATH 402	
MATH 404	Differential Equations	3	0	3	MATH 402	
SCI 404	Physics 2	3	3	4	SCI 403	
ENGG 403	Computer-Aided Design	0	3	1	ENGG 402	
ENGG 413	Environmental Science and Engineering	3	0	3	SCI 401	
EE 424	Circuits 1	3	3	4	MATH 402	SCI 404
PE 103	Individual and Dual Sports	2	0	2	PE 101	
	Total	**21**	**12**	**25**		
SECOND YEAR						
Second Semester						
Course Code	**Course Title**	**No. of Hour/s**		**Unit/s**	**Pre-requisite/s**	**Co-requisite/s**
		Lec	**Lab**			
ECE 403	Advanced Engineering Mathematics for ECE	3	0	3	MATH 404	
ECE 404	Electronic Devices and Circuits	3	3	4	EE 424, SCI 404	
ECE 405	Digital Principles and Logic Design	3	3	4	EE 424	ECE 404
ENGG 412	Material Science and Engineering	3	0	3	SCI 401	
CpE 405	Discrete Mathematics	3	0	3	MATH 402	
EE 425	Circuits 2	3	3	4	EE 424	
PE 104	Team Sports	2	0	2	PE 101	
Fili 101	Kontekstwalisadong Komunikasyon sa Filipino	3	0	3		
	Total	**23**	**9**	**26**		

THIRD YEAR						
First Semester						
Course Code	Course Title	No. of Hour/s		Unit/s	Pre-requisite/s	Co-requisite/s
		Lec	Lab			
ENGG 415	Numerical Methods and Analysis	2	3	3	MATH 404, CpE 401	
ECE 406	Electronic Circuit Analysis and Design	3	3	4	ECE 404	
ECE 407	Principles of Communication Systems	3	3	4		ECE 406
ECE 408	Feedback and Control Systems	3	3	4	ECE 403, EE 425	
ECE 409	Electronic Systems and Design 1	2	3	3	ECE 404	
ECEE 401	ECE Elective 1	2	3	3	3rd year standing	
Fili 102	Filipino sa Iba't Ibang Disiplina	3	0	3		
	Total	**18**	**18**	**24**		
THIRD YEAR						
Second Semester						
Course Code	Course Title	No. of Hour/s		Unit/s	Pre-requisite/s	Co-requisite/s
		Lec	Lab			
ECE 410	Electronic Systems and Design 2	1	3	2	ECE 406, ECE 405	
ECE 411	Modulation and Coding Techniques	3	3	4	ECE 407	
ECE 412	Data Communications	3	3	4	ECE 407	
ECE 413	Transmission Media and Antenna Systems	3	3	4	ECE 407	
ECE 414	Signals, Spectra, and Signal Processing	3	3	4	ECE 403, MATH 403	
ENGG 416	Research Methods	3	0	3	MATH 403	
ECEE 402	ECE Elective 2	2	3	3	ECEE 401	
	Total	**18**	**18**	**24**		
THIRD YEAR						
MIDTERM						
Course Code	Course Title	No. of Hour/s		Unit/s	Pre-requisite/s	Co-requisite/s
		Lec	Lab			
ECE 415	Microprocessor and Microcontroller Systems and Design	3	3	4	CpE 401, ECE 405	
ENGG 404	Engineering Economics	3	0	3	MATH 402	
	Total	**6**	**3**	**7**		
FOURTH YEAR						
First Semester						
Course Code	Course Title	No. of Hour/s		Unit/s	Pre-requisite/s	Co-requisite/s
		Lec	Lab			
Litr 102	ASEAN Literature	3	0	3		
ENGG 405	Technopreneurship	3	0	3	4th year standing	
ECE 416	ECE Capstone Design 1	0	3	1	ENGG 416	
ENGG 417	On-the-Job Training	320		4	4th year standing	
	Total	**6**	**3**	**11**		
FOURTH YEAR						
Second Semester						
Course Code	Course Title	No. of Hour/s		Unit/s	Pre-requisite/s	Co-requisite/s
		Lec	Lab			
ECE 417	ECE Review with Comprehensive Examination	0	6	2	Graduating	
ECE 418	ECE Seminars/Colloquium	0	3	1	4th year standing	
ECE 419	ECE Capstone Design 2	0	3	1	Graduating	
ECE 420	ECE Laws and Professional Ethics	3	0	3	4th year standing	
ENGG 406	Engineering Management	2	0	2		
ENGG 411	Basic Occupational Safety and Health	3	0	3		
ECEE 403	ECE Elective 3	2	3	3	ECEE 402	
	Total	**10**	**15**	**15**		
GRAND TOTAL UNITS		**153**	**96**	**189**		