



CURRICULUM

Bachelor of Science in Computer Engineering (BSCpE)

Academic Year 2018-2019

Reference CMOs: CMO No. 87 s. 2017, CMO No. 4 s. 2018 and CMO No. 20, s. 2013

Curriculum Description

The Bachelor of Science in Computer Engineering (BSCpE) is a program that embodies the Science and technology of design, development, implementation, maintenance and integration of software and hardware components in modern computing systems and computer-controlled equipment.

Program Educational Objectives of Computer Engineering

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

1. Help create innovations to ensure the competitive edge of the Philippine computing industry
2. Adhere to ethical standards in the practice of the computer engineering profession

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	Minimum 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 and Physical Sciences			
General Chemistry	3	3	4
Physics 1	3	3	4
Modern Biology	2	3	3
Sub-Total	8	9	11
C. Basic Engineering Sciences			
Computer-Aided Design	0	3	1
Engineering Economics	3	0	3
Technopreneurship	3	0	3
Introduction to Engineering	0	3	1
Engineering Drawing	0	3	1
Computer Programming 1	0	3	1
Manufacturing and Quality Control	3	0	3
Sub-Total	9	12	13
D. Allied Courses			
Fundamentals of Electrical Engineering	3	3	4
Electronic Circuits: Devices and Analysis	3	3	4
Sub-total	6	6	8
E. Professional Courses			
Computer Engineering as a Discipline	1	0	1
Programming Logic and Design	0	6	2
Discrete Mathematics	3	0	3
Object Oriented Programming	0	6	2
CpE Laws and Professional Practice	2	0	2
Advanced Engineering Mathematics for CpE	3	0	3
Data Structures and Algorithms	0	6	2
Logic Circuits and Design	3	3	4
Introduction to Networks, Data and Digital Communications (CISCO 1)	2	3	3
Fundamentals of Mixed Signals and Sensors	3	0	3
Feedback and Control Systems	3	0	3
Introduction to HDL	0	3	1
Software Design	3	3	4
Microprocessors	3	3	4
Digital Signal Processing	3	3	4
Emerging Technologies in CpE	3	0	3
CpE Practice and Design 1	0	3	1
Operating Systems	3	0	3
Computer Architecture and Organization	3	3	4
Computer Engineering Drafting and Design	0	3	1
Connecting Networks and Security (CISCO 4)	3	3	4
Embedded Systems	3	3	4
Seminars and Fieldtrips	0	6	2
CpE Practice and Design 2	0	6	2
Numerical Methods	3	0	3
Research Methods	3	0	3
Basic Occupational Health and Safety	3	0	3
On-the-Job Training	320 hrs		4
Routing and Switching (CISCO 2)	0	3	1
Scaling Networks (CISCO 3)	0	3	1
Sub-Total	53	69	80

F. Cognates/Electives				
Cognate/Track Course 1		2	3	3
Cognate/Track Course 2		2	3	3
Cognate/Track Course 3		2	3	3
Sub-Total		6	9	9
Total Technical Courses		94	105	133
II. Non-technical Courses				
A. General Education Courses				
Mathematics in the Modern World	3	0	3	
Readings in Philippine History	3	0	3	
Understanding the Self	3	0	3	
Contemporary World	3	0	3	
Science, Technology and Society	3	0	3	
Purposive Communication	3	0	3	
Art Appreciation	3	0	3	
Ethics	3	0	3	
Sub-total	24	0	24	
B. Filipino/Literature/Rizal				
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				
PE 101	2	0	2	
PE 102	2	0	2	
PE 103	2	0	2	
PE 104	2	0	2	
Sub-total	8	0	8	
D. NSTP				
NSTP 111	3	0	3	
NSTP 121	3	0	3	
Sub-total	6	0	6	
Total Non-Technical Courses		50	0	50
GRAND TOTAL		144	105	183
SUMMARY				
Courses	Number of Units			
I. Technical Courses				
A. Mathematics	12			
B. Natural/Physical Sciences	11			
C. Basic Engineering Sciences	13			
D. Allied Courses	8			
E. Professional Courses	80			
F. Cognate/Electives	9			
II. Non-Technical Courses				
A. General Education Courses	24			
B. Filipino/Literature/Mandated Courses	12			
C. Physical Education	8			
D. NSTP	6			
GRAND TOTAL	183			

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			
ENGG 401	Introduction to Engineering	0	3	1		
GEEd 101	Understanding the Self	3	0	3		
GEEd 102	Mathematics in the Modern World	3	0	3		
GEEd 105	Readings in Philippine History	3	0	3		
GEEd 106	Purposive Communication	3	0	3		
MATH 401	Differential Calculus	3	0	3		
SCI 401	General Chemistry	3	3	4		
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			
CpE 401	Computer Programming 1	0	3	1		
ENGG 402	Engineering Drawing	0	3	1		
GEEd 104	Contemporary World	3	0	3		
GEEd 108	Art Appreciation	3	0	3		
GEEd 109	Science, Technology and Society	3	0	3		
MATH 402	Integral Calculus	3	0	3	MATH 401	
SCI 403	Physics 1	3	3	4	MATH 401	MATH 402
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			
GEEd 103	Life and Works of Rizal	3	0	3		
GEEd 107	Ethics	3	0	3		
SCI 402	Modern Biology	2	3	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			
CpE 403	Computer Engineering as a Discipline	1	0	1		
CpE 404	Programming Logic and Design	0	6	2		
CpE 405	Discrete Mathematics	3	0	3	MATH 401	
EE 423	Fundamentals of Electrical Engineering	3	3	4	SCI 403	
ENGG 403	Computer-Aided Design	0	3	1	ENGG 402	
ENGG 404	Engineering Economics	3	0	3	MATH 402	
MATH 403	Engineering Data Analysis	3	0	3	MATH 401	
MATH 404	Differential Equations	3	0	3	MATH 402	
PE 103	Individual and Dual Sports	2	0	2	PE 101	
	Total	18	12	22		
SECOND YEAR						
Second Semester						
Course Code	Course Title	No. of Hour/s		Unit/s	Pre-requisite/s	Co-requisite/s
		Lec	Lab			
CpE 406	Object Oriented Programming	0	6	2	CpE 404	
CpE 407	CpE Laws and Professional Practice	2	0	2	2rd Year Standing	
CpE 408	Advanced Engineering Mathematics for CpE	3	0	3		
CpEE 401	Cognate/Elective Course 1	2	3	3	2nd Year Standing	
ECE 421	Electronic Circuits: Devices and Analysis	3	3	4	EE 423	
ENGG 411	Basic Occupational Health and Safety	3	0	3		
ENGG 414	Numerical Methods	3	0	3	MATH 404	
Fili 101	Kontekstwalisadong Komunikasyon sa Filipino	3	0	3		
PE 104	Team Sports	2	0	2	PE 101	
	Total	21	12	25		

THIRD YEAR						
First Semester						
Course Code	Course Title	No. of Hour/s		Unit/s	Pre-requisite/s	Co-requisite/s
		Lec	Lab			
CpE 410	Logic Circuits and Design	3	3	4	ECE 421	
CpE 411	Data Structures and Algorithms	0	6	2	CpE 406	
CpE 412	Introduction to Networks, Data and Digital Communications (CISCO 1)	2	3	3	ECE 421	CpE 410
CpE 413	Fundamentals of Mixed Signals and Sensors	3	0	3	ECE 421	
CpE 414	Feedback and Control Systems	3	0	3	ENGG 414; EE 423	
CpE 415	Introduction to HDL	0	3	1	CpE 404; ECE 421	
ENGG 416	Research Methods	3	0	3	MATH 403	
Fili 102	Filipino sa Iba't Ibang Disiplina	3	0	3		
	Total	17	15	22		
THIRD YEAR						
Second Semester						
Course Code	Course Title	No. of Hour/s		Unit/s	Pre-requisite/s	Co-requisite/s
		Lec	Lab			
CpE 417	Microprocessors	3	3	4	CpE 410	
CpE 418	Software Design	3	3	4	CpE 411	
CpE 419	Routing and Switching (CISCO 2)	0	3	1	CpE 412	
CpE 420	Digital Signal Processing	3	3	4	CpE 414	
CpE 421	Emerging Technologies in CpE	3	0	3	3rd Year Standing	
CpE 422	CpE Practice and Design 1	0	3	1	ENGG 416	CpE 417
CpEE 402	Cognate/Elective Course 2	2	3	3	CpEE 401	
	Total	14	18	20		
THIRD YEAR						
Midterm						
Course Code	Course Title	No. of Hour/s		Unit/s	Pre-requisite/s	Co-requisite/s
		Lec	Lab			
CpE 423	Scaling Networks (CISCO 3)	0	3	1	CpE 419	
CpE 424	Operating Systems	3	0	3	CpE 411	
CpE 425	Computer Architecture and Organization	3	3	4	CpE 417	
	Total	6	6	8		
FOURTH YEAR						
First Semester						
Course Code	Course Title	No. of Hour/s		Unit/s	Pre-requisite/s	Co-requisite/s
		Lec	Lab			
CpE 426	Computer Engineering Drafting and Design	0	3	1	ECE 421	
CpE 427	Connecting Networks and Security (CISCO 4)	3	3	4	CpE 423	
CpE 428	Embedded Systems	3	3	4	CpE 417	
CpE 429	Seminars and Fieldtrips	0	6	2	4th Year Standing	
IE 425	Manufacturing and Quality Control	3	0	3	MATH 403	
CpEE 403	Cognate/Elective Course 3	2	3	3	CpEE 402	
Litr 102	ASEAN Literature	3	0	3		
	Total	14	18	20		
FOURTH YEAR						
Second Semester						
Course Code	Course Title	No. of Hour/s		Unit/s	Pre-requisite/s	Co-requisite/s
		Lec	Lab			
ENGG 405	Technopreneurship	3	0	3	4th Year Standing	
ENGG 417	On-the-Job Training	320		4	4th Year Standing	
CpE 430	CpE Practice and Design 2	0	6	2	CpE 422	
	Total	3	6	9		
GRAND TOTAL UNITS		144	105	183		