

SCHOOL OF ENGINEERING			
Degree: BACHELOR OF SCIENCE Credits: 128		CURRICULUM 201801	
Program: COMPUTER ENGINEERING			
Description: The Computer Engineering Program provides students with a rigorous academic preparation on the principles of hardware and software design and their interfacing for building complex computer applications.			
Course Code	Course Title	Credits	Prerequisites
General Education Courses			
SPAN 152	Fundamentals of Reading and Writing	3	Placement Exam
SPAN 250	Writing Techniques	3	SPAN 152
ENGL 152	Fundamentals of Reading and Writing	3	Placement Exam
ENGL 153	Advanced Communicative English	3	ENGL 152
ENGL 231	Research and Writing	3	ENGL 153
MATH 152	Pre-Calculus II	4	Placement Exam
PHSC 215	Physics for Engineering I (includes Lab)	4	MATH 221
CHEM 203	General Chemistry I	4	MATH 151
HUMA 111	Universal Culture and Civilization I	3	
SOSC 111	Individual, Community, Government and Social Responsibility I	3	
SOSC 112	Individual, Community, Government and Social Responsibility II	3	SOSC 111
FSEN 105	Introduction to Engineering	3	
MATH 221	Calculus I	4	MATH 152
MATH 222	Calculus II	4	MATH 221
MATH 395	Differential Equations	3	MATH 222
PHSC 216	Physics for Engineering II (includes Lab)	4	PHSC 215
	Free Elective	3	Depends on Elective
Core Courses			
ENGI 122	Introduction to Computer Programming	3	MATH 152
ENGI 223	Intermediate Programming	3	ENGI 122/MATH 221
ENGI 223L	Intermediate Programming Laboratory	1	[ENGI 223] Co-Req.
ENGI 277	General Statics and Dynamics	3	PHSC 215
ENGI 310	General Thermodynamics	3	CHEM 203/ENGI 277/ PHSC 216
Concentration Courses			
COMP 311	Discrete Mathematics for Engineers	3	ENGI 223
COMP 315	Analysis and Design of Data Structures and Algorithms	3	CPEN 358/MATH 222
COMP 411	Numerical Methods with Programming	3	COMP 311
CPEN 358	Object Oriented Programming	3	ENGI 223
CPEN 425	Software Engineering	3	CPEN 358
CPEN 444	Computer Architecture and Organization	3	ELEN 312

Course Code	Course Title	Credits	Prerequisites
CPEN 452	Operating Systems	3	ENGI 223
CPEN 455	Introduction to Databases	3	COMP 315
CPEN 457	Programming Languages	3	COMP 315
CPEN 481	Telecommunication Networks and Security	3	ENGI 223
CPEN 493	Senior Design Project I	2	CPEN 425 & 455/ ELEN 330
CPEN 494	Senior Design Project II	1	CPEN 452 & 493/ ELEN 442/ Last Semester Status
ELEN 301	Electrical Networks I	3	PHSC 216
ELEN 302	Electrical Networks I Laboratory	1	PHSC 216
ELEN 312	Digital Logic Design I	3	ENGI 223
ELEN 313	Digital Logic Design I Laboratory	1	ENGI 223
ELEN 330	Electronics I	3	ELEN 301 & 302
ELEN 332	Electronics I Laboratory	1	ELEN 302
ELEN 360	Random Signals and Systems	3	MATH 222/ELEN 301
ELEN 442	Microprocessors I	3	ELEN 312
ELEN 447	Microprocessors Laboratory	1	ELEN 313
Elective Courses (Select a minimum of 6 credits from below as indicated.)			
Computer Engineering Electives (Select at least 3 credits from this set of courses.)			
CPEN 456	Database Management Systems	3	CPEN 455
CPEN 458	Introduction to Compilers	3	CPEN 452
CPEN 459	Artificial Intelligence	3	ENGI 223
CPEN 478	Distributed Systems	3	CPEN 444/CPEN 452
CPEN 488	Advanced Computer Architectures	3	CPEN 444
CPEN 497	Special Topics	3	ECE Head's permission
ECEN 400	Survey of Electrical and Computer Engineering Topics	3	Next to last semester status
ENGY 103	Electrical Energy: Basic Concepts	1	
ENGY 203	Fundamentals of Electrical Energy Systems	1	[ENGY 103] Co-Req.
ENGY 303	Energy and Electrical Power Systems	1	[ENGY 203] Co-Req.
	Any ELEN/ENGI course in the B.S. Electrical Engineering curriculum	3	As required by EE Program
CPEN 502	Advanced Analysis & Design of Algorithms	3	COMP 315 or instructor consent
CPEN 503	Computer and Network Security	3	CPEN 481 or instructor consent
CPEN 504	Advanced Computer Architectures	3	CPEN 444 or instructor consent
CPEN 505	Database Management Systems	3	CPEN 455 or instructor consent
CPEN 511	Distributed Systems	3	CPEN 444 & 452, or instructor consent
CPEN 520	Numerical Optimization	3	COMP 411 or instructor consent
CPEN 550	Operating Systems Programming	3	CPEN 452 or instructor consent
CPEN 552	Computer Graphics	3	ENGI 223 or instructor consent
CPEN 640	Embedded Systems	3	ELEN 442 or instructor consent
ELEN 502	Advanced Linear Systems	3	ELEN 415 or instructor consent
ELEN 503	Solid State Electronics	3	ELEN 431 or instructor consent
ELEN 505	Probability and Random Processes	3	ELEN 360 or instructor consent
ELEN 510	Advanced Power System Analysis	3	ELEN 480 or instructor consent

Course Code	Course Title	Credits	Prerequisites
ELEN 511	Power System Dynamics and Control	3	ELEN 480 or instructor consent
ELEN 520	Digital Control Systems	3	ELEN 415 or instructor consent
ELEN 550	Digital Filters	3	ELEN 415 or instructor consent
NSEC 501	Network Security I	3	Fourth Year Status
NSEC 502	Computer Security I	3	Fourth Year Status
NSEC 521	Network Security II	3	NSEC 501
NSEC 522	Computer Security II	3	NSEC 502
Technical Electives (Select at most 3 credits from this set of courses.)			
ENGI 210	Engineering Economy	3	[MATH 221] Co-Req.
ENGI 244	Engineering Materials	3	CHEM 203/PHSC 215
ENGI 305	Fluid Mechanics	3	ENGI 277/MATH 395
ENGI 318	Strength of Materials	3	ENGI 277
ENGI 478	Fundamentals of Engineering	3	Next to Last Semester Status
IMEN 395	Inferential Statistics for Engineers	3	IMEN 390 or ELEN 360
IMEN 406	Operations Research	3	MATH 350 or IME Head's permission
INNO 300	Sustainable Innovation	3	Third Year Status

Minimum grade required: All courses in the program must be passed with a minimum grade of C.

Rev. 03/15/2017

SCHOOL OF ENGINEERING			
Degree: BACHELOR OF SCIENCE		PLAN OF STUDY 201801	
Credits: 128			
Program: COMPUTER ENGINEERING			
Course Code	Course Title	Credits	Prerequisites
FIRST YEAR – FIRST SEMESTER			
FSEN 105	Introduction to Engineering	3	
MATH 152	Pre-Calculus II	4	Placement Exam
SOSC 111	Individual, Community, Government and Social Responsibility I	3	
ENGL 152	Fundamentals of Reading and Writing	3	Placement Exam
SPAN 152	Fundamentals of Reading and Writing	3	Placement Exam
		16	
FIRST YEAR – SECOND SEMESTER			
ENGI 122	Introduction to Computer Programming	3	MATH 152
MATH 221	Calculus I	4	MATH 152
CHEM 203	General Chemistry I	4	MATH 151
ENGL 153	Advanced Communicative English	3	ENGL 152
SPAN 250	Writing Techniques	3	SPAN 152
		17	
SECOND YEAR – FIRST SEMESTER			
ENGI 223	Intermediate Programming	3	ENGI 122/MATH 221
ENGI 223L	Intermediate Programming Laboratory	1	[ENGI 223] Co-Req.
MATH 222	Calculus II	4	MATH 221
PHSC 215	Physics for Engineering I (includes Lab)	4	MATH 221
ENGL 231	Research and Writing	3	ENGL 153
		15	
SECOND YEAR – SECOND SEMESTER			
CPEN 358	Object Oriented Programming	3	ENGI 223
ENGI 277	General Statics and Dynamics	3	PHSC 215
MATH 395	Differential Equations	3	MATH 222
PHSC 216	Physics for Engineering II (includes Lab)	4	PHSC 215
HUMA 111	Universal Culture and Civilization I	3	
		16	
THIRD YEAR – FIRST SEMESTER			
COMP 311	Discrete Mathematics for Engineers	3	ENGI 223
COMP 315	Analysis and Design of Data Structures and Algorithms	3	CPEN 358/MATH 222
ELEN 301	Electrical Networks I	3	PHSC 216
ELEN 302	Electrical Networks I Laboratory	1	PHSC 216
ELEN 312	Digital Logic Design I	3	ENGI 223
ELEN 313	Digital Logic Design I Laboratory	1	ENGI 223
ENGI 310	General Thermodynamics	3	CHEM 203/ENGI 277/PHSC 216
		17	
THIRD YEAR – SECOND SEMESTER			
CPEN 425	Software Engineering	3	CPEN 358
CPEN 455	Introduction to Databases	3	COMP 315
ELEN 330	Electronics I	3	ELEN 301 & ELEN 302
ELEN 332	Electronics I Laboratory	1	ELEN 302

Course Code	Course Title	Credits	Prerequisites
ELEN 360	Random Signals and Systems	3	MATH 222/ELEN 301
ELEN 442	Microprocessors I	3	ELEN 312
		16	
FOURTH YEAR – FIRST SEMESTER			
CPEN 452	Operating Systems	3	ENGI 223
CPEN 481	Telecommunication Networks and Security	3	ENGI 223
CPEN 493	Senior Design Project I	2	CPEN 425 & 455 / ELEN 330
ELEN 447	Microprocessors Laboratory	1	ELEN 313
	Computer Engineering or Technical Elective I	3	Depends on Elective
	Free Elective	3	Depends on Elective
		15	
FOURTH YEAR - SECOND SEMESTER			
COMP 411	Numerical Methods with Programming	3	COMP 311
CPEN 444	Computer Architecture and Organization	3	ELEN 312
CPEN 457	Programming Languages	3	COMP 315
CPEN 494	Senior Design Project II	1	CPEN 452 & 493 / ELEN 442 / Last Semester Status
SOSC 112	Individual, Community, Government and Social Responsibility II	3	SOSC 111
	Computer Engineering Elective II	3	Depends on Elective
		16	

Minimum grade required: All courses in the program must be passed with a minimum grade of C.

Rev. 03/06/2017