

Computer Engineering Bachelor of Science Degree

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The ever-increasing use of the computer in today's world offers expanding opportunities in this field of specialization. This program provides a bridge between the disciplines of electrical engineering and computer science. Graduates can enter such fields as chip design, software engineering, robotics, and a variety of computer-controlled applications. This requires the development of the engineering approach through the understanding of engineering mathematics, digital and analog electronics and control, as well as computer languages, computing theory and computer architecture. Design and problem-solving form the heart of the discipline and a variety of computer-aided design (CAD) tools are utilized to facilitate learning and implementation.

The graduate from this program will obtain the basic education in the first three years. The final year is utilized to explore specific areas of interest. One can choose a software-oriented program including such areas as artificial intelligence, knowledge-based systems and software design or a hardware-oriented program pointing toward computer or integrated circuit design, robotics and networking.

The engineering approach and knowledge of computer structure are the attributes that make it unique. This program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. A total of 132 semester hours are required for graduation.

Summary of Requirements

ENGINEERING CORE REQUIREMENTS

Chem 103	General Chemistry I	4
CpE 210	Digital System Design I	3
CpE 286	Microprocessor System Design	3
CS 101/101a	Introduction to Computing I	4
EE 233/235	Electrical Engineering I w/lab	4
Engr 111	Introduction to Engineering I	3
Engr 300	Econ. and Management of Engr Project	3
Math 215	Calculus III	4
Math 301	Differential Equations	3
Math 323	Probability and Statistics	3
ME 223	Materials Science for Engineers	3

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PROGRAM REQUIREMENTS

CpE 312	Computer Organization	3
CpE 315	Digital Systems Design II w/lab	4
CpE 387	Embedded System Design	3
CpE 408	Operating Systems	3
CpE 447/448	Logic Synthesis/VLSI Design	3
CpE 449 A, B	CpE Senior Design Project	4
CpE 489	Software Engineering	3
CS 102/102a	Introduction to Computing II (Data Structures and Algorithms)	4
CS 227	Discrete Structures	3
EE 234/236	Network Analysis II w/Lab	3
EE 348	Electronics I	3
EE 360	Controls	3
EE 443	Applied Digital Signal Processing	3
Engl 204	Technical Writing for CpE	1
Math 214/314	Linear Algebra/Numerical Analysis	3
	Technical Elective*	3
	Technical Elective	3
	Free Elective	3

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GENERAL EDUCATION REQUIREMENTS

Eng C101	Composition & Rhetoric	3
Math 110	Calculus I	4
Math 112	Calculus II	4
Phys 111/112	Principles of Physics I, II	8
Hum C201	Humanities	3
Hum	Humanities Core	3
SoSc C201	Social Sciences	3
SoSc	Social Sciences Core	3
IntSt C101	Computer Ethics	3
FA C101	Fine Arts	3
Caps C390	Capstone Seminar	3

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Total Semester Hours 132

Suggested Program

FIRST SEMESTER

Eng C101	Composition & Rhetoric	3
Math 110	Calculus I	4
Phys 111	Principles of Physics I	4
CS 101/101a	Introduction to Computing I	4
Engr 111	Introduction to Engineering I	3

SECOND SEMESTER

IntSt C101	Computer Ethics	3
Math 112	Calculus II	4
CS 102/102a	Intro. to Computing II (Data Structures & Algorithms)	4
CS 227	Discrete Structures	3
Phys 112	Principles of Physics II	4

THIRD SEMESTER

Math 215	Calculus III	4
EE 233/235	Electrical Engineering I w/lab	4
CpE 210	Digital System Design I	3
Hum C201	Humanities	3
Chem 103	General Chemistry I	4

FOURTH SEMESTER

Math 301	Differential Equations	3
ME 223	Material Science for Engineers	3
EE 234/236	Network Analysis II w/Lab	3
Hum	Humanities Core	3
CpE 286	Microprocessor System Design	3
Engl 204	Technical Writing for CpE	1

FIFTH SEMESTER

Engr 300	Econ. and Management of Engr Proj.	3
Math 323	Probability and Statistics	3
EE 360	Controls	3
SoSc	Social Sciences Core	3
CpE 315	Digital Design II w/lab	4
CpE 387	Embedded System Design	3

SIXTH SEMESTER

CpE 312	Computer Organization	3
Math 214/314	Linear Algebra/Numerical Analysis	3
EE 348	Electronics I	3
FA C101	Fine Arts	3
SoSc	Social Science Core	3

SEVENTH SEMESTER

CpE 449A	CpE Senior Design Project	1
EE 443	Applied Digital Signal Processing	3
CpE 489	Software Engineering	3
	Technical Electives*	3
CpE 447/448	Logic Synthesis/VLSI Design	3

EIGHTH SEMESTER

CpE 449B	CpE Senior Design Project	3
Caps C390	Capstone Seminar	3
CpE 408	Operating Systems	3
	Tech Electives	3
	Free Elective	3

Total Semester Hours 132

*Technical Elective—This elective must be chosen from CpE 410, CpE 460, CpE 471 or CpE 473