COMPUTER ENGINEERING

Degree: Bachelor of Science in Computer Engineering
Department: Electrical and Computer Engineering
Building 70, Room 116
(850) 474-2963
http://uwf.edu/ece
ece@uwf.edu
College: Arts and Sciences
Semester Hours Required for Degree: 130

Faculty: L. ter Haar (Chairperson), E. Bakhoum, A. Fuchs, T. Gilbar, M. Khabou, B. Shaer, W. Weber

The goal of the baccalaureate degree program is to prepare students to embark upon a professional career in computer engineering or to begin graduate study.

Graduates will be known for the accomplishments in the early stage of their careers and they should:

A. Develop computer engineering solutions individually and through interdisciplinary teams within a global and societal context.

B. Professionally and ethically engage in technical or business activity through engineering ability, communication skills, and knowledge.

C. Continue professional growth through post-graduate education, continuing education, or professional activity.

D. Contribute to the Northwest Florida regional economic development.

The objective of the program leading to the degree of Bachelor of Science in Computer Engineering is to provide students with a strong theoretical and practical background in computer hardware and software, along with the engineering analysis, design, and implementation skills necessary to work between the two. A computer engineer is someone with the ability to design a complete computer system - from its circuits to its operating system to the algorithms that run on it. Although it is valid to look at software and hardware separately, a computer engineer must take a more holistic approach. If an electronic devices to be called a computer, it must produce mathematically meaningful results. Similarly, any useful theory of computing must be physically realizable. The synthesis of theory and algorithms, which must take place before any useful computing can be achieved, is the job of the computer engineer. To produce such engineers is the mission of this program.

Computer engineering deals with the body of knowledge that forms the theoretical and practical basis for the storage, retrieval, processing, analysis, recognition, and display of information. This area also includes the design and implementation of computer systems and peripheral devices for information handling and engineering applications. The computer engineering curriculum provides a balance of hardware, software, and computer theory and applications with a basic background in electrical engineering. Nine (9) hours of electives are included to permit a student to delve deeply into selected subject matter. Computer engineers find career opportunities in a wide variety of companies or organizations involving the design, development, building, testing, and operation of computer systems. Computer engineers deal with both hardware and software (programming) problems. In designing a computer system, computer engineers must decide how much of the computer logic to put into hardware and how much to put into software. The work of the computer engineers and computer scientists is closely related. Computer engineers tend to be more involved with the computer hardware, whereas computer scientists tend to be more involved with the computer software and less emphasis on hardware.

PROGRAM REQUIREMENTS

Students must complete all seven common prerequisite courses with a grade of “C” or better and with an overall GPA of 2.3 (4.0 scale) by the term they are admitted. Laboratories are required for chemistry and both physics courses, but the grades are not considered in the technical GPA. Only the last attempt will be considered in computing the technical GPA for admission. Students are required to have a laptop or tablet PC. Students should check with the department for minimum hardware configurations.

In addition to general University requirements, students seeking the B.S. in Computer Engineering must meet the requirements listed below:

A. A minimum course grade of “C” or better is required in all electrical engineering core courses (EEL 3111, 3112, 3135, and 3701, and EEE 3396 and 3308), in all computer science courses (COT, CEN, CIS or COP prefix), and all courses which serve as prerequisites to EEE, EEL, and COP prefixed courses and labs. A “C” or better is required in EGN 4410, EGN 4411L, STA4321, ENC 3240, and all Computer Science courses.

B. Students should consult with their academic advisor for courses which may satisfy both the General Studies requirements and common prerequisites.

C. The computer engineering curriculum is designed to yield 15 outcomes. Each upper division course within the curriculum contributes to at least one of these outcomes. A student must demonstrate each outcome achievement in at least one course to satisfy the graduation requirements. All seniors must complete an exit interview with their advisor and submit a copy of their senior design report before graduating.

General Studies (24 sh)

It is recommended that students take a course in literature, ECO 2013, EUH 1001, PHI 2603, fine arts, and behavioral science.

Common Prerequisites (27 sh)

State mandated common prerequisites must be completed prior to admission to the program. Courses in brackets indicate substitutes from Florida public community/junior colleges and universities.

+CHM	2045/L	General Chemistry I/Lab [CHS X440, CHM X045/L]	4
+MAC	2311	Analytic Geometry & Calculus I [MAC X311, X281, X282. MAC X283]	4
+MAC	2312	Analytic Geometry & Calculus II [MAC X312, X282]	4
MAC	2313	Analytic Geometry & Calculus III [MAC X313, X283]	4
MAP	2302	Differential Equations [MAC X302]	3
+PHY	2048/L	University Physics I/Lab [PHY X048/L]	4
PHY	2049/L	University Physics II/Lab [PHY X049/L]	4

\+ *Indicates common prerequisites which can be used to satisfy General Studies requirements.*

Lower Division Electives (0 sh)

Major (70 sh)

COP	3411/L	Data Structures 1/lab	4
COP	4412/L	Data Structures 2/Lab	4
COP	4634/L	Systems and Networks 1/Lab	4
COP	4635/L	Systems and Networks 2/Lab	4
EEL	3111	Circuits I	3
EEL	3112	Circuits II	3
EEL	3135	Discrete-Time Signals & Systems	3
EEL	3117L	Electric Circuits Laboratory	1
EEE	3308	Electronic Circuits I	3
EEE	3396	Solid-State Electronic Devices	3
EEL	3701/L	Digital Logic & Computer Systems/Lab	4
EEE	4308L	Electronics Laboratory	1
EEL	4712/L	Digital Design/Lab	4
EEL	4713	Digital Computer Architecture	3
EEL	4744/L	Microprocessor Applications/Lab	4
EEL	4834	C++ Programming for Electrical Engineers	3
EGM	4313	Intermediate Engineering Analysis	3
EGN	3203	Engineering Software Tools	1
EGN	4032	Professional Ethics	3
EGN	4410	Capstone Design I	1
EGN	4411L	Capstone Design II	2
Advisor approved EEL/EEE electives			9

Maximum of 3 sh in EEL 4949 and maximum of 3 sh in EEL 4905. Also, a maximum of 2 credits of Engineering Internship (EEL 4xxx) will be accepted. A maximum of 3 credits of EEL 4949/4xxx(combination of co-op and internship) will be accepted as elective credits. Consult the Department for the current list of approved EEL/EEE Elective courses.

Major-Related (9 sh)

STA	4321	Introduction to Mathematical Statistics I	3
Advisor approved Engineering or Computer Science Electives…….			3
Advisor approved professional development elective			3

Consult the department for the current list of approved elective courses.

Upper Division Electives (0 sh)