ELECTRICAL ENGINEERING

Degree: Bachelor of Science in Electrical Engineering
Minor: Electrical Engineering
Department: Electrical and Computer Engineering
Building 70, Room 116
(850) 474-2963
ece@uwf.edu
College: Arts and Sciences
Semester Hours Required for Degree: 126

Faculty: M. Law (UF Chairperson), M. Rashid (Director), M. Bataineh, T. Gilbar, S. Gorman, D. Harrell, M. Khabou, R. Manseur, C. Mathews, X. Millard, W. Weber

The mission of the Department of Electrical and Computer Engineering (ECE) is to offer baccalaureate degree programs in electrical and computer engineering which serve the needs of the West Florida region, the State, and the nation.

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

The UWF/UF Joint Program in Electrical and Computer Engineering is a cooperative arrangement between the University of West Florida (UWF) and the University of Florida (UF). Courses are taught on the UWF Pensacola and Ft. Walton Beach campuses. The degree is awarded by UF and is identical to the one offered students on the Gainesville campus and is accredited by ABET (Accreditation Board for Engineering and Technology).

The transfer of the electrical and computer engineering programs from UF to UWF will be completed by December 31, 2008. Students graduating from this program after December 2008 will be awarded a UWF degree. All students graduating prior to December 31, 2008 will receive a degree from UF. Students who were admitted to UWF before August 8, 2004, and are not able to complete the degree requirements by December 31, 2008, will have the option of transferring to Gainesville for the completion of the degree from UF.

The program objectives for electrical engineering are:

1. Students will obtain a broad education necessary to understand the impact of electrical engineering solutions in a global and societal context consistent with the principles of sustainable development.

2. Students will obtain an ability to analyze and solve electrical engineering problems in practice by applying knowledge of mathematics, science, and engineering. Modern engineering techniques, skills, and tools will be used, particularly recognizing the role that computers play in engineering.

3. Students will obtain an ability to identify, formulate, and solve novel electrical engineering problems. This includes the planning, specification, design, implementation, and operation of systems, components, and/or processes that meet performance, cost, time, safety, and quality requirements.

4. Students will obtain the ability to design and conduct scientific and electrical engineering experiments, and to analyze and interpret the resulting data.

5. Students will obtain a solid understanding of professional and ethical responsibility and a recognition of the need for, and ability to engage in, perpetual learning.

6. Students will obtain an ability to communicate effectively - orally, in writing, and graphically.

7. Students will obtain an ability to function on multi-disciplinary teams, where possible.

Electrical Engineering is science-oriented and primarily concerned with all phases and development of the transmission and utilization of electric energy and intelligence. The study of electrical engineering is commonly divided into the academic areas of circuits, electronics, electromagnetics, electrical energy systems, communications, control, and computer engineering. Because of the extremely rapid growth and changes relating to the application of electrical engineering principles, the curriculum is designed to concentrate on a solid core of foundation courses. Fifteen hours of electives are included to permit a student to delve deeply into selected subject matter.

Electrical Engineers find career opportunities in a wide area of settings such as aerospace contractors, manufacturers of consumer electronics, telecommunications, energy distribution, and public-sector positions with federal, state, and local governments.

PROGRAM REQUIREMENTS

The number of applicants who can be accepted is limited by the available classroom and laboratory space, laboratory facilities, and faculty. It is the department's policy to admit the best qualified applicants as demonstrated by high academic achievement within the enrollment limitations discussed above. Admission is directly tied to student's performance in physics and calculus courses, because subsequent work is intimately related to these disciplines. The currently accepted minimum requirements for admission to the program include completion of all eight common prerequisite courses with a grade of "C" or better in each, with an overall GPA of 2.5 (4.0 scale) in Physics courses, an overall GPA of 2.5 (4.0 scale) in Math courses, and an overall GPA of 2.5 (4.0 scale) in Chemistry I and either Chemistry II or Biology. Only the first two attempts (including withdrawals, drops, audits, etc.) will be considered in determining whether the minimum grade of "C" has been achieved and in calculating the overall GPA in common prerequisite areas. During the semester prior to the graduation term, the student's record is officially transferred to Gainesville where it is reviewed to certify that the particular course selections satisfy all graduation requirements.

It is recommended that students have a PC compatible laptop. Students should check with the department for minimum hardware configurations.

The Electrical and Computer Engineering Department publishes a counseling guide which provides detailed information beyond that stated in this *Catalog*.

In addition to general University requirements, students seeking the B.S. in Electrical Engineering must meet the requirements listed below. A minimum course grade of "C" or better is required in all electrical engineering courses and labs (EEL prefix), and in all computer science courses and

labs (COT, CEN, CIS, CDA or COP prefix) prerequisites to other EEL and CS courses and labs. A minimum grade of "C" is also required on EEL 4914C, ENC 3240, and all computer science courses.

The electrical engineering curriculum is designed to yield 13 outcomes. Each upper division course in the program contributes to at least one of these outcomes. A student must demonstrate each outcome achievement in at least two courses to satisfy the graduation requirements. Contact the department for a list of the outcomes.

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

Course descriptions are listed alphabetically by prefix in the back of this *Catalog*.

General Studies (30 sh)

Assumes Advanced Placement Credits in ENC 1101 and ENC 1102 by UF. Must include a course in literature, ECO 2013, EUH 1001, PHI 2603 and either Fine Arts or Behavioral Science.

Common Prerequisites (33 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	4
			[CHS x440]	
+	MAC	2311	Analytic Geometry & Calculus I	4
			[MAC x311, x281]	
+	MAC	2312	Analytic Geometry & Calculus II	4
			[MAC x312, x382]	
	MAC	2313	Analytic Geometry & Calculus III	4
			[MAC x313, x283]	
	MAP	2302	Differential Equations	3
			[MAC x302]	
+	PHY	2048/L	University Physics I/Lab	4
	PHY	2049/L	University Physics II/Lab	4
	General Elective			3

Choose one:

CHM	2046	General Chemistry II	3
Approved Biological Science			3

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

Computer Requirement (3 sh)

Choose one:

CIS	3020	Introduction to CIS	3
EEL	4834	C++ Programming for Electrical Engineers	3

Major (57 sh)

EEL	3111	Circuits I	3
EEL	3112	Circuits II	3
EEL	3135	Discrete-Time Signals & Systems	3
EEL	3211	Basic Electric Energy Engineering	3
EEL	3303L	Electric Circuits Laboratory	1
EEL	3304	Electronic Circuits I	3
EEL	3396	Solid-State Electronic Devices	3
EEL	3472	Electromagnetic Fields & Applications I	3
EEL	3701	Digital Logic & Computer Systems	3
EEL	4304L	Electronics Laboratory	1
EEL	4306C	Electronic Circuits II	3
EEL	4514	Communication Systems & Components	3
EEL	4514L	Communication Lab	1
EEL	4657	Linear Control Systems	3
EEL	4657L	Linear Controls Lab	1
EEL	4744/L	Microprocessor Applications	4
EEL	4914C	Electrical Engineering Design	3
EGN	4034	Professional Ethics	1
		EEL Electives	12
		Maximum of 3 sh in EEL 4949 and maximum of 4 sh in EEL 4905, and maximum of 7 sh in EEL 4905/ 4949 combination. Consult the department for the current list of approved EEL elective courses.	

Major-Related (18 sh)

EGM	2500	Engineering Mechanics - Statics	2
EGM	4313	Intermediate Engineering Analysis	4
ENC	3240	Technical Writing	3

Choose one:

EEL	4516	Noise in Devices & Communication Systems	3
STA	3032	Engineering Statistics	3
STA	4321	Introduction to Mathematical Statistics I	3

Choose two:

EGM	3401	Engineering Mechanics - Dynamics	3
EIN	4354	Engineering Economy	3
MAS	3105	Linear Algebra	3

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

MINOR

This minor provides an opportunity for students majoring in other areas to take a limited number of electrical engineering courses to complement their majors. The Minor in Electrical Engineering is open to all UWF students with the exception of computer and electrical engineering majors. Students applying for the minor must have a declared major. Students may not take a course and its prerequisite during the same semester.

Students who apply for the minor must meet the same prerequisite requirements as electrical engineering students. The currently accepted minimum requirements for the minor include completion of all eight Electrical Engineering common prerequisite courses with a grade of "C" or better in each, with an overall GPA of 2.5 (4.0 scale) in Physics courses, an overall GPA of 2.5 (4.0 scale) in Math courses, and an overall GPA of 2.5 (4.0 scale) in Chemistry I and either Chemistry II or Biology. Only the first two attempts (including withdrawals, drops, audits, etc.) will be considered in determining whether the minimum grade of "C" has been achieved and in calculating the GPA in common prerequisite areas.

CHM	2045/L	General Chemistry I/Lab	4
PHY	2048/L	University Physics I/Lab	4
PHY	2049/L	University Physics II/Lab	4
MAC	2311	Analytic Geometry I	4
MAC	2312	Analytic Geometry II	4
MAC	2313	Analytic Geometry III	4
MAP	2302	Differential Equations	3

Choose one:

CHM	2046	General Chemistry II	3
BSC	1005	General Biology for Non-Majors	3

Required course:

EEL	3111	Circuits I	3
EEL	3303L	Electric Circuits	1

EEL Electives:

Any EEL 3000-4000 courses, except EEL 3003	11