ELECTRICAL ENGINEERING (BS) - GENERAL TRACK

Degree Requirements

Code	Title	Hours
General Education Requirements		**54**
Major Requirements		
Electrical Engineering Major Core		
EG 101	Intro to Engineering & Design (or EG 201 for LINK students)	2
CPE 260	Intro to C++ Programming	3
EG 231	Intro to Ethics and Economics	3
EG 270	Engineering Thermodynamics	3
EE 220	Circuit Analysis I	3
EE 223	Network Analysis	3
EE 227	Circuits and Devices Lab	1
EE 263	Digital Logic Design	3
EE 264	Microprocessor Sys-Interfacing	3
EE 268	Digital Logic Design Lab	1
EE 321	Signals, Systems & Transforms	3
EE 322	Prob, Rand Sigs & Stat Anlys	3
EE 328	Feedback Control Systems	3
EE 331	Physical Electronics	3
EE 334	Digital Electronics	3
EE 354	Electromagnetics I	3
EE 355	Electromagnetics II	3
EE 368	Microprocessor Sys Interf Lab	1
EE 372	Introduction to Communications	3
EE 381	Electromech Energy Conversion	3
EE 385	Energy Conversion Lab	1
EE 401	Intro Elec and CpE Design - W	1
EE 404	Electrical and Computer Engineering Design	3
EE 431	Analog Electronics	3
EE 437	Electronics Lab	1
EE 465	Digital Signal Processing	3
Technical Electives		
I. Select one of the following concentrations (A-F) with permission of student's advisor.		6
A. Control Systems: choose any two of the following courses:		
EE 422	Adv Feedback Control Systems	
EE 423	Modern Control Theory	
EE 424	Nonlinear Control Systems	
EE 427	Digital Control Systems	
EE 438	Virtual Instrumentation	
EE 468	Programmable Logic Controllers	
B. Communications and Networks: choose any two of the following courses:		
EE 441	Computer Networks	
EE 444	Wireless Networks	
EE 453	Antenna Theory and Design	
EE 456	Fiber Optic Communication Sys	
EE 471	Wireless Communication	
EE 473	Advanced Communication Systems	
C. Digital Systems: choose any two of the following courses:		
EE 438	Virtual Instrumentation	
EE 440	HDL Logic Synthesis [1]	
EE 441	Computer Networks	
EE 443	HDL Logic Simulation [1]	
EE 454	Digital Computer Architecture	
EE 457	Embedded System Design	
EE 468	Programmable Logic Controllers	
EE 469	Signal Integrity	
D. Electromagnetics and Optics: choose any two of the following courses:		
EE 450	Fundamentals of Fourier Optics	
EE 452	Microwave Engineering	
EE 453	Antenna Theory and Design	
EE 455	Optoelectronics	
EE 456	Fiber Optic Communication Sys	
EE 458	Radar Systems	
EE 488	Illumination Engineering	
E. Electronics: choose any two of the following courses:		
EE 430	Power Semiconductor Dev	
EE 432	Microelectronic Devices	
EE 438	Virtual Instrumentation	
EE 439	VSLI Technology-Fabrication	
EE 455	Optoelectronics	
EE 470	Synth Active-Passive Networks	
EE 482	Switch Mode Power Conversion	
EE 486	Power Electronics	
F. Power Systems: choose any two of the following courses:		
EE 430	Power Semiconductor Dev	
EE 481	Electrical Machines	
EE 482	Switch Mode Power Conversion	
EE 483	Power Systems I	
EE 484	Power Systems II	
EE 485	Power Distrib and Utilization	
EE 486	Power Electronics	
EE 488	Illumination Engineering	
EE 489	Renewable Energy	
II. Select one additional course from any concentration (A-F) listed above		3
Senior Lab Elective		
Select one of the following:		1
EE 446	Embedded System Design Lab	
EE 447	Programmable Logic Devices Lab	
EE 449	Control and Communications Lab	
Minor Requirements		
A minor is not required for this degree program		0
Total Hours		**129**

Note: All undergraduates must complete two designated writing credit (W) courses, at least one of which must be in the student's major or minor. Courses carrying this required credit are identified in the University

Bulletin by W after the course title. Appropriate software tools will be utilized in almost all EE courses.

[1] Credit for both EE 440 & EE 443 is not allowed.

General Education Requirements

Code	Title	Hours
Area I – Written Composition		
Complete the following:		
EH 101	English Composition I (Students who earn an English ACT score of 27, or a written SAT score of 610, can opt out of EH 101.)	3
EH 102	English Composition II	3
or EH 105	Honors Composition - H	
Area II – Humanities & Fine Arts		
A. Select one of the following:		3
EH 215	Brit Lit before 1785	
EH 216	Brit Lit after 1785	
EH 225	Am Lit before 1865	
EH 226	Am Lit after 1865	
EH 235	World Lit before 1650	
EH 236	World Lit after 1650	
B. Select one of the following:		3
ARH 100	Survey of Art	
ARH 103	Art History I	
ARH 123	Art History II	
ARS 101	Art Appreciation	
DRA 110	Introduction to Theatre	
MUL 101	Introduction to Music	
C. Complete the following:		
CA 110	Public Speaking	3
Area III – Natural Sciences & Mathematics		
Complete the following:		
MA 125	Calculus I	4
CH 131 & 131L	General Chemistry I and General Chemistry I Lab	4
PH 201 & 201L	Calculus-Based Physics I and Calculus-Based Physics I Lab	4
PH 202 & 202L	Calculus-Based Physics II and Calculus-Based Physics II Lab	4
Area IV – History, Social & Behavioral Sciences (3 Courses, 9 Hours)		
A. Select one of the following:		3
HY 101	HY of Western Civilization I	
HY 102	HY of Western Civilization II	
HY 135	US History to 1877	
HY 136	US History since 1877	
B. Select one of the following:		3
AN 100	Intro to Cultural Anthropology	
AN 101	Intro Archaeology-Bio Anthro	
CA 100	Intro to Communication	
CA 211	Interpersonal Comm	
ECO 215	Prin of Microeconomics	
ECO 216	Prin of Macroeconomics	
GEO 114	People, Places, Environment	
GEO 115	World Regional Geography	
GS 101	Intro to Gender Studies	
IS 100	Global Issues	
IST 201	Seasons of Life	
PSC 130	Intro to US Government	
PSY 120	Introduction to Psychology	
PSY 250	Life Span Development	
SY 109	Introductory Sociology	
SY 112	Social Problems	
C. Select one additional course from either List A or List B above in area IV		3
Area V Pre-Professional, Major, Elective Courses		
Complete the following:		
MA 126	Calculus II	4
MA 227	Calculus III	4
MA 237	Linear Algebra I	3
MA 238	Differential Equations I	3
Total Hours		**54**

Professional Component Standing (PCS)

PCS is required to be eligible to take EE 300-level and EE 400-level courses. PCS is awarded when the student meets the following requirements:

- Courses: MA 125, MA 126, CH 131, CH 131L, PH 201, CPE 260, EE 220, EE 263, EH 101, EH 102 or EH 105
- Grade C or higher is required in all PCS courses
- Minimum Grade Point Average: 2.00 USA GPA

Students who fail to maintain at least a 2.00 GPA overall at the University of South Alabama will lose PCS status and may be required to take or repeat appropriate courses as specified by the Department Chair to correct their deficiencies and may not be permitted to continue in 300- and 400-level engineering courses.

Graduation Plan

(129 Total Hours)

The Sample 4-year plan is designed as a guide for students preparing for their course selections. This information provides only a suggested schedule. Actual course selections should be made in consultation with an advisor. Courses listed as Milestones are required to obtain Professional Component Standing (PCS).

Course	Title	Hours
First Year		
Fall		
MA 125	Calculus I [1]	4
CH 131 & 131L	General Chemistry I and General Chemistry I Lab [1]	4
EH 101	English Composition I [1]	3
EG 101	Intro to Engineering & Design	2
General Education	Area I, II or IV	3
Milestone Notes		
Must complete at least 12 hours with a 2.0 or higher GPA		
	Hours	**16**
Spring		
MA 126	Calculus II [1]	4

CA 110	Public Speaking	3
PH 201	Calculus-Based Physics I [1]	4
CPE 260	Intro to C++ Programming [1]	3
EH 102	English Composition II (or EH 105) [1]	3
Milestone Notes		
MA 125	Calculus I	
CH 131 & 131L	General Chemistry I and General Chemistry I Lab	
EH 101	English Composition I (if not exempt)	
	Hours	**17**
Second Year		
Fall		
MA 227	Calculus III	4
PH 202 & 202L	Calculus-Based Physics II and Calculus-Based Physics II Lab	4
EE 263	Digital Logic Design [1]	3
EE 220	Circuit Analysis I [1]	3
General Education	Area I, II or IV	3
Milestone Notes		
PH 201 & 201L	Calculus-Based Physics I and Calculus-Based Physics I Lab	
MA 126	Calculus II	
CPE 260	Intro to C++ Programming	
EH 102 or EH 105	English Composition II or Honors Composition - H	
	Hours	**17**
Spring		
EE 223	Network Analysis	3
EE 264	Microprocessor Sys-Interfacing	3
EE 268	Digital Logic Design Lab	1
MA 237	Linear Algebra I	3
MA 238	Differential Equations I	3
EG 270	Engineering Thermodynamics	3
Milestone Notes		
EE 220	Circuit Analysis I	
EE 263 or CSC 228	Digital Logic Design or Digital Logic Computer Arch	
Obtain PCS		
	Hours	**16**
Third Year		
Fall		
EE 227	Circuits and Devices Lab	1
EE 321	Signals, Systems & Transforms	3
EE 331	Physical Electronics	3
EE 354	Electromagnetics I	3
EE 368	Microprocessor Sys Interf Lab	1
EE 381	Electromech Energy Conversion	3
General Education	Area I, II or IV	3
	Hours	**17**
Spring		
EE 328	Feedback Control Systems	3
EE 334	Digital Electronics	3
EE 355	Electromagnetics II [3]	3
EE 372	Introduction to Communications	3
EE 385	Energy Conversion Lab	1
EE 322	Prob, Rand Sigs & Stat Anlys	3
	Hours	**16**
Fourth Year		
Fall		
EG 231	Intro to Ethics and Economics	3
EE 401	Intro Elec and CpE Design - W [2]	1
EE 431	Analog Electronics	3
EE 465	Digital Signal Processing	3
EE 446 or EE 447 or EE 449	Senior Lab Elective (one only)	1
EE 4XX	Electrical Engineering Technical Elective [4]	3
General Education	Area I, II or IV	3
Milestone Notes		
Apply for Graduation		
	Hours	**17**
Spring		
EE 404	Electrical and Computer Engineering Design [3]	3
EE 437	Electronics Lab	1
EE 4XX	Electrical Engineering Technical Elective [4]	3
EE 4XX	Electrical Engineering Technical Elective [4]	3
General Education	Area I, II or IV	3
	Hours	**13**
	Total Hours	**129**

1 These courses are required for Professional Component Standing (PCS). Grade C or better in each course is required to obtain PCS in the Electrical Engineering Program. No 300-level courses can be taken without PCS.

2 EE Course only taught in the Fall semester.

3 EE Course only taught in the Spring semester.

4 EE Technical electives must be selected from EE courses at 400-level and must include a two-course concentration from the approved list with permission of the student's advisor.

Note: Students not Term 1-Calculus I ready will exceed the 129 hours required for this degree. If math is not started prior to Fall of Year 1, it is likely that the four-year graduation timetable will be extended. Students with ACT Math scores 21 and below should begin math courses in the summer before Fall of Year 1.