

Southern University College of Engineering
Electrical Engineering Department
COURSE PRE-REQUISITES

Course ID	Course Title	Pre-Requisite(s)
ENGR120	Intro to Engineering & Technology	High School Trigonometry
MATH264	Calculus I	Math 135 and 140, or consent of the department
ENGL110	Freshman Composition I	N/A
CHEM132	General Chem Lecture	High school chemistry and algebra
CHEM112	General Chem Lab	Chem 132-Corequisite
	Life Science Elective	
ENGR 130	Engr Programming & Commutation	Engl 110
Math 265	Calculus II	Math 264 with a grade of "C" or better
ENGL111	Freshman Composition II	Engl 110
PHYS 221	General Physics I	Math 264
PHYS 223	General Physics I Lab	PHYS 221-Corequisite
ECON 205	Principles of Economics	N/A
ELEN 208	Electrical Circuits I	Math 265
PHYS 222	General Physics II	Math 265
PHYS 224	General Physics II Lab	PHYS 222-Corequisite
HIST	History Elective	N/A
MATH 395	Cal III & Differential Equations for Engr	Math 265
	Health/PE Activity	
ELEN 209	Electrical Circuits II	ELEN 208
ELEN 210	Electrical Circuits Lab. I	Co-requisite: ELEN 208
ELEN 211	Electrical Circuits Lab. II	Co-requisite: ELEN 209
ELEN 212	Physics of Semiconductor Devices	Phys 222 and Math 265
MEEN 229	Engineering Mechanics	Phys 221 and Math 265
ENGR 230	Technical Communication	Eng 111
ELEN 303	Digital Logic Design	Co-requisite: ELEN 303
ELEN 305	Digital Logic Design Lab	ELEN 208
HIST	History Elective	N/A
ELEN 312	Eng. Electronics I	ELEN 209 and ELEN 212, Co-requisite: ELEN 314
ELEN 314	Eng. Electronics Lab I	Co-requisite: ELEN 312
ELEN 341	Electro-Magnetic Field Theory	ELEN 209
ENGR 340	Engineering Mathematics	Math 395
	Literature Elective	N/A
ELEN 313	Eng. Electronics II	ELEN 312 Co-requisite: ELEN 315
ELEN 315	Eng. Electronics Lab II	ELEN313
ELEN 342	Electrical Machines I	ELEN 341
ELEN 344	Electrical Machines Lab I	ELEN 342
ELEN 390	Signals and Systems	ELEN 330
ELEN 304	Intro to Microprocessors	ELEN 303 Co-requisite: ELEN 306
ELEN 306	Microprocessor Lab	Co-requisite: ELEN 304
CIEN 310	Engineering Economy	Econ 200 or 205 and Math 265
ELEN 409	Communication Engineering I	ELEN 390
ELEL 493	Senior Design Project I	EIEn 304, EIEn 313, and EIEn 390
ELEN 431	Control Systems Analysis	ELEN 390
MEEN 300	Thermodynamics I	Phys 222
	Humanities Elective	
ENGR 400	Engineering Seminar	Senior standing
ENGR 320	Probability and Statistics	Math 265
ELEN	Electrical Engineering Technical Elective	Senior standing and approval of the instructor
ELEN	Elec./Comp Sci. Elective	Senior standing and approval of the instructor
ELEN	Technical Elective Lab	Senior standing and Co-requisite: Related Technical Elec.
	Arts Elective	N/A
ELEN 494	EE Senior Design Project II	ELEN 493
	Social Science Elective	N/A

Degree Requirements

The Bachelor of Science Degree in Electrical Engineering (BSEE) is awarded to students who complete the requirements of the department as stated below:

1. Complete the **EE-curriculum requirements** with a minimum overall grade point average of 2.00 out of 4.00. The total credit hours required for graduation is 128 credit hours excluding remedial and repeated courses;
2. Pass the **Writing Proficiency Examination** (WPE, ENGL 001) prior to applying for graduation. The Writing Laboratory located in Harris Hall, Room 109, is a resource to prepare students to pass the WPE. For more details, visit <http://web.subr.edu/index.php?id=323>;
3. Pass the **Departmental Comprehensive Examination** (DCE, ELEN 000) that is administered by the Electrical Engineering Department in order to graduate. The Departmental Comprehensive Examination is a part of Engineering Seminar course activity (ENGR 400).
4. Complete the University mandated **African-American Experience**. Courses that satisfy the African-American Experience requirement include ARTS 440; ENGL 203*, 313, 407, 413, 415, and 485; HIST 311*, 399, 401, 419, 486, 496, and 497; MUSC 243, 352, and 353; HUMN 366, and 403; MCOM 331; PHIL 426; SOCW 250 and 450; SPTH 399. Every student of US or International origin has to fulfill the African American Experience requirement. See the current university catalogue for additional details.

***Waiver:** Students who were first-time freshmen at any post-secondary institution **before** August 1, 1991.*

5. Complete the University mandated **Community Service** Requirement. It is required to complete a minimum of 60 clock hours of COMMUNITY SERVICE as one of the requirements for graduation. Service Learning courses are: Service Learning 100, 200, and 300, (Credit, 1 Hour, each); and Service Learning 400, (Credit, 3 Hours). A total of three semester hours of credit is required.
6. .

Waivers:

- a. *Students who were first-time freshmen at any post-secondary institution **before** August 1, 1993;*
- b. *International Students;*
- c. *Those students **25 years or older** who completed high school or who earned high school equivalency seven or more years prior to admission;*
- d. *Any person with certifiable disability of such a nature that community service projects would jeopardize the welfare of the parties involved. In such a case, the disability must be on file in the Office of the Registrar.*

General Education Requirements ~ All students entering the EE department in the Southern University College of Engineering must complete a general education component, which is discussed below:

1. At least six (6) hours of course work in the **Humanities** are required of which be History. These six (6) credit hours must be at the sophomore level or above and may be selected from the following series: History (HIST 114, 115,230, 311*, 399, 401, 410*, 463, and 486).

2. Three (3) hours in **Literature** to be taken from: ENGL 201, 203*, 204, or 205.
3. Six (6) hours of course work are required in **Social Sciences** of which three (3) hours must be Economics (ECON 205). The remaining course must be selected from among the following series of courses: Economics (ECON 210, 370); Geography (GEOG 210, 221, 401); Political Science (POLS 200, 210, 320, 402); Sociology (SOCL 210,324, 448); and Psychology (PSYC 210, 315, 350).
4. Three (3) hours of course work are required in the **Arts** and are to be taken from among the following series of courses: Fine Arts (ARTS 200, 210/211, 320, 330, and 440*); Music (MUSC 200, 250/251, 352*, 353*); Speech and Theater (SPTH 360).
5. Two (2) hours of course work are required in **Health** or **Physical Education** and are to be taken from among the following series of courses: Physical Education (PHED 100-250) or Health (HLTH 110-365).
6. Twelve (12) hours of course work are required in the **Biological** and **Physical Sciences**, with a laboratory experience. Eight (8) hours must be taken in a two-semester sequence of Physics courses; lecture and laboratory (PHYS 221, 223, 222 and 224) and four (4) hours must be taken in Chemistry courses (CHEM 132 and 112). Three (3) hours of **life science** course work are required and may be selected from the following Biology courses: (BIOL 104 or 105).

Residency Requirement ~ All EE students must complete 30 hours of the last 36 hours in residence at Southern.

* These courses can be taken to simultaneously satisfy the indicated EE elective requirements as well as the University's African-American Experience requirement.

CORE Mathematics and Science Requirements ~ A grade of "C" or better is required in the following mathematics and science CORE courses:

<u>Course</u>	<u>Course No.</u>	<u>Credit Hour</u>
Calculus I	MATH 264	4.0
Calculus II	MATH 265	4.0
Cal III & Diff Eqn	MATH 395	4.0
General Physics I -Lec & Lab	PHYS 221 & 223	4.0
General Physics II -Lec & Lab	PHYS 222 & 224	4.0
General Chemistry Lecture	CHEM 132	3.0
General Chemistry Lab	CHEM 112	1.0

Departmental Course Requirements ~ All courses designated in the curriculum sheet by the prefix ELEN as well as ENGR, are considered to be CORE courses for EE majors and a grade of "C" or better is required.

Technical Electives ~ A seven (7) hours of technical elective may be taken from any of the following groups of courses during the year prior to graduation:

GROUP I COMPUTERS

<u>Course</u>	<u>Course No.</u>	<u>Credit Hour</u>
Digital Signal Processing	ELEN 405	3
Digital Signal Processing Lab	ELEN 406	1

Operating Systems	ELEN 473	3
Computer Systems Lab	ELEN 474	1
Computer Networks	ELEN 475	3

GROUP II POWER AND CONTROL SYSTEMS

Electrical Machinery II	ELEN 343	3
Discrete Control Systems	ELEN 432	3
Control Systems Lab	ELEN 433	1
Optimization Techniques	ELEN 434	3
Power Systems Analysis	ELEN 442	3
Power System Design	ELEN 463	3
Network Synthesis	ELEN 471	3

GROUP III COMMUNICATIONS

Electromagnetic Field Theory Lab	ELEN 325	1
Communication Engineering II	ELEN 412	3
Communication Systems Lab	ELEN 415	1
Microwaves	ELEN 423	3
Computer Communications Systems	ELEN 472	3

GROUP IV ELECTRONICS

Advanced Topics in Electrical Engineering	ELEN 417	3
Theory & Fabrication of Solid State Devices	ELEN 418	3
Integrated Circuit Design & Analysis	ELEN 419	3
Mechatronics	ELEN 464	3
Electrical Design Lab	ELEN 490	1

Notes:

- a. At least one technical elective course is offered every semester.
- b. A grade "C" or better is required for technical elective courses.

Transfer Credits ~ Transfer courses can be substituted or used to satisfy the requirements for engineering courses if, and only if:

- The course contents, rigor of presentation, and prerequisites are equivalent, and
- Transfer credits come from engineering programs that are accredited by EAC/ABET.