

# ELECTRICAL ENGINEERING

2022 – 2023 Curriculum

\*Fall Only    \*\*Spring Only

Student: \_\_\_\_\_

Date: \_\_\_\_\_

CUID: \_\_\_\_\_

Advisor: \_\_\_\_\_

FRESHMAN YEAR					
Term Info	Cr	Course	Term Info	Cr	Course
	4	CH 1010 & 1011 General Chemistry <sup>1</sup>		4	CH 1020 & 1021 General Chemistry
	3	ENGL 1030 & 1031 Composition and Rhetoric <sup>1</sup>		3	ENGR 1410 & 1411 Programming and Problem Solving <sup>1,5</sup>
	3	ENGR 1020 & 1021 Engineering Disciplines and Skills <sup>1,2</sup>		4	MATH 1080 Calculus of One Variable II <sup>1</sup>
	4	MATH 1060 Calculus of One Variable I <sup>1,3</sup>		3	PHYS 1220 Physics with Calculus I <sup>1</sup>
	3	Arts & Humanities <i>OR</i> Social Science Req <sup>4</sup>		3	Arts & Humanities <i>OR</i> Social Science Req <sup>4</sup>
	<b>17</b>			<b>17</b>	
SOPHOMORE YEAR					
Term Info	Cr	Course	Term Info	Cr	Course
	3	CPSC 1110 & 1111 Intro to Programming in C <sup>1</sup>		1	ECE 2120 Electrical Engineering Lab II <sup>1</sup>
	3	ECE 2010 Logic and Computing Devices <sup>1</sup>		3	ECE 2620 Electric Circuits II <sup>1</sup>
	3	ECE 2020 Electric Circuits I <sup>1</sup>		3	ECE 2720 Computer Organization <sup>1</sup>
	1	ECE 2090 Logic and Computing Devices Lab		1	ECE 2730 Computer Organization Lab
	1	ECE 2110 Electrical Engineering Lab I		4	MATH 2080 Int. to Ordinary Differential Eqn. <sup>1</sup>
	4	MATH 2060 Calculus of Several Variables <sup>1</sup>		3	Arts & Humanities <i>OR</i> Social Science Req <sup>4</sup>
	3	PHYS 2210 Physics with Calculus II <sup>1</sup>			
	<b>18</b>			<b>15</b>	
JUNIOR YEAR					
Term Info	Cr	Course	Term Info	Cr	Course
	1	ECE 3110 Electrical Engineering Lab III <sup>1</sup>		1	ECE 3110 Electrical Engineering Lab IV
	3	ECE 3200 Electronics I <sup>1</sup>		3	ECE 3170 Random Signal Analysis <sup>1</sup>
	3	ECE 3300 Signals, Systems and Transforms <sup>1</sup>		3	ECE 3210 Electronics II <sup>1</sup>
	3	ECE 3710 Microcontroller Interfacing <sup>1</sup>		3	ECE 3600 Electric Power Engineering <sup>1</sup>
	1	ECE 3720 Microcontroller Interfacing Lab <sup>1</sup>		3	ECE 3810 Fields, Waves and Circuits <sup>1</sup>
	3	ECE 3800 Electromagnetics <sup>1</sup>		3	ENGL 3140 Technical Writing <sup>7</sup>
	3	Advanced Mathematics Requirement <sup>6</sup>			
	<b>17</b>			<b>16</b>	
SENIOR YEAR					
Term Info	Cr	Course	Term Info	Cr	Course
	3	ECE 4090 Intro to Linear Control Systems <sup>1</sup>		2	ECE 4960 Integrated System Design II
	3	ECE 4270 Communication Systems		3	Arts & Humanities <i>OR</i> Social Science Requirement <sup>4</sup>
	2	ECE 4950 & 4591 Integrated System Design I <sup>1</sup>		3	Electrical Engineering Technical Requirement <sup>5</sup>
	3	Electrical Engineering Technical Requirement <sup>5</sup>		3	Electrical Engineering Technical Requirement <sup>5</sup>
	3	Oral Communication Requirement <sup>4</sup>		3	Special Requirement <sup>9</sup>
	<b>14</b>			<b>14</b>	
<b>128 Total Semester Hours</b>					
GENERAL EDUCATION REQUIREMENTS					
Literature	Non-Literature	Social Science (SC REACH Act, if required)	Social Science (from a different department)	Global Challenges (ENGR 1020 at Clemson or another course)	Global Challenges -3000 or 4000 level Or if already met with Tech Requirement, then need Dept Arts & Humanities/Social Sci Req
CHANGE OF MAJOR REQUIREMENTS: C grade or higher in each class and a 2.0 Clemson cumulative GPA					
CH 1010	ENGL 1030	ENGR 1020	ENGR 1410	MATH 1060	PHYS 1220

Students should always refer to the Academic Catalog for course descriptions and for course pre-requisites, corequisites, and concurrent enrollment requirements. Academic Catalog can be found here: <https://www.clemson.edu/registrar/academic-catalogs/>. Advisors will assist students in scheduling courses to fulfill the requirements of the degree program; nevertheless, it is the responsibility of the student to fulfill the relevant requirements of the degree.

## Footnotes

- <sup>1</sup> This course must be passed with a grade of C or better to transfer into Electrical Engineering from General Engineering or another major or to satisfy later course requirements.
- <sup>2</sup> The combination of ENGR 1050 and ENGR 1060 or the combination of ENGR 1510 and ENGR 1520 may be substituted for ENGR 1020.
- <sup>3</sup> Depending on a student's math placement based on the Clemson Mathematics Placement Test (CMPT) score, ACT mathematics score, or SAT mathematics score, MATH 1040 and MATH 1070 may be substituted for MATH 1060; or the student may be required to take MATH 1030 or MATH 1050 before enrolling in MATH 1060.
- <sup>4</sup> See General Education Requirements. Three General Education credits must also satisfy the South Carolina REACH Act Requirement. See the South Carolina REACH Act Requirement in the Academic Regulations section.
- <sup>5</sup> ENGR 1640 or the combination of ENGR 1070, ENGR 1080 and ENGR 1090 may be substituted for ENGR 1410.
- <sup>6</sup> Select from MATH 3650, MATH 4190, MATH 4340, MATH 4400, MATH 4410, and STAT 4110. (MATH 4190 and MATH 4400 require MATH 3110 as a prerequisite.)
- <sup>7</sup> AS 4090 may be substituted.
- <sup>8</sup> Nine credits selected from BIOE 3700, BIOE 4310, BIOE 4350, BIOE 4710, ECE 2220, ECE 4040, ECE 4050\*, ECE 4060, ECE 4160, ECE 4180, ECE 4190, ECE 4200, ECE 4220, ECE 4290, ECE 4300, ECE 4320, ECE 4330, ECE 4340, ECE 4350, ECE 4360, ECE 4370, ECE 4380, ECE 4400, ECE 4420, ECE 4460, ECE 4550, ECE 4570, ECE 4580, ECE 4590, ECE 4600, ECE 4610, ECE 4670, ECE 4680, ECE 4700, ECE 4710, ECE 4730, ECE 4910\*, ECE 4920\*, ECE 4930\*, ECE 4980\*, ECE 4990\*, or ME 3100. A maximum of three credits of courses marked with an asterisk may be used to satisfy this requirement.
- <sup>9</sup> Select a 3000- or 4000-level Global Challenges course with a prefix other than ENGR. If the six credits of the Global Challenges requirement are satisfied by other requirements such as the Electrical or Computer Engineering Technical requirement, select any of the following: Three additional credits from Humanities and Social Sciences for Engineering Curricula; or any additional three-credit, 4000-level course from the list of courses in footnote 8 above; or a course selected from the following list: ECE 4310, ECE 4490, ECE 4740; or one additional course selected from MATH 3110, MATH 4120, MATH 4190, MATH 4340, MATH 4350, MATH 4400, MATH 4410, MATH 4530 or MATH 4540.

## NOTES:

1. To transfer from General Engineering or other majors into the Electrical Engineering program, students must have a cumulative grade-point average of 2.00 in courses taken at Clemson and must have earned a C or better in each course of the General Engineering Core.
2. A student is allowed to enroll in ECE courses (excluding ECE 2070, ECE 2080, ECE 3080) only when all prerequisites have been passed with a grade of C or better.
3. All Electrical Engineering students must have a cumulative grade-point average (GPA) of 2.00 to enroll in any 3000- or 4000-level ECE course. If this condition is not met each term, enrollment in these upper-level courses may be restricted. Students must fill out a Variance Request form, which will be reviewed by the Departmental Variance Committee. Strict adherence to the committee decision is required.
4. No student may exceed a maximum of two attempts, excluding a *W*, to complete successfully any ECE course. A third and final attempt will only be considered by a written Variance Request to be reviewed by the Departmental Variance Committee before the deadline to add a course in a subsequent term. Students who do not complete a Variance or who have a Variance denied are not eligible to continue in the Electrical Engineering major. Strict adherence to the committee decision is required.
5. Depending on a student's math placement, they may be invited to take part in the General Engineering Learning Community where they complete the following courses: ENGR 1000, ENGR 1010, ENGR 1100, ENGR 1110, ENGR 1510, ENGR 1520, or ENGR 1640. The combination of ENGR 1510 and ENGR 1520 may be substituted for ENGR 1020. ENGR 1640 may be substituted for ENGR 1410.
6. A transfer course may not be used to satisfy the General Education Global Challenges Requirement. While a transfer course may fulfill other degree requirements, students must enroll in a Clemson course(s) on the Global Challenges list to fulfill the Global Challenges Requirement.