

ELECTRICAL ENGINEERING 2026-2027

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
MATH 1131Q – Calculus I	4	MATH 1132Q – Calculus II	4
CHEM 1127Q – Gen. Chem. I	4	PHYS 1501Q – Engineering Physics I ¹	4
CSE 1010 – Intro. to Computing for Engr.	3	ENGR 1166 – Foundations of Engineering or CSE 2050 – Data Structures and OO Design	3
ENGL 1010 or 1011 – Writing	4	ECE 1401 – Programming for Elec. Engineers	3
ENGR 1000 – Orientation to Engr.	<u>1</u>	TOI course ²	<u>3</u>
	16		17

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
ECE 2001 – Electric Circuits	4	CSE 2301 – Logic Design	4
MATH 2110Q – Multivariable Calculus	4	ECE 3101 – Signals and Systems	3
MATH 2410Q – Differential Equations	3	ECE 3201 – Electronic Circuit Design and Analysis	4
PHYS 1502Q – Engineering Physics II ¹	<u>4</u>	STAT 3345 – Probability Models Engineers ³	3
	15	Elective	<u>3</u>
			17

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
ECE 3001 – EM Fields and Waves	3	ECE 3111 – Systems Analysis	4
Restricted Elective ⁴	3	Restricted Elective ⁴	3
Restricted Elective ⁴	3	Restricted Elective ⁴	3
MATH 2210Q – Linear Algebra	3	TOI course ²	3
TOI course ²	<u>3</u>	Elective	<u>3</u>
	15		16

SENIOR YEAR

First Semester	Credits	Second Semester	Credits
ECE 4901 – ECE Design I	2	ECE 4902 – ECE Design II	3
ECE 4900W – Comm Engr Soln ⁵	1	Professional Requirement ⁷	3
Professional Requirement ⁶	3	Professional Requirement ⁷	3
Professional Requirement ⁷	3	Design Laboratory ⁷	3
Design Laboratory ⁸	3	TOI course ²	<u>3</u>
TOI course ²	<u>3</u>		15
	15		

¹ Either the two-semester sequence of PHYS 1401Q-1402Q or the three-semester sequence of PHYS 1201Q-1202Q followed by PHYS 1230 or 1530 may be taken instead to satisfy this requirement. However, only eight credits of PHYS 1201-1202-1230/1530 can be used toward the required 126 credits for the Engineering degree.

² The five TOI courses must be taken from each of the topics of inquiry 1-5 (Creativity: Design, Expression, Innovation; Cultural Dimensions of Human Experiences; Diversity, Equity, and Social Justice; Environmental Literacy; and Individual Values and Social Institutions). One of the TOI courses can be used to fulfill two TOI areas thus reducing the count to four courses. The TOI-6 and Focus requirements are satisfied by CHEM1127, PHYS1501, and PHYS1502.

³ STAT3345 can be replaced with MATH3160, though STAT3345 is recommended. Note that, between the two courses, only MATH3160 can be used for math minor.

⁴ The four restricted electives must be selected as follows: ECE 3211, ECE 3231, or ECE 3212; ECE 3221 or ECE 4201; ECE 4211 or ECE 4225; and ECE 4111 or ECE 4112. ECE 4211 can be substituted with ECE 5211 and ECE 4225 can be substituted with ECE 5225.

⁵ **One additional W course must be taken**, typically as one of the TOI courses.

⁶ Twelve (12) credits professional requirements are chosen from 3000 or 4000-level Math, Science, and Engineering courses (excluding ENGR 3021, 3022, 3024, 3025 and independent study courses outside of ECE). **At least two courses must be ECE courses** and only 3 credits can be from ECE 4097. Any non-ECE professional requirement courses must be approved by the advisor and department UG director. ECE 3096, ECE 4079, ECE 4096, ECE 4099, STAT 3345Q and MATH 3160 cannot be used as a professional requirement.

⁷ Choose two from ECE 3225, ECE 3411, ECE 3421, ECE 4079, ECE 4113, ECE 4114, ECE 4122, ECE 4132, ECE 4161, ECE 4225, ECE 4242 or 5242, ECE 4244 or 6244, and ECE 4401. Only one design lab (up to 3 credits) may be ECE 4079.

Concentrations

Any student in Electrical Engineering can optionally choose from the following five concentrations: Computer Engineering, Electronics and Optics, Power and Energy, Robotics, and Systems and Controls. Students can complete a concentration by taking nine credits from a list of courses associated with each track. Special topics courses (ECE 4095 or ECE 6095) may be substituted with the approval of the ECE Undergraduate Programs Director. Up to four concentration credits may be also used as a restricted elective (see above). The courses in each concentration are as follows:

Computer Engineering: ECE 3221, ECE 3401 or 5401, ECE 3411, ECE 3421 or 6421, ECE 3431, ECE 4401, ECE 5402

Electronics and Optics: ECE 3211, ECE 3221, ECE 3223, ECE 3225, ECE 3243, ECE 4201, ECE 4211, ECE 4223,
ECE 4225 or 5225, ECE 4242 or 5242, ECE 4243 or 6243, ECE 4244 or 6244, ECE 4261 or 5261

Power and Energy: ECE 3211, ECE 3212, ECE 3231, ECE 4550 or 5550, ECE 5510, ECE 5520, ECE 5530, ECE 5540,
ECE 5552, ECE 5554

Robotics: ECE 3161, ECE 3162, ECE 3163, ECE 4161, ECE 6171

Systems and Control: ECE 4111, ECE 4112, ECE 4114, ECE 4121, ECE 4122, ECE 4131 or 6122, ECE 4132, ECE 4141,
ECE 5101, ECE 6111, ECE 6121, ECE 6141, ECE 6151, ECE 6437, ECE 6439