

ELECTRICAL ENGINEERING (ELECTROMAGNETICS AND PHOTONICS) - BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

A Suggested Plan of Study for Students

This roadmap assumes student placement in MATH 1511G Intermediate Algebra and ENGL 1110G Rhetoric and Composition. The contents and order of this roadmap may vary depending on initial student placement in mathematics and English. It is only a suggested plan of study for students and is not intended as a contract. Course availability may vary from fall to spring semester and may be subject to modification or change.

First Year

Fall		Credits
ENGR 190	Introduction to Engineering Mathematics	4
ENGL 1110G or ENGL 1110H or ENGL 1110M	Composition I or Composition I Honors or Composition I	4
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors	4
ENGR 120	DC Circuit Analysis	4
Credits		16

Spring

MATH 1511G or MATH 1511H	Calculus and Analytic Geometry I ¹ or Calculus and Analytic Geometry I Honors	4
General Education Course ²		3
ENGR 130	Digital Logic	4
ENGR 140	Introduction to Programming and Embedded Systems	4
Credits		15

Second Year

Fall		Credits
MATH 1521G or MATH 1521H	Calculus and Analytic Geometry II or Calculus and Analytic Geometry II Honors	4
PHYS 1310G & PHYS 1310L	Calculus -Based Physics I and Calculus -Based Physics I Lab	4
E E 200	Linear Algebra, Probability and Statistics Applications	4
ENGR 230	AC Circuit Analysis	4
Credits		16

Spring

MATH 3160	Introduction to Ordinary Differential Equations	3
PHYS 1320G & PHYS 1320L	Calculus -Based Physics II and Calculus -Based Physics II Lab	4
General Education Course ²		3
Choose one Programming course from the following:		3-4
CSCI 1240 or CSCI 4510	C++ Programming I or C++ Programming	
CSCI 1210 or CSCI 4505	Java Programming or Java Programming	

CSCI 1220 or CSCI 4520	Computer Programming Fundamentals: Python or Python Programming I	
CSCI 1225 or CSCI 4525	Python Programming II or Python Programming II	
CSCI 1720	Computer Science I	
CSCI 2210	Object-Oriented Programming	
E E 240	Multivariate and Vector Calculus Applications	3
Credits		16-17

Third Year

Fall

E E 300	Cornerstone Design	2
E E 320	Signals and Systems I	3
E E 340	Fields and Waves	4
General Education Requirement (Area I, IV, V, VI or VWW) ²		3
General Education Requirement (Area I, IV, V, VI or VWW) ²		3
Credits		15

Spring

E E 325	Signals and Systems II	4
E E 317	Semiconductor Devices and Electronics I	4
E E 362	Introduction to Computer Organization	4
General Education Requirement (Area I, IV, V, VI or VWW) ²		3
Credits		15

Fourth Year

Fall

ENGR 401	Engineering Capstone I	3
Electromagnetics & Photonics Elective ^{5,6}		3-4
E E 454 or E E 541 or E E 452 or E E 548	Antennas and Radiation ³ or Antennas and Radiation or Introduction to Radar or Introduction to Radar	3-4
STEM Elective ^{4,5}		3
General Education Requirement (Area I, IV, V, VI or VWW) ²		3
Credits		15-17

Spring

ENGR 402	Engineering Capstone II	3
E E 473	Introduction to Optics ³	3
Electromagnetics & Photonics Elective ^{5,6}		3-4
STEM Elective ^{4,5}		3
General Education Requirement (Area I, IV, V, VI or VWW) ²		3
Credits		15-16
Total Credits		123-127

¹ MATH 1511G Calculus and Analytic Geometry I is required for the degree but students may need to take any prerequisites needed to enter MATH 1511G Calculus and Analytic Geometry I first.

² See the General Education (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext>) section of the catalog for a full list of courses.

³ Students must take (E E 454 Antennas and Radiation or E E 541 Antennas and Radiation or E E 452 Introduction to Radar or E E 548 Introduction to Radar) which are currently offered in the Fall semester and E E 473 Introduction to Optics which is currently offered in the Spring semester.

⁴ STEM Elective: Course at the 300/3000 level or above from E E that is not used to satisfy any other E E program requirement or courses at the 300/3000 level or above from A E, C E, CHME, I E, M E, ASTR, BIOL, CHEM, CSCI, MATH, PHYS and STAT. Excluded courses include VWW courses and those which are substantially equivalent to an E E course.

Click to view a list of excluded STEM Electives (<https://ece.nmsu.edu/undergrad-study/BSEE-STEM-electives.html>).

⁵ Depending on availability of specific courses in the fall or spring semester, students may need to reorganize the ECE Electives, STEM electives, and/or General Education electives in their final year. Students are strongly advised to consult with their ECE Faculty Mentor for assistance in planning their final year.

⁶ At least one Electromagnetics & Photonics Elective Course must be from the E E Prefix. See E E Concentration Electives in the Degree Requirements section above.