

# ELECTRICAL ENGINEERING (CONTROLS & ROBOTICS) - 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
<b>Credits</b>		<b>16</b>

### Spring

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

### 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
<b>Credits</b>		<b>16</b>

### Spring

MATH 3160	Introduction to Ordinary Differential Equations	3
PHYS 1320G & PHYS 1320L	Calculus -Based Physics II and Calculus -Based Physics II Lab	4
E E 240	Multivariate and Vector Calculus Applications	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	
General Education Requirement (Area I, IV, V, VI or VWW) <sup>2</sup>		3
<b>Credits</b>		<b>16-17</b>

### Third Year

Fall		Credits
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) <sup>2</sup>		3
General Education Requirement (Area I, IV, V, VI or VWW) <sup>2</sup>		3
<b>Credits</b>		<b>15</b>

### Spring

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

### Fourth Year

Fall		Credits
ENGR 401	Engineering Capstone I	3
E E 407	Introduction to Control Systems <sup>3</sup>	3
Controls & Robotics Elective <sup>5,6</sup>		3
STEM Elective <sup>4,5</sup>		3
General Education Requirement (Area I, IV, V, VI or VWW) <sup>2</sup>		3
<b>Credits</b>		<b>15</b>
Spring		Credits
ENGR 402	Engineering Capstone II	3
E E 475 or E E 551	Control Systems Synthesis or Control Systems Synthesis	3
Controls & Robotics Elective <sup>5,6</sup>		3
STEM Elective <sup>4,5</sup>		3
General Education Requirement (Area I, IV, V, VI or VWW) <sup>2</sup>		3
<b>Credits</b>		<b>15</b>
<b>Total Credits</b>		<b>123-124</b>

<sup>1</sup> 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.

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

<sup>3</sup> Students must take both E E 407 Introduction to Control Systems which is currently offered in the Fall semester and (E E 475 Control Systems Synthesis or E E 551 Control Systems Synthesis ) which is currently offered in the Spring semester. Note also that E E 407 Introduction to Control Systems is a prerequisite for E E 475 Control Systems Synthesis.

<sup>4</sup> STEM Elective: Course at the 300 level or above from E E that is not used to satisfy any other E E program requirement or courses at the 300 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>).

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

<sup>6</sup> At least one Controls & Robotics Elective Course must be from the E E prefix. See E E Concentration Electives in the Degree Requirements section above.