

**DEPARTMENT OF INDUSTRIAL & ENGINEERING TECHNOLOGY  
BACHELOR OF SCIENCE  
ENGINEERING TECHNOLOGY MAJOR  
ELECTRICAL & CONTROL OPTION**

The Electrical & Control option prepares graduates for technical and engineering support positions in industry. The program builds on a strong foundation of mathematics and science, with applications in electrical systems and control, industrial automation, robotics, industrial power, and energy management.

**CURRICULUM CHECKLIST**

**UNIVERSITY STUDIES (55 hours)**

<input type="checkbox"/> UI 100 First Year Seminar	3
<input type="checkbox"/> Artistic Expression	3
<input type="checkbox"/> Literary Expression	3
<input type="checkbox"/> Oral Expression	3
<input type="checkbox"/> EN 100 English Composition	3
<input type="checkbox"/> Written Expression	3
<input type="checkbox"/> Behavioral Systems	3
<input type="checkbox"/> Living Systems	3
<input type="checkbox"/> MA 135 Pre-Calculus (Logical Systems)	5
<input type="checkbox"/> PH 120/020 Introductory Physics I (Physical Systems)	5
<input type="checkbox"/> Development of a Major Civilization	3
<input type="checkbox"/> MN 220 Engineering Economic Analysis (Economic Systems)	3
<input type="checkbox"/> Political Systems	3
<input type="checkbox"/> SW 207 Understanding Cult & Soc Diversity (Social Systems)	3
<input type="checkbox"/> UI 319 Science, Technology and Society (Interdisciplinary)	3
<input type="checkbox"/> UI 3xx Interdisciplinary University Studies Course	3
<input type="checkbox"/> UI 410 Manufacturing Research in a Global Society- University Studies Senior Seminar	3
<input type="checkbox"/> WP 003 Writing Proficiency Test (to be taken after completing 75 hours)	0
<input type="checkbox"/> CCTST Critical Thinking Test (to be taken after completing 75 hours)	0
<input type="checkbox"/> CL001 <input type="checkbox"/> CL002 <input type="checkbox"/> CL003 <input type="checkbox"/> CL004 Career Linkages Requirements	0

**ENGINEERING TECHNOLOGY CORE**

**(45 hours, not counting 22 core hours included in University Studies section above)**

<input type="checkbox"/> CH 181/081/001 Basic Principles of Chemistry	5
<input type="checkbox"/> ET 194 Fundamentals of Programmable Logic Controllers (PLCs)	3
<input type="checkbox"/> IM 102 Technical Communication	3
<input type="checkbox"/> IM 301 Industrial Safety	3
<input type="checkbox"/> IM 311 Statistical Process Control	3
<input type="checkbox"/> MA 140 Analytic Geometry & Calculus I	5
<input type="checkbox"/> MA 144 Integral Calculus & Differential Equation	5
<input type="checkbox"/> MN 260 Technical Computer Programming Applications	3
<input type="checkbox"/> MN 356 Robotic Fundamentals	3
<input type="checkbox"/> MN 383 Fluid Power	3
<input type="checkbox"/> MN 412 Advanced Manufacturing Systems	3
<input type="checkbox"/> MN 416 Manufacturing Seminar	1
<input type="checkbox"/> PH 121/021 Introductory Physics II	5

**ET required courses included in University Studies section above: MA135, MN220, PH120, SW207, UI319, and UI410**

**ELECTRICAL AND CONTROL OPTION (33 Hours)**

<input type="checkbox"/> ET 162 DC Principles & Circuits	3
<input type="checkbox"/> ET 164 AC Principles & Circuits	3
<input type="checkbox"/> ET 245 Logic Circuits	3
<input type="checkbox"/> ET 260 Electronic Circuit Design & Analysis I	3
<input type="checkbox"/> ET 264 Industrial Electronics	3
<input type="checkbox"/> ET 365 Industrial Electrical Power	3
<input type="checkbox"/> ET 366 Microcontrollers	3
<input type="checkbox"/> ET 367 Motor Control & Drive Systems	3
<input type="checkbox"/> ET 468 Industrial Controls	3
<input type="checkbox"/> ET 470 Energy Management	3
<input type="checkbox"/> TN 275 Network Fundamentals	3

**EXAMPLE PROGRAM OF STUDY**  
**BS - Engineering Technology major - Electrical and Control option**

**FRESHMAN FALL SEMESTER (14 hrs)**

EN 100 English Comp I  
IM 102 Technical Communications  
MA 135 Algebra & Trigonometry  
UI 100 First Year Seminar  
CL001 Career Linkages 1<sup>st</sup> Requirement

**FRESHMAN SPRING SEMESTER (16 hrs)**

ET 162 DC Principles & Circuits  
MA 140 Analytic Geometry & Calculus I  
PH 120 Introductory Physics I  
Written Expression  
CL002 Career Linkages 2<sup>nd</sup> Requirement

**SOPHOMORE FALL SEMESTER (16 hrs)**

ET 164 AC Principles & Circuits (MA144 co-req)  
ET 245 Logic Circuits  
MA 144 Integral Calculus & Differential Equations  
PH 121 Introductory Physics II

**SOPHOMORE SPRING SEMESTER (17 hrs)**

CH 181/CH081/CH001 Basic Prin. of Chemistry  
ET 194 Fundamentals of PLCs  
ET 260 Circuit Design and Analysis I  
ET 365 Industrial Electrical Power  
MN 260 Technical Computer Programming Appl.

**JUNIOR FALL SEMESTER (18 hrs)**

ET 264 Industrial Electronics  
ET 367 Motor Controls & Drives  
IM 301 Industrial Safety  
MN 383 Fluid Power  
TN 275 Network Fundamentals  
Oral Expression  
CL003 Career Linkages 3<sup>rd</sup> Requirement

**JUNIOR SPRING SEMESTER (18 hrs)**

ET 366 Microcontrollers  
ET 468 Industrial Controls  
IM 311 Statistical Process Controls  
MN 220 Engineering Economic Analysis  
UI 319 Science, Technology and Society  
Political Systems  
WP 003 Writing Proficiency Exam  
CCTST California Critical Thinking Skills Test

**SENIOR FALL SEMESTER (18 hrs)**

ET 470 Energy Management  
MN 356 Robotic Fundamentals  
UI 3xx University Studies  
Artistic Expression  
Behavioral Systems  
Literary Expression  
CL004 Career Linkages 4<sup>th</sup> Requirement

**SENIOR SPRING SEMESTER (16 hrs)**

MN 412 Advanced Manufacturing Systems  
MN 416 Manufacturing Seminar  
UI 410 Manufacturing Research in Global Society  
Developments of a Major Civilization  
Living Systems  
SW 207 Understanding Cult. & Soc. Diversity  
(Social Systems)

**133 Hours**

**Notes:**

- This proposed rotation is suggested. You will need to meet with your advisor every semester for advising and discussions about your progress and plans.
- Course prerequisites and rotations can change. Even if you fall under an older option of a major, changes in prerequisites apply to all students. For current prerequisites and course rotation, check with the Department of Industrial and Engineering Technology or the Polytechnic Studies Advising Center.
- An internship is highly recommended – the summer after your junior year is a good time
- For course descriptions, see the latest undergraduate bulletin OR [www.semo.edu/bulletin](http://www.semo.edu/bulletin)
- Visit <http://www.semo.edu/ustudies/handbook/index.htm> for information on the University Studies program
- For information on Career Linkages, visit <http://www.semo.edu/careerlinkages/students/index.htm>