B.S. in Electrical Engineering

Embry#Riddle's undergraduate degree in Electrical Engineering is offered in person at residential campuses in Daytona Beach, Florida, and Prescott, Arizona.

Studying Electrical Engineering on campus gives students strong hands-on experience through modern labs, team-based projects, and real-world engineering applications, while small class sizes make it easier to work closely with professors and participate in research.

At the **Daytona Beach Campus**, the Bachelor of Science in Electrical Engineering, housed in the Department of Electrical Engineering and Computer Science in the College of Engineering, equips students to handle systems thinking, circuit theory, and control systems. Courses are built around hands-on experience, such as exploring the telemetry system of an autonomous aircraft or power switching in a hybrid car. The program includes a general education core, including speech and college success, introductions to engineering and computing, plus courses in calculus, analytical geometry, and physics for engineers. The Bachelor of Science in Electrical Engineering is accredited by the Engineering Accreditation Commission (https://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-engineering-programs-2025-2026/) of ABET (https://www.abet.org/), under the commission's General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s), and Similarly Named Engineering Programs.

At the **Prescott Campus**, the B.S. in Electrical Engineering is located in the Department of Computer, Electrical, and Software Engineering in the College of Engineering, home to the state-of-the-art King Engineering and Technology Center. Students will have the opportunity to develop a broad background in circuit theory, communication systems, computers, and control systems. This program emphasizes design, culminating in a senior-year capstone project that pairs Electrical Engineering students with students from other disciplines. The Bachelor of Science in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org (https://sitecore2.embry-riddle.com/degrees/Bachelor/www.abet.org), under the commission's General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s), and Similarly Named Engineering Programs.

Program-Level Student Learning Outcomes

Students will:

- Have an ability to communicate effectively with a range of audiences.
- Have an ability to function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks, and meet objectives.
- Have an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- Have an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- Have an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- Have an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- Have an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Daytona Beach Program Requirements

General Education Requirements	42
Core Requirements	40
Standard Track	44
Total Credits	**126**

Program Details

The Bachelor of Science in Electrical Engineering program requires successful completion of a minimum of 126 semester hours. The program may be completed in eight regular semesters, assuming appropriate background and full-time enrollment. A minimum cumulative grade point average of 2.0 is needed for all required CESC, CPSC, ELEC, ENGR, SFTW, and SYSE courses that fulfill degree requirements.

General Education Requirements

For a full description of Embry-Riddle General Education guidelines, please see the General Education (https://catalog.erau.edu/general-education/) section of this catalog. These minimum requirements are applicable to all degree programs.

Communication		9
COMM 122	English Composition	
COMM 219	Speech	
COMM 221	Technical Communication	
Humanities - Lower Level		3
Social Sciences - Lower Level		3
Humanities/Social Sciences - Lower or Upper Level		3
Humanities/Social Sciences - Upper Level		3
Computer Science/Information Technology		3
CPSC 223	Scientific Programming in C	
Mathematics		8
MATH 241	Calculus and Analytical Geometry I	
MATH 242	Calculus and Analytical Geometry II	
Physical/Life Sciences		10
PHYS 150	Physics with Calculus I	
PHYS 160	Physics with Calculus II	
PHYS 250	Physics with Calculus III	
PHYS 250L	Physics with Calculus III Laboratory	
Total Credits		**42**

Core Requirements

ENGR 101	Introduction to Engineering	2
UNIV 101	College Success	1
CESC 220	Digital Circuit Design	3
CESC 220L	Digital Circuit Design Laboratory	1
CESC 320	Microprocessor Systems	3
CESC 320L	Microprocessor Systems Laboratory	1
ELEC 223	Linear Circuits Analysis I	3
ELEC 223L	Electrical Engineering Laboratory I	1
ELEC 302	Electronic Devices and Circuits	3
ELEC 302L	Electronic Circuits Laboratory	1
ELEC 340	Electric and Magnetic Fields	3
ELEC 401	Control Systems Analysis and Design	3
ELEC 401L	Control Systems Laboratory	1
MATH 243	Calculus and Analytical Geometry III	4
MATH 345	Differential Equations and Matrix Methods	4
MATH 412	Probability and Statistics	3
MATH 441	Mathematical Methods for Engineering and Physics I	3
Total Credits		**40**

Standard Track

ELEC 490	Electrical Engineering Capstone I	3
ELEC 491	Electrical Engineering Capstone II	3
CESC 315	Signals and Systems	3
CESC 410	Digital Signal Processing	3
CESC 410L	Digital Signal Processing Laboratory	1
CPSC 344	C Programming and UNIX	3
ELEC 300	Linear Circuits Analysis II	3
ELEC 307	Avionics I	3
ELEC 308	Introduction to Electrical Communications	3
ELEC 417	Digital Communications	3
ELEC 430	Introduction to Radio Frequency Circuits	3
ELEC 430L	Radio Frequency Circuits Laboratory	1
SYSE 301	Introduction to Systems Engineering	3
Specified Electives *		6
CESC/CPSC/ELEC/SFTW/SYSE Elective - Upper Level		3
Total Credits		**44**

* Specified electives are courses to be selected, with the approval of the Program Coordinator, to support acquiring a minor, an identified concentration of domain knowledge (for example, but not restricted to aerospace, aviation, business, communications, human factors, mathematics, etc.) or further depth in systems engineering, electrical engineering, or related discipline.

Suggested Plan of Study

Year One

Requirements	Credits
COMM 122 - English Composition	3
CPSC 223 - Scientific Programming in C	3
ENGR 101 - Introduction to Engineering	2
MATH 241 - Calculus and Analytical Geometry I	4
UNIV 101 - College Success	1
Social Sciences - Lower Level	3
Semester Hours	**16**

Requirements	Credits
CESC 220 - Digital Circuit Design	3
CESC 220L - Digital Circuit Design Laboratory	1
MATH 242 - Calculus and Analytical Geometry II	4
PHYS 150 - Physics with Calculus I	3
Humanities - Lower Level (140 series)	3
Semester Hours	**14**

Total Credits

Total Hours for All Requirements: 30

Year Two

Requirements	Credits
CESC 320 - Microprocessor Systems	3
CESC 320L - Microprocessor Systems Laboratory	1
COMM 221 - Technical Communication	3
MATH 243 - Calculus and Analytical Geometry III	4
PHYS 160 - Physics with Calculus II	3
CPSC 344 - C Programming and UNIX	3
Semester Hours	**17**

Requirements	Credits
MATH 345 - Differential Equations and Matrix Methods	4
PHYS 250 - Physics with Calculus III	3
PHYS 250L - Physics with Calculus III Laboratory	1
ELEC 223 - Linear Circuits Analysis I	3
ELEC 223L - Electrical Engineering Laboratory I	1
CESC 315 - Signals and Systems	3
Semester Hours	**15**

Total Credits

Total Hours for All Requirements: 32

Year Three

Requirements	Credits
CESC 410 - Digital Signal Processing	3
CESC 410L - Digital Signal Processing Laboratory	1
ELEC 300 - Linear Circuits Analysis II	3
ELEC 302 - Electronic Devices and Circuits	3
ELEC 302L - Electronic Circuits Laboratory	1
ELEC 308 - Introduction to Electrical Communications	3
MATH 441 - Mathematical Methods for Engineering and Physics I	3
Semester Hours	**17**

Requirements	Credits
MATH 412 - Probability and Statistics	3
ELEC 340 - Electric and Magnetic Fields	3
ELEC 401 - Control Systems Analysis and Design	3
ELEC 401L - Control Systems Laboratory	1
SYSE 301 - Introduction to Systems Engineering	3
COMM 219 - Speech	3
Semester Hours	**16**

Total Credits

Total Hours for All Requirements: 33

Year Four

Requirements	Credits
ELEC 307 - Avionics I	3
ELEC 430 - Introduction to Radio Frequency Circuits	3
ELEC 430L - Radio Frequency Circuits Laboratory	1
ELEC 490 - Electrical Engineering Capstone I	3
Humanities/Social Sciences - Upper or Lower Level	3
Specified Elective	3
Semester Hours	**16**

Requirements	Credits
ELEC 417 - Digital Communications	3
ELEC 491 - Electrical Engineering Capstone II	3
HUMN 330 - Values and Ethics or 335 - Technology and Modern Civilization	3
EECS Elective	3
Specified Elective	3
Semester Hours	**15**

Total Credits

Total Hours for All Requirements: 31

Prescott Program Requirements

General Education Requirements	40
Core Requirements	40
Area of Concentration	46-48
Total Credits	**126-128**

Program Details

The Bachelor of Science in Electrical Engineering program requires successful completion of a minimum of 126 credit hours. The program may be completed in eight semesters, or four years, assuming appropriate background and full-time enrollment. Students pursuing this undergraduate degree must earn a minimum cumulative grade point average (CGPA) of 2.00 for all work completed at the University. The program offers a Space Option and a Robotics Track for students seeking specialized study in those areas. A minimum cumulative grade point average of 2.00 is needed in all CESC, CPSC, ELEC, ENGR, and ESCI courses that fulfill any degree requirement. The courses necessary to earn this degree are listed below.

Students should be aware that many courses have prerequisites and/or corequisites. Electrical Engineering students must earn a grade of C or better in all prerequisite courses for required courses with the CPSC, CESC, ELEC, ENGR, ESCI, or SFTW prefixes. Students are responsible for ensuring that all prerequisite and degree requirements are met prior to enrollment in advanced coursework.

General Education

Embry-Riddle degree programs require students to complete a minimum of 36 hours of General Education coursework. For a full description of Embry-Riddle General Education guidelines, please see the General Education (https://catalog.erau.edu/general-education/) section of this catalog.

Students may choose other classes outside of their requirements, but doing so can result in the student having to complete more than the degree's 126-128 credit hours. This will result in additional ***time and cost*** to the student.

Communication		9
COMM 122	English Composition	
COMM 219	Speech *	
or COMM 42	Advanced Technical Communication I and Advanced Technical Communication II	
& COMM 43		
COMM 221	Technical Communication	
Humanities - Lower Level		3
Social Sciences - Lower Level		3
ECON 225	Engineering Economics	
Humanities/Social Sciences - Lower or Upper Level		3
Humanities/Social Sciences - Upper Level		3
HUMN 330	Values and Ethics	
or HUMN 335	Technology and Modern Civilization	
Computer Science/Information Technology		3
CPSC 223	Scientific Programming in C	
Mathematics		8
MATH 241	Calculus and Analytical Geometry I	
MATH 242	Calculus and Analytical Geometry II	
Physical/Life Sciences		8
PHYS 161	Physics with Calculus I and II	
PHYS 250	Physics with Calculus III	
PHYS 250L	Physics with Calculus III Laboratory	
Total Credits		**40**

* COMM 420 & COMM 430 for Robotics Track and Space Option.

Core Requirements

The following course of study outlines the quickest and most cost-efficient route for students to earn their B.S. in Electrical Engineering. Students are encouraged to follow the course of study to ensure they complete all program required courses and their prerequisites within four years.

ENGR 101	Introduction to Engineering	2
UNIV 101	College Success	1
CESC 220	Digital Circuit Design	3
CESC 220L	Digital Circuit Design Laboratory	1
CESC 320	Microprocessor Systems	3
CESC 320L	Microprocessor Systems Laboratory	1
ELEC 223	Linear Circuits Analysis I	3
ELEC 223L	Electrical Engineering Laboratory I	1
ELEC 302	Electronic Devices and Circuits	3
ELEC 302L	Electronic Circuits Laboratory	1
ELEC 340	Electric and Magnetic Fields	3
ELEC 401	Control Systems Analysis and Design	3
ELEC 401L	Control Systems Laboratory	1
MATH 243	Calculus and Analytical Geometry III	4
MATH 345	Differential Equations and Matrix Methods	4
MATH 412	Probability and Statistics	3
MATH 441	Mathematical Methods for Engineering and Physics I	3
Total Credits		**40**

Areas of Concentration

Standard Track

ELEC 490	Electrical Engineering Capstone I	3
ELEC 491	Electrical Engineering Capstone II	3
ELEC 314	Signal and Linear System Analysis	3
ELEC 314L	Signal and Linear System Analysis Laboratory	1

ELEC 410	Communication Systems	3
ELEC 410L	Communication Systems Laboratory	1
ELEC 424	Wireless Communication Systems	3
ELEC 424L	Wireless Communication Systems Laboratory	1
ELEC 450	Elements of Power Systems	3
ELEC 450L	Power Systems Laboratory	1
ENGR 115	Introduction to Computing for Engineers	3
ESCI 207	Fundamentals of Mechanics	3
ESCI 312	Energy Transfer Fundamentals	3
Technical Electives		9
ENGR 200, ENGR 201, GSIS 365, CPSC 225, Coop/ Internship, and any AERO, CESC, CPSC, ELEC, ENGP, ESCI, MATH, MECH, PHYS, SFTW, SYSE course 300 level or above. Other courses may be approved by the CESE department chair.		
ESCI Elective - Upper Level (300-400)		3
Advanced Elective		3
ELEC 460, CPSC 415, CPSC 420, CPSC 432, CPSC 455, CESC 450, CESC 460, CESC 470. Other courses may be approved by the CESE department chair.		
Total Credits		**46**

Standard TRACK WITH SPACE OPTION

AERO 427	Spacecraft Preliminary Design	4
AERO 445	Spacecraft Detail Design	4
ENGP 312	Space Systems Engineering	3
ELEC 314	Signal and Linear System Analysis	3
ELEC 314L	Signal and Linear System Analysis Laboratory	1
ELEC 410	Communication Systems	3
ELEC 410L	Communication Systems Laboratory	1
ELEC 424	Wireless Communication Systems	3
ELEC 424L	Wireless Communication Systems Laboratory	1
ELEC 450	Elements of Power Systems	3
ELEC 450L	Power Systems Laboratory	1
ENGR 115	Introduction to Computing for Engineers	3
ESCI 207	Fundamentals of Mechanics	3
ESCI 312	Energy Transfer Fundamentals	3
Technical Electives		6
ENGR 200, ENGR 201, GSIS 365, CPSC 225, Coop/ Internship, and any AERO, CESC, CPSC, ELEC, ENGP, ESCI, MATH, MECH, PHYS, SFTW, SYSE course 300 level or above. Other courses may be approved by the CESE Department Chair.		
ESCI Elective 300-400		3
Advanced Elective		3
ELEC 460, CPSC 415, CPSC 420, CPSC 432, CPSC 455, CESC 450, CESC 460, CESC 470. Other courses may be approved by the CESE Department Chair.		
Total Credits		**48**

Robotics TRACK

ELEC 311	Robotics and Autonomous Systems I	3
ELEC 314	Signal and Linear System Analysis	3
ELEC 314L	Signal and Linear System Analysis Laboratory	1
ELEC 410	Communication Systems	3
ELEC 410L	Communication Systems Laboratory	1
ELEC 424	Wireless Communication Systems	3
ELEC 424L	Wireless Communication Systems Laboratory	1
ELEC 426	Robotics and Autonomous Systems II	3
ELEC 426L	Robotics and Autonomous Systems II Laboratory	1
ELEC 450	Elements of Power Systems	3
ELEC 450L	Power Systems Laboratory	1
ENGR 115	Introduction to Computing for Engineers	3
ESCI 207	Fundamentals of Mechanics	3
ESCI 312	Energy Transfer Fundamentals	3
MATH 335	Introduction to Linear and Abstract Algebra	3
MECH 478	Robotic Systems Preliminary Design	4
MECH 479	Robotic Systems Detail Design	4
Technical Elective		3
ENGR 200, ENGR 201, GSIS 365, CPSC 225, Coop/ Internship, and any AERO, CESC, CPSC, ELEC, ENGP, ESCI, MATH, MECH, PHYS, SFTW, SYSE course 300 level or above. Other courses may be approved by the CESE Department Chair.		
Total Credits		**46**

Suggested Plan of Study

Area of Concentration: Standard Track

Year One

Requirements	Credits
COMM 122 - English Composition	3
ENGR 101 - Introduction to Engineering	2
ENGR 115 - Introduction to Computing for Engineers	3
MATH 241 - Calculus and Analytical Geometry I	4
UNIV 101 - College Success	1
Humanities/Social Sciences - Lower or Upper Level	3
Semester Hours	**16**

Requirements	Credits
CESC 220 - Digital Circuit Design	3
CESC 220L - Digital Circuit Design Laboratory	1
MATH 242 - Calculus and Analytical Geometry II	4
PHYS 161 - Physics with Calculus I and II	4
Humanities - Lower Level	3
Semester Hours	**15**

Total Credits

Total Hours for All Requirements: 31

Year Two

Requirements	Credits
COMM 221 - Technical Communication	3
CPSC 223 - Scientific Programming in C	3
MATH 243 - Calculus and Analytical Geometry III	4
PHYS 250 - Physics with Calculus III	3
PHYS 250L - Physics with Calculus III Laboratory	1
Semester Hours	**14**

Requirements	Credits
CESC 320 - Microprocessor Systems	3
CESC 320L - Microprocessor Systems Laboratory	1
COMM 219 - Speech	3
ELEC 223 - Linear Circuits Analysis I	3
ELEC 223L - Electrical Engineering Laboratory I	1
MATH 345 - Differential Equations and Matrix Methods	4
Semester Hours	**15**

Total Credits

Total Hours for All Requirements: 29

Year Three

Requirements	Credits
ELEC 302 - Electronic Devices and Circuits	3
ELEC 302L - Electronic Circuits Laboratory	1
ELEC 314 - Signal and Linear System Analysis	3
ELEC 314L - Signal and Linear System Analysis Laboratory	1
ESCI 207 - Fundamentals of Mechanics	3
MATH 441 - Mathematical Methods for Engineering and Physics I	3
Technical Elective	3
Semester Hours	**17**

Requirements	Credits
ELEC 340 - Electric and Magnetic Fields	3
ELEC 401 - Control Systems Analysis and Design	3
ELEC 401L - Control Systems Laboratory	1
ESCI 312 - Energy Transfer Fundamentals	3
MATH 412 - Probability and Statistics	3
ESCI Elective 300-400 Level	3
Semester Hours	**16**

Total Credits

Total Hours for All Requirements: 33

Year Four

Requirements	Credits
ELEC 410 - Communication Systems	3
ELEC 410L - Communication Systems Laboratory	1
ELEC 450 - Elements of Power Systems	3
ELEC 450L - Power Systems Laboratory	1
ELEC 490 - Electrical Engineering Capstone I	3
Technical Elective	3
Technical Elective	3
Semester Hours	**17**

Requirements	Credits
ECON 225 - Engineering Economics	3
ELEC 424 - Wireless Communication Systems	3
ELEC 424L - Wireless Communication Systems Laboratory	1
ELEC 491 - Electrical Engineering Capstone II	3
HUMN 330 - Values and Ethics or 335 - Technology and Modern Civilization	3
Advanced Elective	3
Semester Hours	**16**

Total Credits

Total Hours for All Requirements: 33

Area of Concentration: Standard Track with Space Option

Year One

Requirements	Credits
COMM 122 - English Composition	3
ENGR 101 - Introduction to Engineering	2
ENGR 115 - Introduction to Computing for Engineers	3
MATH 241 - Calculus and Analytical Geometry I	4
UNIV 101 - College Success	1
Humanities/Social Sciences - Lower or Upper Level	3
Semester Hours	**16**

Requirements	Credits
CESC 220 - Digital Circuit Design	3
CESC 220L - Digital Circuit Design Laboratory	1
MATH 242 - Calculus and Analytical Geometry II	4
PHYS 161 - Physics with Calculus I and II	4
Humanities - Lower Level	3
Semester Hours	**15**

Total Credits

Total Hours for All Requirements: 31

Year Two

Requirements	Credits
COMM 221 - Technical Communication	3
CPSC 223 - Scientific Programming in C	3
MATH 243 - Calculus and Analytical Geometry III	4
PHYS 250 - Physics with Calculus III	3

PHYS 250L - Physics with Calculus III Laboratory	1
Semester Hours	**14**

Requirements	Credits
COMM 219 - Speech or 420 - Advanced Technical Communication I ***and*** 430 - Advanced Technical Communication II	3
CESC 320 - Microprocessor Systems	3
CESC 320L - Microprocessor Systems Laboratory	1
ELEC 223 - Linear Circuits Analysis I	3
ELEC 223L - Electrical Engineering Laboratory I	1
MATH 345 - Differential Equations and Matrix Methods	4
Semester Hours	**15**

Total Credits

Total Hours for All Requirements: 29

Year Three

Requirements	Credits
ELEC 302 - Electronic Devices and Circuits	3
ELEC 302L - Electronic Circuits Laboratory	1
ELEC 314 - Signal and Linear System Analysis	3
ELEC 314L - Signal and Linear System Analysis Laboratory	1
ESCI 207 - Fundamentals of Mechanics	3
MATH 441 - Mathematical Methods for Engineering and Physics I	3
Technical Elective	3
Semester Hours	**17**

Requirements	Credits
ELEC 340 - Electric and Magnetic Fields	3
ELEC 401 - Control Systems Analysis and Design	3
ELEC 401L - Control Systems Laboratory	1
ESCI 312 - Energy Transfer Fundamentals	3
MATH 412 - Probability and Statistics	3
ESCI Elective 300-400 Level	3
Semester Hours	**16**

Total Credits

Total Hours for All Requirements: 33

Year Four

Requirements	Credits
AERO 427 - Spacecraft Preliminary Design	4
ELEC 410 - Communication Systems	3
ELEC 410L - Communication Systems Laboratory	1
ELEC 450 - Elements of Power Systems	3
ELEC 450L - Power Systems Laboratory	1
ENGP 312 - Space Systems Engineering	3
Technical Elective	3
Semester Hours	**18**

Requirements	Credits
AERO 445 - Spacecraft Detail Design	4
ELEC 424 - Wireless Communication Systems	3
ELEC 424L - Wireless Communication Systems Laboratory	1
ECON 225 - Engineering Economics	3
HUMN 330 - Values and Ethics or 335 - Technology and Modern Civilization	3
Advanced Elective	3
Semester Hours	**17**

Total Credits

Total Hours for All Requirements: 35

Area of Concentration: Robotics Track

Year One

Requirements	Credits
COMM 122 - English Composition	3
ENGR 101 - Introduction to Engineering	2
ENGR 115 - Introduction to Computing for Engineers	3
MATH 241 - Calculus and Analytical Geometry I	4
UNIV 101 - College Success	1
Humanities/Social Sciences - Lower or Upper Level	3
Semester Hours	**16**

Requirements	Credits
CESC 220 - Digital Circuit Design	3
CESC 220L - Digital Circuit Design Laboratory	1
MATH 242 - Calculus and Analytical Geometry II	4
PHYS 161 - Physics with Calculus I and II	4
Humanities - Lower Level	3
Semester Hours	**15**

Total Credits

Total Hours for All Requirements: 31

Year Two

Requirements	Credits
COMM 221 - Technical Communication	3
CPSC 223 - Scientific Programming in C	3

ESCI 207 - Fundamentals of Mechanics	3
MATH 243 - Calculus and Analytical Geometry III	4
PHYS 250 - Physics with Calculus III	3
Semester Hours	**16**

Requirements	Credits
CESC 320 - Microprocessor Systems	3
CESC 320L - Microprocessor Systems Laboratory	1
ELEC 223 - Linear Circuits Analysis I	3
ELEC 223L - Electrical Engineering Laboratory I	1
MATH 335 - Introduction to Linear and Abstract Algebra	3
MATH 345 - Differential Equations and Matrix Methods	4
PHYS 250L - Physics with Calculus III Laboratory	1
Semester Hours	**16**

Total Credits

Total Hours for All Requirements: 32

Year Three

Requirements	Credits
ELEC 302 - Electronic Devices and Circuits	3
ELEC 302L - Electronic Circuits Laboratory	1
ELEC 311 - Robotics and Autonomous Systems I	3
ELEC 314 - Signal and Linear System Analysis	3
ELEC 314L - Signal and Linear System Analysis Laboratory	1
MATH 441 - Mathematical Methods for Engineering and Physics I	3
Technical Elective	3
Semester Hours	**17**

Requirements	Credits
ELEC 340 - Electric and Magnetic Fields	3
ELEC 401 - Control Systems Analysis and Design	3
ELEC 401L - Control Systems Laboratory	1
ELEC 426 - Robotics and Autonomous Systems II	3
ELEC 426L - Robotics and Autonomous Systems II Laboratory	1
ESCI 312 - Energy Transfer Fundamentals	3
MATH 412 - Probability and Statistics	3
Semester Hours	**17**

Total Credits

Total Hours for All Requirements: 34

Year Four

Requirements	Credits
COMM 420 - Advanced Technical Communication I and COMM 430 - Advanced Technical Communication II	3
ELEC 410 - Communication Systems	3
ELEC 410L - Communication Systems Laboratory	1
ELEC 450 - Elements of Power Systems	3
ELEC 450L - Power Systems Laboratory	1
MECH 478 - Robotic Systems Preliminary Design	4
Semester Hours	**15**

Requirements	Credits
ELEC 424 - Wireless Communication Systems	3
ELEC 424L - Wireless Communication Systems Laboratory	1
ECON 225 - Engineering Economics	3
HUMN 330 - Values and Ethics or 335 - Technology and Modern Civilization	3
MECH 479 - Robotic Systems Detail Design	4
Semester Hours	**14**

Total Credits

Total Hours for All Requirements: 29