B.S. in Engineering Technology

With the rapid advancement of science and technology in today's world, every industry needs highly qualified engineers who can keep innovation moving forward. Offered entirely online through Embry-Riddle Aeronautical University Worldwide, this Bachelor of Science in Engineering Technology (BSET) specialized degree program will prepare you to put your engineering skills to work in a variety of industries.

Through the use of cutting-edge virtual labs and simulation methods, students will develop the skills to design, refine and apply engineering technologies across a range of industries. You can also choose to target your studies with a particular concentration including Aeronautical Science, Aviation Safety, Helicopter Operations and Safety, Logistics Management, Management Information Systems, Occupational Safety and Health, Project Management, Security and Intelligence, and Uncrewed Aerial Systems.

Students are also eligible to engage in cooperative study/internships and may elect to seek out those enriching opportunities.

Program-Specific Criteria

Admissions Criteria

In addition to meeting the Worldwide Campus admissions requirements, applicants for admission into the BS in Software Engineering, BS in Engineering, and BS in Engineering Technology degree programs must:

- Complete the English and Math Skills Assessments prior to admission to determine academic preparedness for entry into ENGL 123 English Composition and MATH 241 Calculus I.
- Current high school students and recent graduates under the age of 20 must meet established admissions requirements and demonstrate a 3.0 high school CGPA, with coursework that reflects 4 years of college preparatory mathematics and 2 years of college preparatory science, including a laboratory science.
- Transfer applicants must meet established admissions requirements and demonstrate a 2.5 cumulative grade point average (CGPA); transfer credit deemed equivalent to demonstrate academic preparedness for immediate entry into ENGL 123 English Composition and MATH 241 Calculus I, will be considered for admission into the program. Skills Assessment scores will be used for advising purposes if English and Math transfer credit demonstrates academic preparedness for admission into the program.

Students who fail to satisfy the guidelines for full admission may be considered for conditional admission under circumstances determined by the Admissions Office OR may be considered for admission into an alternate program. A written petition for admission, current resume and other supporting documentation may be requested for consideration of admission. Exceptions will be reviewed on a case by case basis.

Current Worldwide students requesting a change of program to the BS in Software Engineering, BS in Engineering, or BS in Engineering Technology degree programs must demonstrate successful completion of the first year of the suggested plan of study in the AS in Engineering Fundamentals degree plan with a 2.5 GPA. Students may then work with their campus advisor to determine eligibility to add or change to the BS in Software Engineering, BS in Engineering, or BS in Engineering Technology degree programs. Exceptions will be reviewed on a case by case basis.

Engineering Technology Area of Concentration

The Engineering Technology Area of Concentration is the degree area where credit for prior engineering technology learning is housed or where students can take courses to learn about engineering technology. Many students bring in all or part of this credit based on prior engineering or engineering technology training or experience. However, shortages in the minimum credit required can be made up by taking courses in the following related disciplines: Aeronautical Science, Aviation Safety, Helicopter Operations and Safety, Uncrewed Aerial Systems, Logistics Management, Management Information Systems, Occupational Safety and Health, Project Management, Security and Intelligence.

Sources of Prior Learning Credit include the following:

1. Transfer credit earned at accredited degree-granting colleges and universities.
2. The recommendations published by the American Council on Education for U.S. Military training and experience, as well as training conducted by other government agencies and private organizations.
3. Prior-learning credit established by the University for certain engineering and aviation licenses and ratings as they relate to this degree.

Duplicate Credit

Many Embry-Riddle courses are designed to teach the same skills and knowledge that engineering technology students have acquired through experience and training. Students who complete courses in the same engineering specialty for which they were granted credit would be duplicating coverage of the same subject matter. Credit for completion of such courses will not be applied to degree requirements.

The BSET program is accredited by the Engineering Technology Accreditation Commission of ABET, https://abet.org.

Estimated Cost of Attendance

Students will:

- Have an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline.
- Have an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline.
- Have an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- Have an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.
- Have an ability to function effectively as a member as well as a leader on technical teams.

DEGREE REQUIREMENTS

General Education

General Education		
Embry-Riddle courses in the general education categories of Communication Theory and Skills, and Humanities and Social Sciences may be chosen from those listed below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified.		
Communication Theory and Skills		
ENGL 123	English Composition	3
English/Speech electives		6
Mathematics		
MATH 241	Calculus and Analytical Geometry I	4
MATH 242	Calculus and Analytical Geometry II	4
Computer Science / Information		
ENGR 115	Introduction to Computing for Engineers	3
Physical and Life Sciences		
CHEM 110	General Chemistry I	3
CHEM 110L	General Chemistry I Laboratory	1

PHYS 150	Physics I for Engineers	3
PHYS 160	Physics II for Engineers	3
Humanities		
HUMN 330	Values and Ethics	3
Humanities lower level elective		3
Social Sciences		
ECON 210	Microeconomics	3
ECON 211	Macroeconomics	3
General Electives		
General Open Electives		9
Total Credits		**51**

Core/Major

Business		
STAT 222	Business Statistics	3
Total Credits		**3**

Leadership and Management		
MGMT 201	Principles of Management	3
MGMT 203	Management for Aeronautical Science	3
Total Credits		**6**

Technical Core		
ENGR 101	Introduction to Engineering	3
ENGR 120	Graphical Communications	3
ESCI 201	Statics	3
CESC 220	Digital Circuit Design	3
CESC 222	Digital Circuit Design Laboratory	1
ESCI 204	Dynamics	3
ESCI 202	Solid Mechanics	3
ESCI 206	Fluid Mechanics	3
RSCH 202	Introduction to Research Methods	3
ETEC 310	Material Science for Engineering Technology	3
ETEC 315	Circuits for Engineering Technology	3
ETEC 316	Circuits Laboratory for Engineering Technology	1
ETEC 410	Thermodynamics for Engineering Technology	3
ETEC 415	Control Systems	3
ETEC 490	Engineering Technology Capstone I	3
ETEC 491	Engineering Technology Capstone II	3
Total Credits		**44**

Electives/Concentration

Concentrations		**18**

Following concentration areas are available to BSET students. Students may choose at least 3 courses each from two concentration areas.

Total Degree Requirements		**122**

Concentrations:

Aeronautical Science

Aeronautical Science Concentration		
ASCI 309	Aerodynamics	3
AMNT 429	Advanced Technologies in Design and Production of Aircraft Structures and Systems	3
ETEC 409	Applied Aeronautics	3

Aviation Safety

Aviation Safety Concentration		
BSAS 320	Human Factors in Aviation Safety	3
BSAS 330	Aircraft Accident Investigation	3
BSAS 409	Aviation Safety	3

Helicopter Operations and Safety

Helicopter Operations and Safety Concentration		
ASCI 317	Rotorcraft	3
ASCI 378	Helicopter Flight Environments	3
ASCI 388	Helicopter Flight Planning	3

Uncrewed and Autonomous Systems

Uncrewed and Autonomous Systems Concentration		
UNSY 315	Uncrewed Aircraft Systems and Operations	3
UNSY 318	Uncrewed Aircraft Systems Robotics	3
UNSY 410	Uncrewed Systems Sensing Technology	3

Logistics Management

Logistics Management Concentration		
LGMT 331	Transportation Principles	3
LGMT 410	Management of Air Cargo	3
LGMT 411	Logistics Management for Aviation/Aerospace	3

Management Information Systems

Management Information Systems Concentration		
MMIS 221	Introduction to Management Information Systems	3
MMIS 392	Database Management	3
MMIS 494	Aviation Information Systems	3

Occupational Safety & Health

Occupational Safety & Health Concentration		
SFTY 311	Fundamentals of Occupational Safety and Health	3
SFTY 321	Ergonomics	3
SFTY 355	Industrial Hygiene and Toxicology	3

Project Management

Project Management Concentration		
PMGT 391	Project Planning 1	3
PMGT 394	Project Planning 2	3
PMGT 400	Project Risk and Control	3

Security and Intelligence

Security and Intelligence Concentration		
SCTY 315	Studies in Intelligence I	3
SCTY 385	Intelligence Collection and Analysis	3
SCTY 488	National Security Issues and Terrorism	3

Plan of Study (BSET)

Year One

Term 1		**Credits**
ENGR 101	Introduction to Engineering	3
ENGL 123	English Composition	3
	Credits Subtotal	**6.0**

Term 2

MATH 241	Calculus and Analytical Geometry I	4
ENGR 115	Introduction to Computing for Engineers	3
	Humanities Lower-Level (HUMN)	3
	Credits Subtotal	**10.0**
Term 3		
MATH 242	Calculus and Analytical Geometry II	4
PHYS 150	Physics I for Engineers	3
	Credits Subtotal	**7.0**
Term 4		
PHYS 160	Physics II for Engineers	3
	English/Speech (ENGL/SPCH)	3
ECON 210	Microeconomics	3
	Credits Subtotal	**9.0**
	Credits Total:	**32.0**

Year Two

Term 1		**Credits**
ENGR 120	Graphical Communications	3
CHEM 110	General Chemistry I	3
CHEM 110L	General Chemistry I Laboratory	1
	English/Speech (ENGL/SPCH)	3
	Credits Subtotal	**10.0**
Term 2		
ESCI 201	Statics	3
CESC 220	Digital Circuit Design	3
CESC 222	Digital Circuit Design Laboratory	1
	Credits Subtotal	**7.0**
Term 3		
ESCI 202	Solid Mechanics	3
ESCI 206	Fluid Mechanics	3
ECON 211	Macroeconomics	3
	Credits Subtotal	**9.0**
Term 4		
ESCI 204	Dynamics	3
STAT 222	Business Statistics	3
	Credits Subtotal	**6.0**
	Credits Total:	**32.0**

Year Three

Term 1		**Credits**
ETEC 310	Material Science for Engineering Technology	3
RSCH 202	Introduction to Research Methods	3
	Credits Subtotal	**6.0**
Term 2		
HUMN 330	Values and Ethics	3
MGMT 201	Principles of Management	3
	Area of Concentration course	3
	Credits Subtotal	**9.0**
Term 3		
MGMT 203	Management for Aeronautical Science	3
ETEC 315	Circuits for Engineering Technology	3
ETEC 316	Circuits Laboratory for Engineering Technology	1
	Credits Subtotal	**7.0**
Term 4		
	Area of Concentration course	3
	Open Elective (General)	3
	Area of Concentration course	3
	Credits Subtotal	**9.0**
	Credits Total:	**31.0**

Year Four

Term 1		**Credits**
ETEC 410	Thermodynamics for Engineering Technology	3
	Area of Concentration course	3
	Open Elective (General)	3
	Credits Subtotal	**9.0**
Term 2		
ETEC 415	Control Systems	3
	Area of Concentration course	3
	Credits Subtotal	**6.0**
Term 3		
	Area of Concentration course	3
ETEC 490	Engineering Technology Capstone I	3
	Credits Subtotal	**6.0**
Term 4		
ETEC 491	Engineering Technology Capstone II	3
	Open Elective (General)	3
	Credits Subtotal	**6.0**
	Credits Total:	**27.0**

Total Degree Requirements	**122**