B.S. in Software Engineering

Degree Requirements

The Bachelor of Science degree can be earned in eight semesters, assuming appropriate background and full-time enrollment. Successful completion of a minimum of 126 credit hours is required.

Students should be aware that several courses in each academic year may have prerequisites and/or corequisites. Check the course description section of this catalog before registering for classes to ensure requisite sequencing. The B.S. degree requires that students have a minimum cumulative grade point average of 2.00 in all CEC, EE, SE, CS, and EGR courses that fulfill any degree requirement.

The Software Engineering degree includes a Space Option in which, AE 427 and AE 445 will be taken instead of SE 450 and SE 451, and EP 394 is taken as one of the technical electives.

Software engineering majors are required to have a grade of C or better in all prerequisite courses for courses with the CS, CEC, EE, EGR, ES, or SE prefixes.

Cyber-Security Focus

The degree features an optional focus on cyber-security. Students who select this focus will be prepared to support government and industry's need for people skilled in software development as well as in cyber-security.

For the cyber-security focus, the technical elective is replaced with CS 304 Introduction to Computer Forensics (3) and the two open electives are replaced with CI 450 Computer Forensics (3) and CS 303 Network Security (3).

Program Requirements

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 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 credit hours. This will result in additional **time and cost** to the student.

Communication Theory and Skills	9
Computer Science/Information Technology	3
Mathematics	6
Physical and Life Sciences (Natural Sciences)	6
Humanities and Social Sciences	12
3 hours of lower-level Humanities	
3 hours of lower-level Social Science	
3 hours of lower-level or upper-level Humanities or Social Science	
3 hours of upper-level Humanities or Social Science	
Total Credits	**36**

Software Engineering Core (117 Credits)

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

Courses in the core with a # will satisfy your general education requirements.

CEC 220	Digital Circuit Design	3
CEC 222	Digital Circuit Design Laboratory	1
CEC 320	Microprocessor Systems	3
CEC 322	Microprocessor Systems Laboratory	1
CEC 450	Real-Time Embedded Systems *	3
CEC 470	Computer Architecture **	3
COM 122	English Composition #	3
COM 219	Speech #	3
COM 221	Technical Report Writing (Must earn a C or better to pass COM 221)	3
CS 118	Fundamentals of Computer Programming #	3
or EGR 115	Introduction to Computing for Engineers	
CS 125	Computer Science I	4
CS 225	Computer Science II	4
CS 315	Data Structures and Analysis of Algorithms *	3
CS 317	Files and Database Systems *	3
CS 332	Organization of Programming Languages **	3
CS 415	Human-Computer Interfaces *	3
CS 420	Operating Systems *	3
CS 425	Net-Centric Computing **	3
CS 432	Information and Computer Security *	3
EC 225	Engineering Economics #	3
EGR 101	Introduction to Engineering	2
General Education - lower-level or upper-level Humanities or Social Science #		3
General Education - lower-level Humanities		3
HU 330	Values and Ethics #	3
or HU 335	Technology and Modern Civilization	
MA 225	Introduction to Discrete Structures	3
MA 241	Calculus and Analytical Geometry I #	4
MA 242	Calculus and Analytical Geometry II #	4
MA 243	Calculus and Analytical Geometry III	4
MA 345	Differential Equations and Matrix Methods	4
MA 412	Probability and Statistics	3
PS 161	Physics I & II for Engineers #	4
PS 250	Physics for Engineers III #	3
PS 253	Physics Laboratory for Engineers #	1
SE 300	Software Engineering Practices **	3
SE 310	Analysis and Design of Software Systems **	3
SE 320	Software Construction **	3
SE 420	Software Quality Assurance **	3
SE 450	Software Team Project I *	3
SE 451	Software Team Project II **	3
Total Credits		**117**

Technical Elective (3 Credits)

Technical Electives	3

Technical electives include EGR 200, EGR 201, SIS 365, and any AE, CEC, CEXX (Coop/Internship), CS, EE, EP, ES, MA, ME, PS, SE, or SYS course 300 level or above. Other courses may be approved by the CESE Department Chair.

ROTC Exceptions must be approved by the CESE Department Chair.

Open Electives (6 Credits)

Open Electives	6

Total Credits	**126**

* Offered in Fall Only
** Offered in Spring Only
\# General Education Course

UNIV 101 is taken in excess of degree requirements or meets open elective credit.

All Army ROTC students are required to complete SS 321 - U.S. Military History 1900-Present (3 credits) in order to commission.