

Academic Programs at the Daytona Beach Campus

Software Engineering/Master of Software Engineering

Bachelor of Science

Master of Software Engineering

This is a five-year program that allows exceptional students to complete both the Bachelor of Science in Software Engineering (BSSE) and the Master of Software Engineering (MSE) degrees.

The objective of this five-year program is to produce professional software engineers with advanced knowledge and skill in:

- Fundamentals of computing (discrete mathematics, programming languages, operating systems, computer architecture, and so on)
- Software systems development for real-time embedded applications
- Use of personal and team software processes
- Understanding the breadth of software engineering terminology, tools, and techniques
- Use of requirements engineering and software architecture and design
- Use of modern software development methodologies (such as object-oriented analysis and design)
- Software development in real work environments.

Students interested in pursuing this program must meet the following requirements:

- Maintain at least a 3.2 cumulative GPA throughout the academic program.
- Maintain at least a 3.0 cumulative GPA for the graduate credits.

- Complete a total of 151 credit hours (listed in a subsequent section). There will be 124 credit hours of undergraduate requirements (equivalent to the B.S. in Software Engineering) and 27 credit hours of graduate requirements (equivalent to a Master of Software Engineering degree).
- The program includes a requirement for two summer internships in industry. Credit at the undergraduate and graduate level will be awarded for approved and successful work.

YEAR 1

See common Freshman Year outline on page 160.

Total Credits 32/33

YEAR 2

Course	Title	Credits
AS 120	Principles of Aeronautical Science	3
CEC 220	Digital Circuit Design	3
CEC 222	Digital Circuit Design Laboratory	1
CEC 320	Microprocessor Systems	3
CEC 322	Microprocessor Systems Laboratory	1
COM221	Technical Report Writing	3
CS 222	Introduction to Discrete Structures	3
CS 315	Data Structures and Algorithms	3
PS 250	Physics III for Engineers	3
PS 253	Physics Laboratory for Engineers	1
SE 300	Software Engineering Practices (3 credits lecture, 1 credit lab)	4
CS 225	Computer Science II* (3 credits lecture, 1 credit lab) -OR-	4
COM219	Speech	3
Total Credits		32/31

* Students in the Software Engineering program are encouraged to take CS 225 during the first year, postponing COM 219 until the second year.

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YEAR 3

Course Title	Credits
CEC 450 Real Time Systems	3
CEC 470 Computer Architecture	3
CS 317 Files and Database Systems	3
CS 332 Organization of Programming Languages	3
CS 420 Operating Systems	3
EC 225 Engineering Economics	3
HU/SS XXX Humanities/Social Sciences Elective . . .	3
MA 3/4XX Math Elective*	3
MA 412 Probability and Statistics	3
SE 310 Analysis and Design of Software Systems	3
SE 320 Software Construction	3
Total Credits	33

* Math elective to be selected from an approved list of courses maintained by the program coordinator.

SUMMER TERM (BETWEEN YEAR 3 AND YEAR 4)

Course Title	Credits
CESE 4XX Cooperative Education	3
Total Credits	3

The student must spend the term performing a co-op in a software industry and be engaged in a software engineering activity such as analysis, design, code, or test.

YEAR 4

Course Title	Credits
CEC/CS/SE 3/4XX Elective	6
HU/SS 3/4XX Humanities/Social Sciences Elective (Upper-Level)	3
SE 500 Software Engineering Concepts	3
SE 530 Software Requirements Engineering	3
SE 625 Quality Engineering and Assurance	3
SE 410 Formal Software Modeling	3
SE 450 Software Team Project I (2 credits lecture, 1 credit lab)	3
SE 451 Software Team Project II (1 credit lecture, 2 credits lab)	3
Total Credits	30

SUMMER TERM (BETWEEN YEAR 4 AND YEAR 5)

Course Title	Credits
CESE5XX Cooperative Education	3
Total Credits	3

The student must spend the term performing a co-op in a software industry and be engaged in a software engineering activity such as analysis, design, code, or test.

YEAR 5

Course Title	Credits
SE 510 Software Project Management	3
SE 610 Software Architecture and Design	3
SE Graduate-Level Electives**	12
Total Credits	18

5 YEAR TOTAL

151

GRADUATE-LEVEL ELECTIVES

Course Title	Credits
SE 505 Model-Based Verification of Software	3
SE 520 Formal Methods for Software Engineering	3
SE 535 GUI Design and Evaluation	3
SE 545 Specification and Design of Real-Time Systems	3
SE 565 Concurrent and Distributed Systems	3
SE 575 Software Safety	3
SE 655 Performance Analysis of Real-Time Systems	3
SE 585 Metrics and Statistical Methods of Software Engineering	3
SE 660 Formal Methods for Concurrent and Real-Time Systems	3

While other elective courses may be selected, the student's advisor and the program coordinator must approve the selection.