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# *Master of Software Engineering (MSE)\**

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## Master of Software Engineering

### Introduction

The Master of Software Engineering (MSE) degree program is designed to give recent college graduates, or college graduates who have had several years of professional life, an opportunity to enhance their careers and work on the cutting-edge of modern software development. Software engineers who complete the program can rapidly assume positions of substantial responsibility in a software development organization.

The MSE degree program achieves its purpose by providing students not only with the technical tools and techniques of the field but also with skills in communication, group interaction, management, and planning. The program emphasizes a process-centered quantitative approach to the engineering of software systems. The goal of the program is to give graduates an in-depth understanding of the tools, techniques, and appropriate processes for the management of software development, elicitation and analysis of requirements, architecture and design, implementation, and verification and validation of software systems. In addition, the program pays special attention to the issues related to communication and teamwork.

A special emphasis is on real-time embedded software systems encountered in such applications as the FAA air traffic control computer system, aircraft avionics, NASA's

space station, and others. In addition, the MSE curriculum takes full notice of the Software Engineering Institute's (SEI) capability maturity model (CMM) by incorporating the key practices throughout the coursework.

The curriculum is structured into two groups of courses: core (18 credits) and specified electives (12 credits). As part of the core, each MSE student must complete a "capstone experience," which entails a major project that involves applications of the theory, practices, and technology studied in the other core courses. Typically students will take SE 697 to satisfy the capstone experience. In special cases, the capstone experience can be satisfied by completing a Graduate Research Project (SE 690). In such cases and prior to registering for SE 690, a faculty member must agree to be a GRP advisor and the student must obtain approval of a GRP research area.

Courses available as specified electives include metrics and statistical methods for software engineering, performance analysis of software systems, concurrent and distributed systems, software safety, and formal methods for software engineering.

\* A five-year Computer Engineering/Master of Software Engineering program and a five-year Software Engineering/Master of Software Engineering program are available. See the undergraduate catalog for details.

## Academic Programs at the Daytona Beach Campus

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### Degree Requirements

Students must complete 18 credit hours of core courses.

Course	Title	Credits
SE 500	Software Engineering Discipline . . . . .	3
SE 510	Software Project Management . . . . .	3
SE 530	Software Requirements Engineering . . . . .	3
SE 555	Object-Oriented Software Construction . . . . .	3
SE 610	Software Systems Architecture and Design . . . . .	3
SE 697	Software Engineering Practicum -OR-	
SE 690	Graduate Research Project . . . . .	3
	Specified Electives . . . . .	12
<b>Total Credits</b>		<b>30</b>

Students must complete 12 credit hours from the following list of courses:

Course	Title	Credits
SE 505	Model-Based Verification of Software . . . . .	3
SE 520	Formal Methods for Software Engineering . . . . .	3
SE 535	Graphical User Interface Design and Evaluation . . . . .	3
SE 565	Concurrent and Distributed Systems . . . . .	3
SE 575	Software Safety . . . . .	3
SE 545	Specification and Design of Real-Time Systems . . . . .	3
SE 550	Current Trends in Software Engineering . . . . .	3
SE 580	Software Process Definition and Modeling . . . . .	3
SE 585	Metrics and Statistical Methods for Software Engineering . . . . .	3
SE 590	Graduate Seminar . . . . .	3
SE 625	Software Quality Engineering and Assurance . . . . .	3
SE 655	Performance Analysis of Real-Time Systems . . . . .	3
SE 660	Formal Methods for Concurrent and Real-Time Systems . . . . .	3
SE 699	Special Topics in Software Engineering . . . . .	3

Note: Other electives may be authorized based on the student's background, program of study, performance during the MSE, and approval of the MSE program coordinator.