

M.S. in Uncrewed and Autonomous Systems Engineering

The Master of Science in Uncrewed and Autonomous Systems Engineering is housed in the College of Engineering and offers the opportunity to study the engineering of uncrewed and autonomous systems.

This engineering master's degree prepares students to develop systems that operate along a spectrum of autonomy, from drones and autonomous robotics to surface watercraft, underwater vessels, and spacecraft. Students will have access to the highly specialized labs and facilities within the College of Engineering. Students can customize their degree with 15 credits of core coursework, 15 credits of electives, and a thesis or graduate project.

Program-Level Student Learning Outcomes

Students will:

- Apply fundamental engineering practices to analyze, design, and support the implementation and development of uncrewed and/or autonomous systems.
- Communicate issues pertaining to uncrewed and autonomous systems to peers.
- Implement safe systems through analysis and design techniques.
- Solve engineering problems in uncrewed/autonomous systems using knowledge gained on advanced topics covered from the program's core and chosen electives.

Daytona Beach Program Requirements

Core Requirements	15
Option Requirement	15
Total Credits	30

Core Requirements

AERO 527	Modern Control Systems	3
or ELEC 527	Modern Control Systems	
or MECH 527	Modern Control Systems	
CESC 528	Networks	3
ELEC 528	Sensors and Data Links	3
MECH 503	Introduction to Autonomous Vehicle Systems	3
SYSE 505	System Safety and Certification	3
Total Credits		15

Capstone Option

UNSY 690	Graduate Project	3
Electives		12
Total Credits		15

Thesis Option

UNSY 700	Graduate Thesis	6
ENGR 600	Research Methods for Engineers	3
Electives		6
Total Credits		15

Electives

AERO 506	Airplane Dynamic Stability	3
AERO 553	Hybrid and Urban Air Mobility	3

AERO 623	Navigation, Guidance and Control	3
AERO 626	Advanced Topics in Discrete Control Theory	3
CESC 500	Engineering Project Management	3
CESC 526	Sensor Data Fusion	3
CESC 527	Mobile Sensor Networks	3
CESC 530	Image Processing and Machine Vision	3
CESC 610	State and Parameter Estimation	3
CPSC 528	Multi-Agent Systems	3
CPSC 529	Computer Security	3
CPSC 555	Artificial Intelligence	3
ELEC 500	Digital Control Systems	3
ELEC 505	Advanced Mechatronics	3
ELEC 510	Linear Systems	3
ELEC 515	Random Signals	3
ELEC 525	Avionics and Radio Navigation	3
ELEC 529	Electro-Optical Systems	3
ELEC 625	Satellite-Based Communications and Navigation	3
MECH 513	Perception Methods for Autonomous Systems	3
MECH 520	Sensor Processing with Applications	3
MECH 523	Linear Systems	3
MECH 610	Automation and Additive Manufacturing	3
MECH 615	Pattern Recognition and Machine Learning	3
SYSE 500	Fundamentals of Systems Engineering	3
SYSE 530	System Requirements Analysis and Modeling	3
SYSE 560	Introduction to Systems Engineering Management	3
SYSE 610	System Architecture Design and Modeling	3
SYSE 625	System Quality Assurance	3

Suggested Plan of Study

Capstone Option

Year One

Requirements	Credits
MECH 503 - Introduction to Autonomous Vehicle Systems	3
ELEC 528 - Sensors and Data Links	3
Semester Hours	6

Requirements	Credits
SYSE 505 - System Safety and Certification	3
Elective	3
Elective	3
Semester Hours	9

Total Credits

Total Hours for All Requirements: 15

Year Two

Requirements	Credits
AERO 527 - Modern Control Systems, ELEC 527 - Modern Control Systems, or MECH 527 - Modern Control Systems	3
CESC 528 - Networks	3
Elective	3
Semester Hours	9

Requirements	Credits
UNSY 690 - Graduate Project	3
Elective	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 15

Thesis Option

Year One

Requirements	Credits
MECH 503 - Introduction to Autonomous Vehicle Systems	3
ELEC 528 - Sensors and Data Links	3
Semester Hours	6

Requirements	Credits
SYSE 505 - System Safety and Certification	3
ENGR 600 - Research Methods for Engineers	3
Elective	3
Semester Hours	9

Total Credits

Total Hours for All Requirements: 15

Year Two

Requirements	Credits
AERO 527 - Modern Control Systems, ELEC 527 - Modern Control Systems, or MECH 527 - Modern Control Systems	3
CESC 528 - Networks	3
UNSY 700 - Graduate Thesis	3
Semester Hours	9

Requirements	Credits
UNSY 700 - Graduate Thesis	3
Elective	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 15