### Engineering Technology: Mechatronics & Robotics, MS

Requirements for Students Matriculating in or before Academic Year 2024-2025. Learn more about Graduate College Academic Regulation 7.0 (http://catalog.okstate.edu/graduate-college/#70).

#### Thesis Option

**Total Hours: 30**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MERO 5333</td>
<td>Learning-Based Control for Mechatronics and Robotics</td>
<td>3</td>
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<tr>
<td>FSEP 5013</td>
<td>Research Design &amp; Methodology</td>
<td>3</td>
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<tr>
<td>FSEP 5023</td>
<td>Project Management</td>
<td>3</td>
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<td><strong>Hours Subtotal</strong></td>
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</table>

**Core Courses (9 hours)**

- MERO 5333 Learning-Based Control for Mechatronics and Robotics (3 hours)
- FSEP 5013 Research Design & Methodology (3 hours)
- FSEP 5023 Project Management (3 hours)

**Required Courses (9 hours)**

- MERO 5113 Mechatronic Systems I (3 hours)
- MERO 5213 Introduction to Robot Dynamics and Kinematics (3 hours)
- MERO 5313 Linear Control Systems for Mechatronics (3 hours)

**Hours Subtotal**

**Electives (6 hours)**

Select 6 hours:

- MERO 5060 Emerging Topics in Mechatronics and Robotics
- MERO 5070 Directed Studies
- MERO 5133 Mechatronic System Hardware and Software Integration
- MERO 5323 Intelligent Control of Mechatronic Systems
- MERO 5413 Robotic Underwater Vehicles
- MERO 5423 Engineering Acoustics
- MERO 5433 Industrial Noise Control
- MERO 5513 Electrohydraulics
- MERO 5523 Electropneumatics
- MERO 5513 Smart Manufacturing for Mechatronics
- MERO 5633 Multiphysics Computational Modeling and Simulation
- MERO 5713 Advanced CAD for Electro-Mechanical Systems
- MERO 5723 Mechanism Design with CAD
- MERO 5733 Advanced Vibration for Electro-Mechanical Systems
- MAE 5433 Robotics, Kinematics, Dynamics and Control
- or ECEN 5433 Robotics Kinematics, Dynamics and Control
- MAE 5483 Advanced Mechatronics Design
- or ECEN 5483 Advanced Mechatronics Design
- ECEN 5233 Embedded Sensor Networks
- ECEN 5283 Computer Vision
- ECEN 5533 Modern Communication Theory
- ECEN 5553 Telecommunications Systems
- ETM 5111 Introduction to Strategy, Technology and Integration
- ETM 5143 Strategic Decision Analysis for Engineering and Technology Managers
- ETM 5153 Foundations of Engineering Management
- ETM 5221 Engineering Teaming
- ETM 5241 Strategic Project Management
- ETM 5291 Failure Mode and Effects Analysis in Design
- ETM 5371 Ethics for Practicing Engineers
- ETM 5411 Engineering Economic Analysis
- IEM 5143 Engineering Economic Analysis
- ETM 5461 Intellectual Property Management

**Hours Subtotal**

**Thesis**

- MERO 5000 Thesis Research (6 hours)

**Hours Subtotal**

**Total Hours**

**30**

#### Non-Thesis Option

**Total Hours: 30**

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**Core Courses**

- MERO 5333 Learning-Based Control for Mechatronics and Robotics (3 hours)
- FSEP 5013 Research Design & Methodology (3 hours)
- FSEP 5023 Project Management (3 hours)

**Required Courses**

- MERO 5113 Mechatronic Systems I (3 hours)
- MERO 5213 Introduction to Robot Dynamics and Kinematics (3 hours)
- MERO 5313 Linear Control Systems for Mechatronics (3 hours)

**Hours Subtotal**

**Electives**

Select 12 hours (minimum 6 hours of MERO courses and 3 hours from ETM/IEM courses):

- MERO 5060 Emerging Topics in Mechatronics and Robotics
- MERO 5133 Mechatronic System Hardware and Software Integration
- MERO 5323 Intelligent Control of Mechatronic Systems
- MERO 5413 Robotic Underwater Vehicles
- MERO 5423 Engineering Acoustics
- MERO 5433 Industrial Noise Control
- MERO 5513 Electrohydraulics
- MERO 5523 Electropneumatics
- MERO 5513 Smart Manufacturing for Mechatronics
- MERO 5633 Multiphysics Computational Modeling and Simulation
- MAE 5433 Robotics, Kinematics, Dynamics and Control
- or ECEN 5433 Robotics Kinematics, Dynamics and Control
- MAE 5483 Advanced Mechatronics Design
- or ECEN 5483 Advanced Mechatronics Design
- ECEN 5233 Embedded Sensor Networks
- ECEN 5283 Computer Vision
### MERO 5713
Advanced CAD for Electro-Mechanical Systems

### MERO 5723
Mechanism Design with CAD

### MERO 5733
Advanced Vibration for Electro-Mechanical Systems

### MAE 5433
Robotics, Kinematics, Dynamics and Control

or ECEN 5433
Robotics Kinematics, Dynamics and Control

### MAE 5483
Advanced Mechatronics Design

or ECEN 5483
Advanced Mechatronics Design

### ECEN 5233
Embedded Sensor Networks

### ECEN 5283
Computer Vision

### ECEN 5533
Modern Communication Theory

### ECEN 5553
Telecommunications Systems

### ETM 5111
Introduction to Strategy, Technology and Integration

### ETM 5143
Strategic Decision Analysis for Engineering and Technology Managers

### ETM 5153
Foundations of Engineering Management

### ETM 5221
Engineering Teaming

### ETM 5241
Strategic Project Management

### ETM 5291
Failure Mode and Effects Analysis in Design

### ETM 5371
Ethics for Practicing Engineers

### ETM 5411
Engineering Economic Analysis

### IEM 5143
Reliability and Maintainability

### ETM 5461
Intellectual Property Management

### MERO 5070
Directed Studies ¹

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¹ The MERO 5070 course is used for a creative component. A report (a "mini-thesis") must be submitted, prepared in the style of an M.S. thesis, but not submitted for Graduate College approval.

**Graduate College Master's Program Requirements**

Learn more about Graduate College 2024-2025 Master's Degree Program Requirements (http://catalog.okstate.edu/graduate-college/). Check the General Graduate College academic regulations for minimal GPA, language proficiency and other general requirements.