## Engineering Technology: Mechatronics & Robotics, MS

Requirements for Students Matriculating in or before Academic Year 2023-2024. 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>
</tr>
</thead>
<tbody>
<tr>
<td>MERO 5013</td>
<td>Research Design &amp; Methodology</td>
<td>3</td>
</tr>
<tr>
<td>MERO 5023</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>MERO 5033</td>
<td>Principles of Industrial and Process Safety</td>
<td>3</td>
</tr>
<tr>
<td><strong>Hours Subtotal</strong></td>
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</table>

#### Core Courses

- MERO 5113: Mechatronic Systems I
- MERO 5123: Mechatronic Systems II
- MERO 5213: Introduction to Robot Dynamics and Kinematics

#### Required Courses

- MERO 5060: Emerging Topics in Engineering Technology
- MERO 5070: Directed Studies
- MERO 5133: Mechatronic System Hardware and Software Integration
- MERO 5313: Linear Control Systems for Mechatronics
- 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 5613: 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

#### Electives

Select 6 hours:
- MERO 5060: Emerging Topics in Engineering Technology
- MERO 5070: Directed Studies
- MERO 5133: Mechatronic System Hardware and Software Integration
- MERO 5313: Linear Control Systems for Mechatronics
- 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 5613: Smart Manufacturing for Mechatronics
- MERO 5633: Multiphysics Computational Modeling and Simulation
- ECEN 5233: Embedded Sensor Networks
- ECEN 5283: Computer Vision
- ECEN 5533: Modern Communication Theory

#### Thesis

- MERO 5000: Thesis Research

#### Hours Subtotal

**6**

**Total Hours:** **30**

### Non-Thesis Option

**Total Hours: 30**

<table>
<thead>
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</tr>
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<td>MERO 5033</td>
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<td>3</td>
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#### Core Courses

- MERO 5113: Mechatronic Systems I
- MERO 5123: Mechatronic Systems II
- MERO 5213: Introduction to Robot Dynamics and Kinematics

#### Required Courses

- MERO 5060: Emerging Topics in Engineering Technology
- MERO 5070: Directed Studies
- MERO 5133: Mechatronic System Hardware and Software Integration
- MERO 5313: Linear Control Systems for Mechatronics
- 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 5613: Smart Manufacturing for Mechatronics
- MERO 5633: Multiphysics Computational Modeling and Simulation
- MAE 5433: Robotics, Kinematics, Dynamics and Control
- MAE 5483: Advanced Mechatronics Design
- ECEN 5233: Embedded Sensor Networks
- ECEN 5283: Computer Vision
- ECEN 5533: Modern Communication Theory

#### Electives

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

- MERO 5060: Emerging Topics in Engineering Technology
- MERO 5133: Mechatronic System Hardware and Software Integration
- MERO 5313: Linear Control Systems for Mechatronics
- 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 5613: Smart Manufacturing for Mechatronics
- MERO 5633: Multiphysics Computational Modeling and Simulation
- MAE 5433: Robotics, Kinematics, Dynamics and Control
- MAE 5483: Advanced Mechatronics Design
- MAE 5483: Advanced Mechatronics Design
- ECEN 5233: Embedded Sensor Networks
- ECEN 5283: Computer Vision
- ECEN 5533: Modern Communication Theory

**Hours Subtotal**

**9**

**Total Hours:** **30**
<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>MERO 5733</td>
<td>Advanced Vibration for Electro-Mechanical Systems</td>
</tr>
<tr>
<td>MAE 5433</td>
<td>Robotics, Kinematics, Dynamics and Control</td>
</tr>
<tr>
<td>or ECEN 5433</td>
<td>Robotics Kinematics, Dynamics and Control</td>
</tr>
<tr>
<td>MAE 5483</td>
<td>Advanced Mechatronics Design</td>
</tr>
<tr>
<td>or ECEN 5483</td>
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<tr>
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<td>ECEN 5533</td>
<td>Modern Communication Theory</td>
</tr>
<tr>
<td>ECEN 5553</td>
<td>Telecommunications Systems</td>
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<tr>
<td>ETM 5111</td>
<td>Introduction to Strategy, Technology and Integration</td>
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<tr>
<td>ETM 5143</td>
<td>Strategic Decision Analysis for Engineering and Technology Managers</td>
</tr>
<tr>
<td>ETM 5153</td>
<td>Foundations of Engineering Management</td>
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<tr>
<td>ETM 5221</td>
<td>Engineering Teaming</td>
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<tr>
<td>ETM 5241</td>
<td>Strategic Project Management</td>
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<tr>
<td>ETM 5291</td>
<td>Failure Mode and Effects Analysis in Design</td>
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<td>ETM 5371</td>
<td>Ethics for Practicing Engineers</td>
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<td>ETM 5411</td>
<td>Engineering Economic Analysis</td>
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<tr>
<td>IEM 5143</td>
<td>Reliability and Maintainability</td>
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<tr>
<td>ETM 5461</td>
<td>Intellectual Property Management</td>
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<tr>
<td>MERO 5070</td>
<td>Directed Studies</td>
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**Hours Subtotal:** 12

**Total Hours:** 30

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 2023-2024 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.