# Mechatronic Systems Engineering

**September 2022 (for students who entered first year in September 2020)**

## Year 2

### Term A
- NMM 2270A: Applied Mathematics for Engineering II
- ECE 2205A: Electric Circuits I
- MSE 2200Q: Engineering Shop Safety Training
- MSE 2201A: Introduction to Electrical Instrumentation
- MSE 2212A: Mechanics of Materials
- MSE 2214A: Thermodynamics
- CS 1037A: Computer Science Fundamentals II

### Term B
- MSE 2202B: Introduction to Mechatronic Design
- MSE 2213B: Engineering Dynamics
- MSE 2233B: Circuits and Systems
- MSE 2273B: Introduction to Heat Transfer and Fluid Mechanics
- Writ 2130G: Building Better (Communication) Bridges: Rhetoric & Professional Communication for Engineers

## Year 3

### Term A
- NMM 3415A: Applied Math for Electrical Engineering
- ECE 2277A: Digital Logic Systems
- ECE 3330A: Control Systems
- MSE 3301A: Materials Selection and Manufacturing Processes
- MSE 3310A: Electric Motors and Drives
- MSE 3381A: Kinematics and Dynamics of Machines

### Term B
- ECE 3331B: Signal Processing
- ECE 3375B: Microprocessors and Microcomputers
- MSE 3302B: Sensors and Actuators
- MSE 3360B: Finite Element Methods for Mechatronic Systems Engineering
- MSE 3380B: Machine Component Design for Mechatronic Systems

One 0.5-credit non-technical elective taken from the approved list

## Year 4

### Term A
- MSE 4401A: Robotic Manipulators
- MSE 4499: Mechatronic Design Project
- SS 2141A: Applied Probability and Statistics for Engineers
- ELI 4110F: Engineering Ethics, Sustainable Development & the Law

Two 0.5-credit technical electives

### Term B
- MSE 4499: Mechatronic Design Project
- ECE 4460B: Real Time and Embedded Systems
- ECE 4469B: Applied Control Systems

Two 0.5-credit technical electives taken from the approved list
One 0.5-credit technical elective

## NOTES:

### Non-technical electives:
Please choose 1.0 credits (one 1.0-credit or two 0.5-credit courses) from the 1000 level and one 0.5-credit course from the 2000 (or higher) level.

## Technical Electives

Some technical electives may not be offered in a given academic year. Consult the Department for accurate listing.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ECE 3380A/B</td>
<td>Advanced Digital Systems</td>
</tr>
<tr>
<td>ECE 4429A/B</td>
<td>Advanced Digital Signal Processing</td>
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<tr>
<td>ECE 4438A/B</td>
<td>Advanced Image Processing and Analysis</td>
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<tr>
<td>ECE 4445A/B</td>
<td>Introduction to Digital Image Processing</td>
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<tr>
<td>ECE 4455A/B</td>
<td>Biomedical Systems Analysis</td>
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<td>ECE 4468A/B</td>
<td>Systems Optimization</td>
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<tr>
<td>MME 4424A/B</td>
<td>Mechanical Properties of Materials</td>
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<tr>
<td>MME 4425A/B</td>
<td>Mechanical Vibrations</td>
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<tr>
<td>MME 4459A/B</td>
<td>Advanced CAE: Manufacturing Technologies</td>
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<tr>
<td>MME 4469A/B</td>
<td>Biomechanics of the Musculoskeletal System</td>
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<td>MME 4470A/B</td>
<td>Medical and Assistive Devices</td>
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<td>MME 4473A/B</td>
<td>Computer Integrated Manufacturing</td>
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<tr>
<td>MME 4480A/B</td>
<td>Advanced CAE: Reverse Engineering</td>
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<tr>
<td>MME 4482A/B</td>
<td>Fundamentals of MEMS</td>
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<tr>
<td>MME 4492A/B</td>
<td>Production Management for Engineers</td>
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