# Mechatronic Systems Engineering

**September 2020** *(for students who entered first year in September 2019)*

## Year 2

### Term A
- AM 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
- AM 2276B  Applied Mathematics for Elec. & Mech. Engineering II
- 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
- AM 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
- ES 4498F  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 non-technical electives taken from the approved list
One 0.5-credit technical elective

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

## 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.