# Mechatronic Systems Engineering and Biomedical Engineering

**September 2021** (for students who entered Year 1 in September 2020)

## Year 2

**Term A**
- NMM 2270A  
  Applied Mathematics for Engineering II
- BME 3201A  
  Fundamentals of Biomedical Engineering Design
- CS 1037A  
  Computer Science Fundamentals 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

**Term B**
- NMM 2276B  
  Introduction to Mechatronics Design
- MSE 2212B  
  Control Systems
- MSE 2233B  
  Circuits and Systems
- MSE 2273B  
  Introduction to Fluid Mechanics and Heat Transfer

## Year 3

**Term A**
- NMM 3415A  
  Applied Mathematics for Electrical Engineering
- Biol 1001A  
  Biology for Sciences I
- 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**
- Biol 1002B  
  Biology for Sciences II
- ECE 3331B  
  Signal Processing
- ECE 3375B  
  Microprocessors and Microcomputers
- MSE 3302B  
  Sensors and Actuators
- MSE 3360B  
  Finite Element Methods for Mechatronic Systems
- MSE 3380B  
  Machine Component Design for Mechatronic Systems

## Year 4

**Term A**
- Biochem 2280A  
  Biochemistry and Molecular Biology
- BME 3301A  
  Neural Systems Engineering
- ECE 4455A  
  Biomedical Instrumentation
- Physiol 2130  
  Human Physiology
- SS 2141A  
  Applied Probability and Statistics for Engineers
- One 0.5-credit Biomedical Science technical elective

**Term B**
- BME 3303B  
  Cellular Systems Engineering
- MME 4469B  
  Biomechanics of the Musculoskeletal System
- Physiol 2130  
  Human Physiology
- Two 0.5-credit Biomedical Science electives
- Two 0.5-credit Healthcare non-technical electives

## Non-technical Electives

Students are required to complete 1.5 credits of non-technical electives as part of the program.

- a) *The first 0.5 credit can come from the approved non-technical elective list ([https://www.eng.uwo.ca/undergraduate/upper-year/electives.html](https://www.eng.uwo.ca/undergraduate/upper-year/electives.html)).
- b) The remaining 1.0 credits must come from the following Healthcare Non-technical Elective list.

**Healthcare Non-technical Electives**
- Anthropology 2290F/G  
  Cultures of Health and Healing
- Economics 2169F/G  
  Economics of Health Care
- History 2195A/B  
  Epidemics in North America
- Law 3101A/B  
  Healthcare Law
- Philosophy 2071E  
  Biomedical Ethics
- Philosophy 2072F/G  
  Bioethics and Disability
- Philosophy 2715F/G  
  Health Care Ethics
- Political Science 2276F/G  
  The Politics of Health Care
- Religious Studies 2239F/G  
  Christian Bioethics
- Sociology 2179A/B  
  Promotion of Community Health
- Sociology 2180A/B  
  Development of Health Inequalities
- Women’s Studies 2244  
  Women and Health

## Technical Elective List:

Some technical electives may not be offered in a given academic year. Consult the Department for accurate listing. Courses that do not appear on the list below require special permission from the Department.

**Biomedical Sciences Electives**
- Biochemistry 3385A/B  
  Human Biochemistry
- Biochemistry 3386A/B  
  Clinical Biochemistry
- Biology 2382A/B  
  Cell Biology
- Biology 2581A/B  
  Genetics
- Chemistry 2213A/B  
  Organic Chemistry
- Chemistry 2283F/G  
  Organic Chemistry II
- Communication Sciences and Disorders 4417A/B  
  Hearing Science
- Health Science 2300A/B  
  Systemic Approach to Functional Anatomy
- Health Science 3300A/B  
  Anatomy of the Human Body
- Medical Science 4931F/G  
  Selected Topics in Medical Science
- Physiology 3140A/B  
  Cellular Physiology
- Psychology 2220A/B  
  Intro. to Behavioural & Cognitive Neuroscience

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*The official version of the academic calendar can be found at: www.westerncalendar.uwo.ca*
<table>
<thead>
<tr>
<th>Year 5</th>
<th>Biomedical Engineering (BME) Electives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Term A</strong></td>
<td><strong>CBE 4421A/B</strong></td>
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<tr>
<td>BME 4400</td>
<td>ECE 4438A/B</td>
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<tr>
<td>ECE 4445A</td>
<td>Medical Biophysics</td>
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<tr>
<td>ELI 4110F</td>
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<tr>
<td>MSE 4401A</td>
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<tr>
<td>MSE 4499</td>
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<td>ELI 3200B</td>
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<td><strong>Mechatronic Design Project</strong></td>
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<td><strong>Medical Biophysics</strong></td>
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<td>One 0.5-credit MSE technical elective</td>
<td><strong>Biomedical Engineering</strong></td>
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<tr>
<td>(<a href="https://www.eng.uwo.ca/undergraduate/upper-year/next.html">https://www.eng.uwo.ca/undergraduate/upper-year/next.html</a>)</td>
<td><strong>Medical Biophysics</strong></td>
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