The Department of Mechanical and Materials Engineering prides itself on being a leader in project-based, team-oriented and hands-on learning. Students can choose to remain in the general Mechanical Engineering Option (ME1) or select a more focused path in the Materials Option (ME2) or the Biomechanical Option (ME3). All students that successfully complete the program will graduate with a highly respected Mechanical Engineering degree.

The Queen's Mechanical Engineering curriculum provides a solid foundation in the basic engineering sciences of solid mechanics and dynamics, materials engineering, fluid mechanics, thermodynamics, and heat transfer. Building on this foundation are courses key to the discipline of mechanical engineering including machine design, manufacturing methods, and instrumentation and control.

Many students are attracted to the mechanical engineering program because it is the most broadly based of the engineering disciplines. Mechanical engineers can be found working in analysis, consulting, design and development, maintenance, management, manufacturing, research and sales. A mechanical engineer's knowledge and skills are needed in a remarkable range of industries.

Learn more: me.queensu.ca  Email mme.advisor@queensu.ca
Electives by Concentration—Although there is no formal streaming of electives in MME, the following Areas of Concentration are provided to give students some guidance.

### 2nd Year Common CORE
- APSC 200 Engineering Design and Practice
- APSC 293 Engineering Communications
- MECH 202 Math & Comp Tools for Mech I
- MECH 203 Math & Comp Tools for Mech II
- MECH 210 Circuits and Motors for Mechatronics
- MECH 213 Manufacturing Methods
- MECH 217 Measurement in Mechatronics
- MECH 221 Solid Mechanics I
- MECH 228 Kinematics and Dynamics
- MECH 230 Thermodynamics
- MECH 241 Fluid Mechanics I
- MECH 270 Materials Science and Engineering
- MECH 273 Materials Science and Engineering Lab

### 3rd Year Common CORE
- APSC 221 Engineering Economics
- MECH 302 Math & Comp Tools for Mech III
- MECH 310 Digital Systems for Mechatronics
- MECH 321 Solid Mechanics II
- MECH 323 Machine Design
- MECH 328 Dynamics and Vibration
- MECH 346 Heat Transfer
- MECH 350 Automatic Controls

### 3rd Year General Option
- MECH 330 Applied Thermodynamics II
- MECH 341 Fluid Mechanics II
- MECH 398 Mechanical Engineering Lab I
- MECH 399 Mechanical Engineering Lab II

### 3rd Year Materials Option
- MECH 370 Principles of Materials Processing
- MECH 371 Fracture Mechanics & Dislocation Theory
- MECH 396 Materials Engineering Lab I
- MECH 397 Materials Engineering Lab II

### 3rd Year Biomechanical Option
- MECH 393 Biomechanical Product Development
- MECH 394 Frontiers in Biomechanical Engineering
- MECH 398 Mechanical Engineering Lab I
- MECH 399 Mechanical Engineering Lab II

### 4th Year General and Materials Option
- MECH 460 Team Project - Conceive and Design
- MECH 464 Project Management & Communications
- Technical Electives

### 4th Year Biomechanical Option
- MECH 460 Team Project - Conceive and Design
- MECH 462 Team Project - Implement and Operate
- MECH 464 Project Management & Communications
- Technical Electives

### Aerospace Engineering
- MECH 371 Fracture Mechanics & Dislocation Theory
- MECH 437 Fuel Cell Technology
- MECH 439 Turbomachinery
- MECH 444 Computational Fluid Dynamics
- MECH 448 Compressible Fluid Flow
- MECH 465 Computer Aided Design
- MECH 480 Airplane Aerodynamics and Performance
- MECH 481 Wind Energy

### Biomechanical Engineering
- APSC 250 Biology Through an Engineering Lens
- CHEE 340 Biomedical Engineering
- MECH 370 Principles of Materials Processing
- MECH 371 Fracture Mechanics and Dislocation Theory
- MECH 478 Biomaterials
- MECH 492 Biofluids
- MECH 494 Kinematics of Human Motion
- MECH 495 Ergonomics and Design
- MECH 496 Musculoskeletal Biomechanics

### Energy and Fluid Systems
- MECH 430 Thermal Systems Design
- MECH 435 Internal Combustion Engines
- MECH 437 Fuel Cell Technology
- MECH 439 Turbomachinery
- MECH 444 Computational Fluid Dynamics
- MECH 448 Compressible Fluid Flow
- MECH 480 Airplane Aerodynamics and Performance
- MECH 481 Wind Energy

### Manufacturing Engineering
- MECH 370 Principles of Materials Processing
- MECH 455 Computer Integrated Manufacturing
- MECH 457 Additive Manufacturing
- MECH 465 Computer Aided Design
- MECH 476 Engineering of Polymers and Composite Materials
- MECH 482 Noise Control

### Materials Engineering
- MECH 470 Deformation Processing
- MECH 476 Engineering of Polymers and Composite Materials
- MECH 478 Biomaterials
- MECH 479 Nano-Structured Materials
- MECH 483 Nuclear Materials

### Mechatronics Engineering
- ELEC 271 Digital Systems
- ELEC 274 Computer Architecture
- ELEC 371 Microprocessor Systems
- MECH 420 Vibrations
- MECH 423 Introduction to Microsystems
- MECH 452 Mechatronics Engineering
- MECH 455 Computer Integrated Manufacturing
- MECH 456 Introduction to Robotics

**NOTE:** Not all courses are offered every academic year.