

Department of

Mechanical and Materials Engineering



FACULTY OF
Engineering and
Applied Science

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

Department of Mechanical and Materials Engineering

2nd Year Common CORE

APSC 200 Engineering Design and Practice
APSC 293 Engineering Communications
MECH 202 Math & Comp Tools for Mech Eng I
MECH 203 Math & Comp Tools for Mech Eng 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 I
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 Eng 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
Complementary Studies
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
Complementary Studies
Technical Electives

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.

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 424 Sustainable Product Design
MECH 455 Computer Integrated 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