Mechatronics Engineering

Mechatronics engineers work in diverse fields that include automation and control of mechanical systems. This includes, but is not limited to, advanced manufacturing systems, robotics, autonomous driving, navigation and unmanned aerial vehicles (UAV), intelligent systems, remote diagnostic and telesurgery, autonomous underwater vehicles (AUV) and remotely operated underwater vehicles (ROV), machine vision, advanced sensing and instrumentation and communications.

Graduates of the mechatronics engineering program will be able to implement academic knowledge and integrated co-operative education experiences in order to succeed in industries such as robotics, manufacturing, automotive, aerospace, computer and communication.

Co-operative Education Opportunities

Co-operative education experiences of students within the Department of Mechatronics Engineering include a wide range of industries and opportunities. Examples of what our students can provide to employers include:

Advanced manufacturing and robotics – designing robotic solutions, improving manufacturing quality, quantity, and productivity. Manage, and troubleshoot electrical, robotic and automation equipment;

Renewable energy – assessing and implementing solutions in solar power, wind energy, biofuel, hydropower and geothermal technologies;

Telecommunications and information services – assisting engineers in telecommunication and information services including high-voltage engineering, field or cable design, networking, installation and maintenance, repairs, computer networks, fiber-optic cables, electrical systems and more;

Transportation and logistics – supporting engineers with custom-designed machines, powerful computing infrastructures, complex transportation processes and equipment, and more;

Biotechnology and medical equipment design – designing and building bio-inspired machines and medical devices to improve clinical equipment, surgical procedures, rehabilitation strategies, micro-implants, prostheses and more;

Offshore oil and gas– evaluating the design of individual components or systems for exploration, integrity and reliability, automation, maintenance and operation of systems; and

Industrial – designing, fabricating and maintenance of systems and components involving industries such as paper and pulp, oil refining, chemical plant and water and sewage treatment facilities.

MEMORIAL UNIVERSITY

CO-OPERATIVE EDUCATION
Faculty of Engineering and Applied Science

Mechatronics Engineering Program Organizational Chart

Term	Fall	Winter	Spring
Year 1	**Engineering One**		
	Engineering Statics Introduction to Programming Engineering Graphics and Design Mechanisms and Electric Circuits	Physics Chemistry Mathematics English Professional Development Seminars	Work Term 1* *If students complete engineering one requirements within first two terms.
Year 2	**Academic Term 3** Engineering Professionalism I Engineering Mathematics Circuit Analysis Foundations of Programming Dynamics Production Technology	**Work Term** Work Term 1 Work Term 2	**Academic Term 4** Electronics Circuits I Microprocessors and Digital Logic Mechanics of Solids I Advanced Calculus for Engineering Mechanisms and Machines
Year 3	**Work Term** Work Term 1 Work Term 2 Work Term 3	**Academic Term 5** Thermal Sciences Electronic Circuits II Sensor and Instrumentation Probability and Statistics Mechanics of Solids II	**Work Term** Work Term 2 Work Term 3 Work Term 4
Year 4	**Academic Term 6** Mechanical Component Design I Mechanical Vibrations Computer Aided Engineering Applications Power Electronics Control Systems I	**Work Term** Work Term 3 Work Term 4 Work Term 5 (Optional)	**Academic Term 7** Fluid Mechanics I Mechatronics II Mechatronics Design Project I Two technical electives
Year 5	**Work Term** Work Term 4 Work Term 5 (Optional) Work Term 6 (Optional)	**Academic Term 8** Engineering Professionalism II Mechatronics Design Project II Three technical electives	

More information ...

Mechanical and Mechatronics Engineering Departmental Office
709-864-2708
www.mun.ca/engineering/mech

Course specific information