

SECTION 12: FACULTY OF ENGINEERING AND APPLIED SCIENCE

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12.1 Degrees offered

Bachelor of Engineering (Honours) in Automotive Engineering - BEng (Hons)

Bachelor of Engineering (Honours) in Electrical Engineering - BEng (Hons)

Bachelor of Engineering (Honours) in Manufacturing Engineering - BEng (Hons)

Bachelor of Engineering (Honours) in Mechanical Engineering - BEng (Hons)

- Comprehensive Mechanical Engineering program
- Energy Engineering option
- Mechatronics Engineering option

Bachelor of Engineering (Honours) in Software Engineering - BEng (Hons)

Bachelor of Engineering and Management (Honours) in Automotive Engineering and Management - BEng and Mgt (Hons)

Bachelor of Engineering and Management (Honours) in Electrical Engineering and Management - BEng and Mgt (Hons)

Bachelor of Engineering and Management (Honours) in Manufacturing Engineering and Management - BEng and Mgt (Hons)

Bachelor of Engineering and Management (Honours) in Mechanical Engineering and Management - BEng and Mgt (Hons)

- Comprehensive Mechanical Engineering program
- Energy Engineering option
- Mechatronics Engineering option

Bachelor of Engineering and Management (Honours) in Software Engineering and Management - BEng and Mgt (Hons)

The Faculty of Engineering and Applied Science offers a wide array of engineering programs. Designed to meet the needs of industry, UOIT's engineering programs offer a solid grounding in basic sciences and mathematics, as well as applied courses such as robotics, mechatronics, solid mechanics, controls, computer-aided design, telecommunications, power systems, software design, electronics, and artificial intelligence.

Students have the opportunity to participate in an internship program to allow them to gain experiential learning by spending 12 to 16 months working in industry following third year. Students can also participate in two to four month co-op placements.

Each student benefits from the university's mobile learning environment (section 1.2) on a campus equipped with state-of-the-art laboratories and fully networked classrooms.

Our campus is home to the Integrated Manufacturing Centre, an extensive 930 square metre, fully functional, industrial grade, flexible manufacturing facility with advanced manufacturing and automation technologies that is capable of manufacturing a variety of products.

To help meet industry's need for engineers with strong business skills, the Faculty of Engineering and Applied Science has developed several combination Engineering and Management programs. See section 12.7 for more information.

A First-Year Engineering Transition Program provides first-year engineering students, who need extra time to adapt to university, with an opportunity, before the start of second year, to complete first-year courses for which they have not obtained credit, to upgrade their grade point average and academic standing, and to improve their preparation for studies in subsequent years. See section 12.9 for more information.

The faculty's research focuses on flexible and high-performance manufacturing, automotive engineering, energy, active control of vibration and sound, nonlinear dynamics and chaos, efficient and environmentally conscious engineering, robotics, mechatronics, computer-integrated manufacturing, micro-electromechanical systems, electronics, communication, and software engineering.

engineers may find employment at major automobile, truck, bus and motorcycle companies, as well as within racing teams, parts manufacturers and research and development organizations. Maintenance and repair are additional areas of employment for graduates. In addition, the program's mechanical engineering foundation provides graduates access to companies seeking mechanical engineers. Graduates may also choose to pursue further studies for higher degrees or start their own business.

12.2.5 Professional designation

All UOIT undergraduate engineering programs are designed to meet the requirements of the Canadian Engineering Accreditation Board. Each graduate is eligible to apply for licensing as a professional engineer (PEng) in any province or territory in Canada.

12.2.6 Degree requirements

To be eligible for the BEng (Hons) degree in Automotive Engineering, students must successfully complete 138 credit hours, including all courses outlined below. For elective options, see the list below. For course descriptions, see section 16.

All courses in year one, except EDUC 1470U, are prerequisites to all non-elective courses in year three.

All courses in years one and two, except EDUC 1470U and BUSI 2000U, are prerequisites to all non-elective courses in year four.

Approved students may undertake a co-op work term at any time before completing the program, and do so by registering in the course ENGR 0999U Engineering Co-op Program.

YEAR 1

Semester 1 (15 credit hours)

EDUC 1050U Technical Communications
ENGR 3200U Engineering Graphics and Design
MATH 1010U Calculus I
MATH 1850U Linear Algebra for Engineers
PHY 1010U Physics I

Semester 2 (18 credit hours)

CHEM 1800U Chemistry for Engineers
EDUC 1470U Impact of Science and Technology on Society
ENGR 1200U Introduction to Programming for Engineers
ENVS 1000U Environmental Science
MATH 1020U Calculus II
PHY 1020U Physics II

YEAR 2

Semester 1 (18 credit hours)

BUSI 2000U Collaborative Leadership
ENGR 2220U Structure and Properties of Materials
ENGR 2260U Statics and Solid Mechanics
ENGR 2310U Concurrent Engineering and Design
ENGR 2640U Thermodynamics and Heat Transfer
MATH 2860U Differential Equations for Engineers

Semester 2 (15 credit hours)

ENGR 2430U Dynamics
ENGR 2790U Electric Circuits
ENGR 2860U Fluid Mechanics
MATH 2070U Numerical Methods
STAT 2800U Statistics and Probability for Engineers

YEAR 3

Semester 1 (18 credit hours)

ENGR 3030U Computer-Aided Design
ENGR 3190U Manufacturing and Production Processes
ENGR 3270U Kinematics and Dynamics of Machines
ENGR 3350U Control Systems
ENGR 4260U Automotive Engineering
Liberal studies elective*

Semester 2 (18 credit hours)

ENGR 3000U Automotive Component Design
ENGR 3210U Mechanical Vibrations
ENGR 3220U Machine Design
ENGR 3320U Fluid Power Systems
ENGR 3360U Engineering Economics**
ENGR 3450U Combustion and Engines

**Students in an Engineering and Management program take BUSI 1700U Introduction to Entrepreneurship, or a similar business and management course approved by the Faculty of Engineering and Applied Science, in place of ENGR 3360 Engineering Economics.

Approved students may opt to spend 12 to 16 months as an intern in an engineering setting in industry or elsewhere after year three, and do so by registering in the course ENGR 0998U Engineering Internship Program.

YEAR 4

Semester 1 (18 credit hours)

ENGR 4010U Vehicle Dynamics and Control
ENGR 4060U Automotive Structural Design and Materials Selection
ENGR 4080U Automotive Systems Design
ENGR 4210U Advanced Solid Mechanics and Stress Analysis
Engineering elective*
Liberal studies elective*

Semester 2 (18 credit hours)

ENGR 3390U Mechatronics
ENGR 3460U Industrial Ergonomics
ENGR 4045U Quality Control
ENGR 4760U Ethics, Law and Professionalism for Engineers
ENGR 4999U Design Thesis
Liberal studies elective*

*ELECTIVES

Engineering electives

Courses selected for the engineering elective must be approved by the Faculty of Engineering and Applied Science. Engineering courses from other engineering programs may be allowed as engineering electives provided students have the prerequisites and the courses extend the students' knowledge through greater depth in an advanced area, or greater breadth in a complementary field.

The following are approved courses as engineering electives:

ENGR 4160U Artificial Intelligence in Engineering
ENGR 4380U Life Cycle Engineering
ENGR 4540U Energy Efficiency, Management and Simulation

Note: Not all of the listed engineering electives will necessarily be offered each year.

Liberal studies electives

See section 12.8.

12.2.7 Automotive Engineering and Management

See section 12.7.

YEAR 4

Semester 1 (15 credit hours)

ENGR 4420U DSP Theory and Design

ENGR 4650U Computer Networks

ENGR 4750U Microwave and RF Circuits

ENGR 4920U Electrical Engineering Systems Design

Engineering elective*

Semester 2 (15 credit hours)

ENGR 4100U Modern Control Systems

ENGR 4110U Power Systems

ENGR 4760U Ethics, Law and Professionalism for Engineers

12.4.2 Admission requirements

See section 12.2.2.

12.4.3 Work placement/internship/co-op opportunities

See section 12.2.3.

12.4.4 Careers

Manufacturing is a \$300 billion business in Ontario, employing over 1,000,000 people directly and another 1,000,000 people indirectly. It plays a vital role in the Ontario economy, accounting for about 20 percent of all jobs in the province and 25 percent of Ontario's gross domestic product. Manufacturing engineering provides job opportunities in sectors ranging from aerospace and biotechnology to telecommunications, automotive, chemical, industrial and commercial product manufacturing. The types of functions that program graduates may perform in organizations are numerous and include design and development of products and processes, production planning and control, system and facility design and analysis, operations management and plant maintenance, engineering marketing and sales, economic analysis and accounting, and research and development.

Growing industrial development in Ontario coupled with current retirement rates is increasing the need for manufacturing engineers over the next decade. Graduates may also choose to pursue further studies towards higher degrees or start their own business.

12.4.5 Professional designation

See section 12.2.5

12.4.6 Degree requirements

To be eligible for the BEng (Hons) degree in Manufacturing Engineering, students must successfully complete 126 credit hours, including all courses outlined below. For elective options, see the list below. For course descriptions, see section 16.

All courses in year one, except EDUC 1470U, are prerequisites to all non-elective courses in year three.

All courses in years one and two, except EDUC 1470U and BUSI 2000U, are prerequisites to all non-elective courses in year four.

Approved students may undertake a co-op work term at any time before completing the program, and do so by registering in the course ENGR 0999U Engineering Co-op Program.

YEAR 1**Semester 1 (15 credit hours)**

EDUC 1050U Technical Communications
ENGR 3200U Engineering Graphics and Design
MATH 1010U Calculus I
MATH 1850U Linear Algebra for Engineers
PHY 1010U Physics I

Semester 2 (18 credit hours)

CHEM 1800U Chemistry for Engineers
EDUC 1470U Impact of Science and Technology on Society
ENGR 1200U Introduction to Programming for Engineers
ENVS 1000U Environmental Science
MATH 1020U Calculus II
PHY 1020U Physics II

YEAR 2

Semester 1 (18 credit hours)

BUSI 2000U Collaborative Leadership
ENGR 2220U Structure and Properties of Materials
ENGR 2260U Statics and Solid Mechanics
ENGR 2310U Concurrent Engineering and Design
ENGR 2640U Thermodynamics and Heat Transfer
MATH 2860U Differential Equations for Engineers

Semester 2 (15 credit hours)

ENGR 2430U Dynamics
ENGR 2790U Electric Circuits
ENGR 2860U Fluid Mechanics
MATH 2070U Numerical Methods
STAT 2800U Statistics and Probability for Engineers

YEAR 3

Semester 1 (15 credit hours)

ENGR 3030U Computer-Aided Design

***ELECTIVES**

Engineering electives

Courses selected for the engineering elective must be approved by the Faculty of Engineering and Applied Science. Engineering courses from other engineering programs may be allowed as engineering electives provided students have the prerequisites and the courses extend the students' knowledge through greater depth in an advanced area, or greater breadth in a complementary field. The following are approved courses as engineering electives:

ENGR 416OU Artificial Intelligence in Engineering

ENGR 426OU Automotive Engineering

ENGR 438OU Life Cycle Engineering

ENGR 454OU Energy Efficiency, Management and Simulation

Note: Not all of the listed engineering electives will necessarily be offered each year.

Liberal studies electives

See section 12.8.

12.4.7 Manufacturing Engineering and Management

See section 12.7.

12.5 Program information - Bachelor of Engineering (Honours) in Mechanical Engineering

- Comprehensive Mechanical Engineering program - BEng (Hons)
- Energy Engineering option - BEng (Hons)
- Mechatronics Engineering option - BEng (Hons)

12.5.1 General information

UOIT's four-year Mechanical Engineering program offers a Comprehensive Mechanical Engineering program, as well as Mechanical Engineering with an option in Energy Engineering or Mechatronics Engineering. These unique areas of mechanical engineering are in high demand by various industries and employers.

In the first two years, students take fundamental courses in math, sciences, and computing, as well as in

See 2.3section 12.8.

and environment. Careers are available in private enterprise as well as government and non-government organizations. Graduates may also choose to pursue further studies for higher degrees or start their own business.

12.5.5 Professional designation

See section 12.2.5

12.5.6 Degree requirements - Mechanical Engineering: Comprehensive program

To be eligible for the BEng (Hons) degree in Mechanical Engineering (Comprehensive program), students must successfully complete 126 credit hours, including all courses outlined below. For elective options, see the list below. For course descriptions, see section 16.

All courses in year one, except EDUC 1470U, are prerequisites to all non-elective courses in year three.

All courses in years one and two, except EDUC 1470U and BUSI 2000U, are prerequisites to all non-elective courses in year four.

Approved students may undertake a co-op work term at any time before completing the program, and do so by registering in the course ENGR 0999U Engineering Co-op Program.

YEAR 1

Semester 1 (15 credit hours)

EDUC 1050U Technical Communications

ENGR 3200U Engineering Graphics and Design

MATH 1010U Calculus I

YEAR 3

Semester 1 (15 credit hours)

ENGR 3030U Computer-Aided Design
ENGR 3190U Manufacturing and Production Processes
ENGR 3270U Kinematics and Dynamics of Machines
ENGR 3350U Control Systems
Liberal studies elective*

Semester 2 (15 credit hours)

ENGR 3210U Mechanical Vibrations
ENGR 3220U Machine Design
ENGR 3360U Engineering Economics**
ENGR 3390U Mechatronics
ENGR 3930U Heat Transfer

**Students in an Engineering and Management program take BUSI 1700U Introduction to Entrepreneurship, or a similar management course approved by the Faculty of Engineering and Applied Science, in place of ENGR 3360U Engineering Economics.

Approved students may opt to spend 12 to 16 months as an intern in an engineering setting in industry or elsewhere after year three, and do so by registering in the course ENGR 0998U Engineering Internship Program.

YEAR 4

Semester 1 (15 credit hours)

ENGR 4210U Advanced Solid Mechanics and Stress Analysis
ENGR 4220U Mechanical Systems Design
ENGR 4280U Robotics and Automation
Engineering elective*
Liberal studies elective*

Semester 2 (15 credit hours)

ENGR 4240U Applied Thermal and Fluids Engineering
ENGR 4250U Advanced Materials Engineering
ENGR 4760U Ethics, Law and Professionalism for Engineers
ENGR 4999U Design Thesis
Liberal studies elective*
*ELECTIVES

Engineering electives

Courses selected for the engineering elective must be approved by the Faculty of Engineering and Applied Science. Engineering courses from other engineering programs

12.5.7 Degree requirements - Mechanical Engineering: Energy Engineering option

To be eligible for the BEng (Hons) degree in Mechanical Engineering (Energy Engineering option), students must successfully complete 126 credit hours, including all courses outlined below. For elective options, see the list below. For course descriptions, see section 16.

All courses in year one, except EDUC 1470U, are prerequisites to all non-elective courses in year three.

All courses in years one and two, except EDUC 1470U and BUSI 2000U, are prerequisites to all non-elective courses in year four.

Approved students may undertake a co-op work term at any time before completing the program, and do so by registering in the course ENGR 0999U Engineering Co-op Program.

YEAR 1

Semester 1 (15 credit hours)

EDUC 1050U Technical Communications

ENGR 3200U Engineering Graphics and Design

MATH 1010U Calculus I

MATH 1850U Linear Algebra for Engineers

PHY 1010U Physics I

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Semester 2 (15 credit hours)

ENGR 332OU Fluid Power Systems
 ENGR 336OU Engineering Economics**
 ENGR 345OU Combustion and Engines
 ENGR 393OU Heat Transfer
 ENGR 424OU Applied Thermal and Fluids Engineering

**Students in an Engineering and Management program take BUSI 1700U Introduction to Entrepreneurship, or a similar business and management course approved by the Faculty of Engineering and Applied Science, in place of ENGR 336OU Engineering Economics.

Approved students may opt to spend 12 to 16 months as an intern in an engineering setting in industry or elsewhere after year three, and do so by registering in the course ENGR 0998U Engineering Internship Program.

YEAR 4**Semester 1 (15 credit hours)**

ENGR 423OU Thermofluids and Energy Systems Design
 ENGR 443OU Sustainable and Alternative Energy Technologies or
 ENGR 438OU Life Cycle Engineering***
 ENGR 441OU Fossil Fuel Energy Conversion
 Engineering elective*
 Liberal studies elective*

Semester 2 (15 credit hours)

ENGR 341OU Electromechanical Energy Conversion or
 ENGR 444OU Advanced Power Generation***
 ENGR 445OU Thermal Environmental Engineering
 ENGR 476OU Ethics, Law and Professionalism for Engineers
 ENGR 4999U Design Thesis
 Liberal studies elective*

***Not all listed choices will necessarily be offered each year.

ELECTIVES*Engineering electives**

Courses selected for the engineering elective must be approved by the Faculty of Engineering and Applied Science. Engineering courses from other engineering programs may be allowed as engineering electives provided students have the prerequisites and the courses extend the students' knowledge through greater depth in an advanced area, or greater breadth in a complementary field.

- ENGR 416OU Artificial Intelligence in Engineering
- ENGR 426OU Automotive Engineering
- ENGR 438OU Life Cycle Engineering
- ENGR 454OU Energy Efficiency, Management and Simulation

Note: Not all of the listed engineering electives will necessarily be offered each year.

Liberal studies electives

See section 12.8.

12.5.8 Degree requirements - Mechanical Engineering: Mechatronics Engineering option

To be eligible for the BEng (Hons) degree in Mechanical Engineering (Mechatronics Engineering option), students must successfully complete 126 credit hours, including all courses outlined below. For elective options, see the list below. For course descriptions, see section 16.

All courses in year one, except EDUC 1470U, are prerequisites to all non-elective courses in year three.

All courses in years one and two, except EDUC 1470U and BUSI 2000U, are prerequisites to all non-elective courses in year four.

Approved students may undertake a co-op work term at any time before completing the program, and do so by registering in the course ENGR 0999U Engineering Co-op Program.

YEAR 1

Semester 1 (15 credit hours)

EDUC 1050U Technical Communications
ENGR 3200U Engineering Graphics and Design
MATH 1010U Calculus I
MATH 1850U Linear Algebra for Engineers
PHY 1010U Physics I

Semester 2 (18 credit hours)

CHEM 1800U Chemistry for Engineers
EDUC 1470U Impact of Science and Technology on Society
ENGR 1200U Introduction to Programming for Engineers
ENVS 1000U Environmental Science
MATH 1020U Calculus II
PHY 1020U Physics II

YEAR 2

Semester 1 (18 credit hours)

BUSI 2000U Collaborative Leadership
ENGR 2220U Structure and Properties of Materials
ENGR 2260U Statics and Solid Mechanics
ENGR 2310U Concurrent Engineering and Design
ENGR 2640U Thermodynamics and Heat Transfer
MATH 2860U Differential Equations for Engineers

Semester 2 (15 credit hours)

ENGR 2430U Dynamics
ENGR 2790U Electric Circuits
ENGR 2860U Fluid Mechanics
MATH 2070U Numerical Methods
STAT 2800U Statistics and Probability for Engineers

YEAR 3

Semester 1 (15 credit hours)

ENGR 3030U Computer-Aided Design
ENGR 3190U Manufacturing and Production Processes
ENGR 3270U Kinematics and Dynamics of Machines
ENGR 3350U Control Systems
Liberal studies elective*

Semester 2 (15 credit hours)

ENGR 3320U Fluid Power Systems
ENGR 3330U Circuit Design
ENGR 3360U Engineering Economics**
ENGR 3390U Mechatronics
Liberal studies elective*

**Students in an Engineering and Management program take BUSI 1700U Introduction to Entrepreneurship, or a similar management course approved by the Faculty of Engineering and Applied Science, in place of ENGR 3360U Engineering Economics.

Approved students may opt to spend 12 to 16 months as an intern in an engineering setting in industry or elsewhere after year three, and do so by registering in the course ENGR 0998U Engineering Internship Program.

12.6.2 Admission requirements

See section 12.2.2.

12.6.3 Work placement/internship/co-op opportunities

See section 12.2.3.

12.6.4 Careers

The software industry has grown dramatically and has significantly impacted the global economy. Mechanical and electronic devices in automobiles, airplanes, communication equipment and manufacturing systems are being replaced by software

YEAR 2

Semester 1 (15 credit hours)

ENGR 2110U Discrete Mathematics for Engineers

ENGR 2200U Electrical Engineering Fundamentals

ENGR 2710U Software Design I

MATH 2860U Differential Equations for Engineers

Liberal studies elective*

Semester 2 (18 credit hours)

ENGR 2250U Introductory Electronics

ENGR 2450U Digital Systems

ENGR 2490U Software Project Management

ENGR 2720U Software Design II

STAT 2800U Statistics and Probability for Engineers

Liberal studies elective*

YEAR 3

Semester 1 (15 credit hours)

ENGR 3140U Computer Architecture

ELECTIVES*Engineering electives**

Courses selected for the engineering elective must be approved by the Faculty of Engineering and Applied Science. Engineering courses from other engineering programs may be allowed as engineering electives provided students have the prerequisites and the courses extend the students' knowledge through greater depth in an advanced area, or greater breadth in a complementary field.

The following are approved courses as engineering electives:

- ENGR 4800U Advanced Operating Systems
- ENGR 4860U Computer Graphics Design

Note: Not all of the listed engineering electives will necessarily be offered each year.

Liberal studies electives

See section 12.8.

12.6.7 Software Engineering and Management

See section 12.7.

12.7 Program information - Engineering and Management programs**12.7.1 General information**

The Engineering and Management combination programs meet the rapidly increasing need for engineers with the leadership skills to succeed in business and management. UOIT offers Engineering and Management programs in

- Automotive Engineering,
- Electrical Engineering,
- Manufacturing Engineering,
- Mechanical Engineering (Comprehensive program, or options in Energy Engineering or Mechatronics Engineering), and
- Software Engineering.

Students study the complete engineering program, and also gain critical management skills in key areas of business including accounting, finance, operations, human resources and marketing.

Students in these programs take two semesters of business and management courses for 30 credit hours after successfully completing third year. The regular fourth year of the engineering program is then taken in year five of the program. The two semesters of business and management courses may be taken at other years in the program with permission.

12.7.2 Admission requirements

See section 12.2.2.

12.7.3 Work placement/internship/co-op opportunities

See section 12.2.3.

12.7.4 Careers

Graduates of the engineering and management programs will be in high demand among employers in Ontario and beyond, working in areas of research, development, design, maintenance and operations in a variety of industries and services including transportation (especially automotive and aerospace), heavy and precision machinery, robotics, information/telecommunications, electronics, computer, energy, chemical, construction and other sectors.

With additional expertise in business and management, graduates of these programs will have a broader understanding of the business and management aspects of companies, allowing them to readily take on managerial roles or start their own businesses. Graduates may also choose to pursue further studies toward higher degrees. The courses in the business and management year may be creditable towards the course requirements of advanced degrees such as an MBA.

12.7.5 Professional designation

See section 12.2.5.

12.7.6 Program details and degree requirements

Bachelor of Engineering and Management (Honours) in Automotive Engineering and Management - BEng and Mgt (Hons)

Bachelor of Engineering and Management (Honours) in Electrical Engineering and Management - BEng and Mgt (Hons)

Bachelor of Engineering and Management (Honours) in Manufacturing Engineering and Management - BEng and Mgt (Hons)

Bachelor of Engineering and Management (Honours) in Mechanical Engineering and Management - BEng and Mgt (Hons)

- Comprehensive Mechanical Engineering program
- Energy Engineering option
- Mechatronics Engineering option

Bachelor of Engineering and Management (Honours) in Software Engineering and Management - BEng and Mgt (Hons)

The Engineering and Management programs follow the same program map as the four-year degree program for each option with two differences. First, in Year three, Semester two, students substitute ENGR 3360U Engineering Economics with BUSI 1700U Introduction to Entrepreneurship, or a similar business/management course approved by the Faculty of Engineering and Applied Science. Second, the program includes the addition of the following 10 courses in fourth year.

YEAR 4

Semester 1 (15 credit hours)

BUSI 1101U Financial Accounting

BUSI 2201U Marketing I

BUSI 2311U Organizational Behaviour

BUSI 2401U Finance I

ENGR 2340U Engineering Operations and Project Management I**

Semester 2 (15 credit hours)

BUSI 2170U Managerial Accounting

BUSI 2202U Marketing II

BUSI 2312U Introduction to Human Resources Management

BUSI 2402U Finance II

ENGR 2350U Engineering Operations and Project Management II**

Students take the fourth year of the appropriate engineering program in year five.

**In 2007-08, the courses ENGR 2340U Engineering Operations and Project Management I and ENGR 2350U Engineering Operations and Project Management II may not run and instead may be replaced by BUSI 2603U and BUSI 2604U, respectively. Students should consult the Faculty of Engineering and Applied Science to determine which courses are running.

12.8 Liberal studies electives

Complementary studies, including courses in humanities, social sciences, arts, management, engineering economics, ethics and communication, are included in engineering programs to complement the technical content of the curriculum and thereby provide graduates with a broader perspective of their role in society. Inclusion of complementary studies also satisfies several accreditation criteria of the Canadian Engineering Accreditation Board. Courses or parts of courses covering engineering economics, ethics, and the impact of technology on society, as well as courses that develop the student's capability to communicate orally, visually and in writing, are essential to the education of an engineer and therefore are included in all engineering programs at UOIT.

Liberal studies electives are included in each engineering program to ensure adequate coverage of subject matter that deals with central issues, methodologies and thought processes of the humanities and social sciences. Such material is required in the education of an engineer. Liberal studies electives can include, but are not limited to, courses dealing with cultural analysis; historical analysis; literature and the arts; knowledge, cognition, and moral reasoning; and social and behavioural analysis. Foreign language and business courses may not be used as liberal studies. Courses can be approved as liberal studies electives for students in engineering programs at UOIT by

- MLAL 1001T Introduction to Linguistics I*
- MLAL 1002T Introduction to Linguistics II*
- NAST 0100T Introduction to Native Studies*
- PHIL 0102T Introduction to Philosophical Inquiry*
- PHIL 0103T Introduction to Philosophical Inquiry*
- PHIL 0104T Informal Logic*
- PHIL 0214T Introduction to Existential Philosophy*
- PHIL 0275T Philosophy of Religion*
- PHIL 0279T Philosophy of Art*
- PHIL 1000U Philosophy: Social and Political Issues
- PHIL 1010U Ethical Reasoning and Critical Thinking
- PHIL 282T East Asian Philosophy: China and Japan*
- POSC 0100T Governance and Globalization - Politics in the 21st Century*
- POSC 1000U Political Science
- PSYC 0101T Introduction to Psychology*
- PSYC 0102T Introduction to Psychology I*
- PSYC 0103T Introduction to Psychology II*
- PSYC 1000U Introductory Psychology
- PSYC 2010U Developmental Psychology
- SOCI 0100T Introduction to Sociology*
- SOCI 1000U Introductory Sociology
- SSCI 1000U Introduction to Criminal Justice
- SSCI 1200U Introduction to Social Policy
- SSCI 2010U Criminal Law
- SSCI 2011U Customs and Immigration Law
- SSCI 2020U Issues in Diversity
- SSCI 2021U Issues in the Family
- SSCI 2050U Rights and Freedoms in the Justice System
- SSCI 2280U The Information Society
- SSCI 2800U Social Theory Foundations
- SSCI 2810U Sociological Theories of Crime
- SSCI 2820U Psychological Explanations of Criminal Behaviour
- WMST 0237T Women and the Law*
- WMST 0238T Women and the Criminal Justice System*
- WMST 212T Women and Health*

*Offered through Trent University at the University of Ontario Institute of Technology.
Other liberal studies electives will be identified in the future.

12.9 First-year Engineering Transition Program

The objective of the First-year Engineering Transition Program is to provide first-year engineering students with an opportunity, before the start of second year, to complete first-year courses for which they have not obtained credit, to upgrade their grade point average and academic standing, and to improve their preparation for studies in subsequent years.