

Electrical Engineering Technology (Industrial Controls)

The three-year Electrical Engineering Technology (Industrial Controls) program specializes in Electrical Industrial Controls. It has been developed in response to provincial and national needs with input from professionals associated with the design, installation, operation and maintenance of industrial control systems.

Industrial control systems are designed to control processes to ensure safe and predictable operation. Control Systems monitor many types of sensors, and based on design parameters, maintain the stability and correct operation of a wide range of industrial processes.

A common first year introduces academic subjects supporting the more technical areas emphasized in the second and third years. Projects and assignments reflect as closely as possible the type of work learners will encounter upon graduation.

Once in the workplace, the graduate Technologist may be responsible for designing, installing, commissioning, maintaining and troubleshooting various industrial automated systems. This may involve motor controls, industrial instrumentation, programmable logic controllers, robotics, and distributed control systems.

Learners have access to the latest technologies and learning experiences in the classrooms and laboratories. Computers provide problem-solving tools in many technical courses and are an essential component in many training applications. Training focuses on theoretical and practical skills in a broad range of industrial applications. Training focuses on theoretical and practical skills in a broad range of industrial control applications; motors, generators, variable speed drives, analog/digital electronic devices, programmable logic controllers, distributed control systems, industrial instrumentation, process control, pneumatic/hydraulic systems, and robotics.

Learners are provided the opportunity to apply the theory in real work applications. Semesters seven and eight include project development and management, followed by a three-week industry work exposure.

ACCREDITATION

This program is accredited by the Canadian Technology Accreditation Board under the mandate of the Canadian Council of Technicians and Technologists.

The academic credentials of graduates of accredited technology programs are recognized internationally by the signatories of the Sydney Accord.

Note: This program may not be suitable for applicants with restricted colour perception and motor skills.

OBJECTIVES

As engineering technologists, graduates of this program will have the knowledge and skills that will allow them to:

1. Analyze, configure and assist in the design of computerized industrial control systems (including but not limited to computer aided manufacturing systems, robotic systems, programmable logic controllers and distributed control systems).
2. Analyze, configure and assist in the design of electrical industrial control systems (included by not limited to rotating and stationary machines, power electronics, transformers and power supply systems).

3. Plan, install and commission industrial control systems using project management techniques.
4. Operate, troubleshoot and maintain industrial control systems, instrumentation systems and test equipment.
5. Apply the Canadian Electrical Code, other industry standards, best practices and workplace procedures.
6. Effectively communicate via report preparation and presentation.

CURRICULUM

Specific education in various aspects (theory and principles) of the electrical industrial control discipline including computerized and electronic control systems, robotics, instrumentation and electrical machines.

Practical education in various aspects of electrical industrial control applications including planning, analysis, design, installation, configuration, commissioning, operations, testing and maintenance.

General education consisting of Project Management Skills (theoretical and applied), Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrical and Magnetic Theory, Engineering Graphics, Engineering Technology Awareness.

Work exposure consisting of the development and management of a project followed by a three-week industry work exposure.

EMPLOYMENT OPPORTUNITIES

A graduate of the Electrical Engineering Technology (Industrial Controls) program can find employment in a broad range of industries. Typical industry employment areas include manufacturing and processing, oil and gas exploration/production, oil refining, offshore service supply, utility (power and communications), forestry (paper and wood products), provincial and federal governments, electrical sales and service, shipyards, and consulting engineering companies.

Graduates with two years of appropriate work experience may receive the designation of Professional Technologist (P. Tech).



DIPLOMA

- Three years
- September start
- Burin Campus

COURSES

CODE TITLE Hrs/wk
Semester 1 and 2 - Refer to Engineering Technology (First Year)

Semester 3 (Technical Intersession I)		Cr	Le	La
AE1240	Electronic Devices	5	4	2
CI1310	Electrical/Electronic Fabrication Techniques	3	2	3
ET2100	Electrotechnology	3	2	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 4		Cr	Le	La
CE1210	Basic Communications Networks I	4	3	3
CI1350	Basic Process Automation	2	1	2
CM2800	Oral/Written Communication Skills	3	3	0
DP1110	Digital Electronics	4	3	2
MA2100	Mathematics	5	5	0
PE1510	Electrical Rotating Machines	4	3	2

Semester 5		Cr	Le	La
AE2260	Electronic Power Devices and Circuits	5	4	2
CI2100	Pressure and Level Measurement and Control	4	3	3
DR2320	Engineering Graphics for Electrical	2	1	2
MA2101	Mathematics	5	5	0
PE1511	Electrical Stationary Machines	3	3	1
XD2300	Electromechanical Motor Controls	4	3	2

Semester 6 (Technical Intersession II)		Cr	Le	La
PR3150	Project Management and Financial Analysis	4	4	0
XD1810	Solid State Motor Controls	4	3	2
XD2500	Programmable Controllers I	4	3	2

The Course and Lab hours per week are based on a 15 week semester. In intersession, the Course and Lab hours will be adjusted to reflect the shorter semester length. Refer to course outline.

Semester 7		Cr	Le	La
CI2230	Flow and Temperature Measurement and Control	4	3	3
DP2360	Function Block Programming	4	3	3
PR2730	Capstone Project I	P/F	1	0
PE2130	Electrical Practices	5	4	2
PE2240	Hazardous Areas	3	2	2
XD2900	Programmable Controllers II	4	3	2

Semester 8		Cr	Le	La
CI2300	Advanced Control Strategies	4	3	3
FM3100	Fluid Power (Hydraulics/Pneumatics)	3	3	1
DP2340	Robotics & CAM	4	3	2
DP3240	DCS Configuration	4	3	2
MA1530	Statistics	2	2	1
PR2731	Capstone Project II	4	3	0
XD1350	Environment & Ethics	2	2	0

Semester 9		Cr	Le	La
OJ1420	Work Exposure		3	wks

Certifications: In addition to the formal semester courses listed in the program of studies, learners in the Electrical Engineering Technology (Industrial Controls) program may obtain a certificate of completion of Standard First Aid/Heart Start and Workplace Hazardous Materials Information System (WHMIS) over their three-year period of studies.