

Electronics Engineering Technology (Instrumentation)

Instrumentation involves automation in the production of various commodities. Complex process control and measurement systems such as those found in the oil and gas industries, chemical plants, food processing operations, power generating, and the pulp and paper industry require sensitive, accurate instruments. Recent technical developments in measuring and controlling process variables like pressure, temperature, flow and composition have increased the quality of products and cut operating costs. Today conventional pneumatic and electronic controls are being rapidly replaced by computer-based systems. These advances in technology demand qualified personnel trained in the field of industrial instrumentation.

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 who do not have normal colour perception.

OBJECTIVES

1. Provide students with sound training in the principles of operation and maintenance of pneumatic devices, control valves, electronic instruments, digital logic devices and computer-based process control systems.
2. Extensive theoretical and practical training in personal computer applications in instrumentation, process control systems design, distributed control system design and actual interfacing of industrial microcomputer control systems with real processes.
3. Provide students with hands-on experience using laboratory facilities designed to provide a modern industrial setting and a pilot scale version of processes found in various industries.
4. Provide students with practical experience in configuring, installing, programming, maintaining, and troubleshooting distributed control systems (DCS), industrial microprocessors, personal computers and programmable controllers (PLC).

CURRICULUM

General education consisting of Communication Skills (oral and written), Mathematics, Physics, Chemistry, Electrotechnology, Engineering Graphics, Technology Awareness and Student Success.

Specific education in the theory and application of analog and digital electronics with a specialized emphasis on Process Measurement, Process Control, Automatic and Computer Control Systems, Human Machine Interface Development and Programmable Logic Control.

Practical education through curriculum integrated labs employing industrial equipment, techniques and practices related to the installation, operation and maintenance of transducers, transmitters, measurement and control instruments, and microprocessor-based instrumentation.

EMPLOYMENT OPPORTUNITIES

Areas of employment open to graduating students include: plant maintenance, engineering design and construction, instrument/control systems technical services and sales, engineering consulting.

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

DIPLOMA

- Three years
- September start
- Ridge Road Campus (St. John's)

COURSES

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

Semester 3 (Technical Intersession I)			Cr	Le	La
AE1200	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
AE2300	Analog Electronics I		4	3	3
CI2800	Process Measurement I		3	2	2
DP1110	Digital Electronics		4	3	2
DR2410	Electronic Computer Aided Design I		2	1	2
MA2100	Mathematics		5	5	0
MP2100	Electrical Machines and Devices		4	3	3

Semester 5			Cr	Le	La
AE2301	Analog Electronics II		4	3	3
CI1100	Electronic Instrumentation		3	2	2
CI2810	Process Control I		3	2	2
CP1150	Visual Basic		4	3	3
MA2101	Mathematics		5	5	0
MP3130	Industrial Electronics and Power Systems		4	3	2

Semester 6 (Technical Intersession II)			Cr	Le	La
CE2800	Industrial Communication Systems Instrumentation (Hydraulics and Pneumatics)		2	3	3
CM2200	Oral Communications		2	2	0
PE2700	Industrial Instrumentation Practical		2	1	3

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
CG3400	Engineering Management		3	3	0
CI1500	Introduction to Process Analysis		4	3	1
CI2801	Process Measurement II		4	3	3
CI3100	Automatic Control Systems		4	3	3
DP2410	Digital/Microprocessors		4	3	2
DP3100	Programmable Logic Control		4	3	3
PR2620	Technical Thesis (Seminar)		0	0	3

Semester 8			Cr	Le	La
CI2811	Process Control II		4	3	3
CI3820	Process Analyzers		4	3	3
CI3830	Computer Control Systems		4	3	3
CE2900	Human Machine Interface Development		4	3	2
CM2300	Report Writing		2	2	0
EC1700	Engineering Economics		2	2	0
PR2632	Technical Thesis		3	0	3