Instrumentation and Control Technician

MACPHAIL SCHOOL OF ENERGY

Overview

Learn how to install, repair and maintain measuring and control devices used in industrial and commercial processing.

On the job, you'll refer to manuals to figure out test and maintenance procedures. You'll work with pneumatic, electronic and microcomputer devices to measure and control pressure, flow, temperature and more.

Additionally, you'll consult with and advise process operators, repair, maintain and replace defective parts and conduct risk assessments per manufacturers' specifications.

You'll also work with engineers to install and maintain instruments and equipment, consulting with them to interpret and apply CSA, ISA, and API installation standards and best practices.

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Traits, skills and aptitudes

Instrumentation and control technicians are independent and motivated. You'll succeed in this line of work if you enjoy problem-solving, logical reasoning and being detail-oriented.

To succeed in this trade, you should:

- enjoy math, science and mechanics
- be interested in new technologies
- be comfortable working independently
- be creative and innovative
- enjoy finding solutions to challenges
- take pride in high-quality work
- communicate well with other people
- be committed to maintaining health and safety procedures in the workplace.

Credentials

Upon successfully completing the required working hours and technical training periods, you'll be awarded an advanced diploma in addition to journeyperson status by Alberta's Apprenticeship and Industry Training.

This is a Red Seal Endorsed trade — a recognizable standard that allows tradespeople to work across Canada.

Admission requirements

To enter an apprenticeship, you must have the educational qualifications required or recommended education for the trade to which you apply.

Entrance requirements are monitored and set by Alberta Apprenticeship and Industry Training.

Minimum requirements

Successful completion of the following courses:

- English 20-2
- Math 30-3
- Physics 30 and Chemistry 30

OR

A pass mark in all five Canadian General Educational Development (GED) tests or Canadian Adult Education Credential (CAEC) tests.

OR

Alberta Apprenticeship and Industry Training Entrance Exam

Costs

2026/27 tuition and fees

The following costs are effective as of July 1, 2026.

Period	Number of weeks	Tuition fees	Additional fees	Total
1	8	$1,256	$357.50	$1,613.50
2	8	$1,256	$357.50	$1,613.50
3	10	$1,570	$377	$1,947.00
4	10	$1,570	$377	$1,947
			Total cost:	**$7,121**

The estimated total cost of tuition and fees in each period of technical training.

Books and Supplies

This is a bring-your-own-device program with standard computer hardware and software requirements. See the specific requirements on our computers and laptops page.

Books or modules, along with other items for classes, are approximately $600 per period.

We recommend you don't purchase books or modules ahead of time as they might be outdated by the time you attend classes, and they cannot be returned to the Bookstore.

Personal protective equipment (PPE) will be required for the program, which may be an additional cost to apprentices.