Manitoba Institute of Trades and Technology

Program Information

Electronics Technician

2024/2025

Program Overview	The Electronics Technician program is designed for individuals who enjoy working with technology and solving complex problems. This program offers a combination of theoretical knowledge and practical skills in electronics, preparing students for careers in a variety of industries. Throughout the program, students will gain proficiency in circuit design, testing, and troubleshooting, ensuring they are equipped for real-world applications.
Area of Study	Design & Manufacturing Technologies
Credential	Certificate
Program Length	1 Year | Full time (10 months)
Delivery	In-classroom
Work-Integrated Learning	4-week practicum
Open to International Students	Yes
CIP Code	47.0105

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Career Outcomes

- Electrical Technician
- Assembler
- Electronics Consultant
- Communication Companies
- Manufacturing Facilities
- Electrical Utility Companies
- Construction Sites
- Independent Contractors
- Government Agencies

All Courses

Course Name	Description	Hours
DC Circuit Fundamentals (ET-100)	Gain foundational knowledge of electronics technology by studying DC circuit theory. Topics include instrumentation, measurement, component recognition, value determination, and fabrication. Students will learn Ohm's Law as it relates to series, parallel, and combination circuits.	105 hours
AC Circuit Fundamentals (ET-110)	Build on the electrical theory learned in Introduction to Electronics Technology. This course focuses on AC waveforms and how they interact with reactive components in RL, RC, and RCL series and parallel circuits. Students will also explore frequency-sensitive circuits.	105 hours
Introduction to Analog Devices and Applications (ET-120)	Learn about semiconductor materials and device construction, and how they affect current flow. Students will also study low-power signal devices, such as diodes	105 hours

	and transistors, and how they are used in simple circuits.	
Advanced Analog Devices and Applications (ET-130)	This course builds on the semiconductor theory learned in Semiconductor Technology and Signal Devices. It focuses on power devices, such as thyristors, power transistors, and MOSFETs, as well as their applications in various electronic systems.	105 hours
Introduction to Digital Devices and Basic Logic (ET-140)	Explore the branch of electronics technology dealing with binary states. Learn the difference between analog and digital signals, the number systems used in digital systems, and basic logic gates. Students will also learn how to combine these gates to solve digital logic problems.	105 hours
Advanced Digital Devices and Systems (ET-150)	This course builds on the theory and skills developed in Introduction to Digital Devices and Basic Logic. Focus on advanced digital functions such as multiplexers, decoders, counters, and displays, along with their applications in real-world systems.	105 hours
Advanced Electronics Applications (ET-160)	Study advanced topics in electronics, including three-phase power circuits, half-wave and full-wave rectifier circuits, industrial control devices, AC motors, motor controls, and low voltage signal systems. The course also covers the application of basic programmable logic controllers.	105 hours
Introduction to Microcontrollers	Learn about programmable devices in digital logic. Students will study how to	59 hours

and Applications (ET-170)	read information from sensors and use microprocessor functions to control outputs. Basic programming control structures are introduced for writing microcontroller programs.	
Electronic Fabrication Techniques (ET-180)	This course covers the design and fabrication process of electronic devices. Students will gain hands-on experience with basic soldering, de-soldering, and troubleshooting techniques to build a power supply prototype using machine tools.	59 hours
Electronics Technician Practicum (ET-190)	The Work Practicum is the capstone component of this program, providing industry-relevant experience. This unpaid, work-integrated learning component allows students to apply technical skills in real-world environments while enhancing employability and job readiness.	160 hours