Manitoba Institute of Trades and Technology

Program Information

Electrical Applications

2024/2025

Program Overview	The Electrical Applications program equips students with the knowledge and skills to install, operate, troubleshoot, service, and repair electrical equipment in residential, commercial, and industrial settings. The curriculum covers motors, generators, transformers, electrical systems, and various control equipment. Graduates who meet specific criteria may receive credit toward Apprenticeship Manitoba Level 1 and 2.
Area of Study	Skilled Trades
Credential	Certificate
Program Length	1 Year | Full time (10 months)
Delivery	In-classroom
Work-Integrated Learning	No
Open to International Students	Yes
CIP Code	46.0302

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Career Outcomes

- Construction Electrician
- Factory Worker
- Institutional Electrician
- Cable Company Worker
- Security System Employee
- Entrepreneur

All Courses

Course Name	Description	Hours
DC Theory and Application (EL-210)	This course introduces students to workplace health and safety, WHMIS regulations, and their applications in the electrical trade. Students assemble and analyze DC circuits, exploring voltage, current, resistance, and power in series, parallel, and combination circuits.	160 hours
AC Theory and Application (EL-220)	This course focuses on the assembly and analysis of AC circuits. Students examine voltage, current, reactance, impedance, and power in basic series and parallel circuits, applying fundamental AC electrical concepts.	160 hours
Electronic Concepts and Applications (EL-230)	This course introduces students to the connection, testing, and analysis of electronic components and circuits. Students develop foundational skills in troubleshooting and applying electronic principles to electrical systems.	65 hours

DC Machines and Control Systems (EL-240)	This course provides an overview of DC generators, motors, and control systems. Students explore their applications in the electrical field, focusing on functionality, operation, and industry use.	120 hours
Level 1 Practical Applications: Residential Wiring (EL-250)	This course covers the installation of residential wiring and electrical equipment following Canadian Electrical Code regulations. Students apply theoretical knowledge in a hands-on environment.	65 hours
Canadian Electrical Code Level 1 (EL-260)	This course introduces students to the Canadian Electrical Code, focusing on regulations relevant to Level 1 of the construction electrical apprenticeship. Students develop essential code interpretation skills for safe and compliant electrical work.	120 hours
Canadian Electrical Code Level 2 (EL-270)	Building on Level 1, this course deepens students' understanding of the Canadian Electrical Code as it applies to Level 2 of the construction electrical apprenticeship. Students analyze and interpret complex code requirements.	120 hours
Level 2 Practical Applications: Commercial Wiring (EL-280)	This course focuses on the installation of commercial wiring and electrical systems following Canadian Electrical Code regulations. Students gain hands-on experience with commercial electrical setups.	42 hours
Math and Science (EL-290)	This course provides students with the mathematical and scientific principles required for solving technical problems in the electrical field. Topics include	82 hours

	calculations, measurements, and scientific concepts applied to electrical work.	
Communications and Computers (EL-300)	This course develops students' communication, presentation, and computer skills for the workplace. Students practice job readiness skills, including résumé writing and interview preparation, while learning to use MS PowerPoint, MS Excel, and online resources for industry applications.	64 hours