# ILM Publishing Report 2022: Electrician

## Quality Assurance (QA) Maintenance Summary

The ILM office held a total of 23 QA Meetings in the 2021/22 academic year, which included over 90 attendees from 8 different institutions across Alberta. With support and feedback from these individuals, we were able to address and resolve over 700 maintenance comments across all ILM trades! We want to acknowledge each of the Programs and instructors that dedicated their time and effort to supporting this important maintenance work and express our gratitude for your support in our continuous improvement of ILM content for students and learners.

For Electrician there were 19 modules updated due to QA meeting maintenance, and a total of 36 maintenance comments were addressed. As part of this year’s ILM maintenance process, there were also a number of images and graphics within the ILMs reverted to a previous version. After significant consultation/feedback with Programs and stakeholders, the quality and accuracy of images and graphics from previous ILM versions was identified as being important for student learning and success. The *Maintenance Updates* column in the Module List section below indicates modules where this has occurred.

For more information on the ILM Comments and Maintenance process, please visit our website:

* ILM Maintenance: <https://ilm.nait.ca/ilm-maintenance>
* Comments: <https://ilm.nait.ca/comments>

QA Maintenance meeting dates for the 2022/23 academic year will be finalized and shared in September 2022.

## Content Development Projects

The Electrician Code Update project is complete. The goal of this development project was to update ILM content to align with the newly released Canadian Electrical Code (CE Code), updated by the Canadian Standards Association in 2021. Many of the Electrician ILMs reference these codes and needed to be reviewed to ensure all references to code numbers and content were still accurate and relevant. Special thanks and kudos to Programs across Alberta for their collaboration and expertise in updating this content!

There were 66 modules across all four Periods that were in-scope and updated as part of this project. They are noted in the Module Redevelopment column in the tables below.[[1]](#footnote-2)

As part of our commitment to continuous improvement, we encourage you to utilize the above ILM Comments page to provide feedback on the new first period modules.

## Brand Refresh

The 2022 ILM publication includes a brand refresh for all (English) ILM files. This brand refresh only impacts the style/format of ILM products. It does not impact the content within the ILMs. Changes for each ILM product type include updates to the front and back covers of ILM files, ILM Graphics PowerPoint template, and both student and instructor Digital ILM templates.

## Module List

\*Maintenance updates include image/graphic updates, addressing of website comments, and changes identified at annual Quality Assurance meetings.

### First Period

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Module Number** | **Module Name** | **New Version[[2]](#footnote-3)** | **Maintenance Updates\*** | **Module Re-development** | **Rebrand Updates**  |
| 030101a | Safety Legislation Regulations and Industry Policy in the Trades | 24.0 |  | ü | ü |
| 030101b | Climbing Lifting Rigging and Hoisting | 24.0 |  |  | ü |
| 030101c | Hazardous Materials and Fire Protection | 24.0 | ü | ü | ü |
| 030101d | Electrical Apprenticeship Training Program Orientation | 24.0 |  | ü | ü |
| 030101e | Electrical Safety | 24.0 | ü | ü | ü |
| 030102a | First Period Math Applications | 24.0 |  |  | ü |
| 030102b | Current Voltage and Resistance | 24.0 |  |  | ü |
| 030102c | Series Resistive Circuits | 24.0 | ü |  | ü |
| 030102d | Parallel Resistive Circuits | 24.0 | ü |  | ü |
| 030102e | Series-Parallel Resistive Circuits | 24.0 | ü |  | ü |
| 030102f | Edison 3-Wire Distribution System | 24.0 |  |  | ü |
| 030102g | Work, Energy, Power, and Efficiency | 24.0 |  |  | ü |
| 030103a | Methods of Producing EMF | 24.0 |  |  | ü |
| 030103b | Cells and Batteries | 24.0 |  |  | ü |
| 030103c | Magnetism and Electromagnetism | 24.0 |  |  | ü |
| 030103d | Generators | 24.0 |  |  | ü |
| 030104a | Meters | 24.0 |  |  | ü |
| 030104b | Conductors | 24.0 |  |  | ü |
| 030104c | Splicing and Terminating (Low Voltage) | 24.0 | ü |  | ü |
| 030104d | Resistors | 24.0 |  |  | ü |
| 030104e | Switching Circuits | 24.0 | ü | ü | ü |
| 030104f | Relays and Controls | 24.0 |  |  | ü |
| 030104g | Extra-Low Voltage Switching (0 - 30 V) | 24.0 | ü |  | ü |
| 030104h | Alarm Systems and Smoke Alarms | 24.0 | ü | ü | ü |
| 030105a | Introduction to Code | 24.0 |  | ü | ü |
| 030105b | General Rules - Section 2 | 24.0 |  | ü | ü |
| 030105c | "Conductor Material and Sizes | 24.0 |  | ü | ü |
| 030105d | Section 4" | 24.0 |  | ü | ü |
| 030105e | Service and Grounding Requirements | 24.0 | ü | ü | ü |
| 030105f | Service Feeders and Branch Circuits - Section 8 | 24.0 |  | ü | ü |
| 030105g | Wiring Methods - Section 12 | 24.0 |  | ü | ü |
| 030105h | Installation of Electrical Equipment - Section 26 | 24.0 | ü | ü | ü |
| 030105i | Installation of Lighting Equipment - Section 30 | 24.0 | ü | ü | ü |
| 030105j | Class I and Class 2 Circuits - Section 16 | 24.0 |  | ü | ü |
| 030105k | Orthographic Projection and Diagrams | 24.0 |  | ü | ü |
| 030105l | Drawings | 24.0 | ü | ü | ü |

### Second Period

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Module Number** | **Module Name** | **New Version**2 | **Maintenance Updates\*** | **Module Re-development** | **Rebrand Updates**  |
| 030201a | Second Period Math Applications | 24.0 |  |  | ü |
| 030201b | Fundamentals of Alternating Current | 24.0 | ü |  | ü |
| 030201c | Principles of ac Circuits | 24.0 |  |  | ü |
| 030201d | Inductance and Inductive Reactance | 24.0 |  |  | ü |
| 030201e | Capacitance and Capacitive Reactance | 24.0 |  |  | ü |
| 030201f | Power Relationships | 24.0 |  |  | ü |
| 030202a | Series ac Circuits | 24.0 |  |  | ü |
| 030202b | Series Resistive-Reactive Circuits | 24.0 |  |  | ü |
| 030202c | Series Resistor, Inductor, and Capacitor (RLC) Circuits | 24.0 |  |  | ü |
| 030202d | Introduction to Parallel ac Circuits | 24.0 |  |  | ü |
| 030202e | Parallel Resistor, Inductor, and Capacitor (RLC) Circuits | 24.0 |  |  | ü |
| 030202f | Power Factor Correction Single-Phase | 24.0 |  |  | ü |
| 030203a | Principles of Automatic Heating and Cooling Controls | 24.0 |  | ü | ü |
| 030203b | Temperature Sensing and Control Devices | 24.0 |  |  | ü |
| 030203c | Basic Gas-Fired Forced-Air Heating Systems | 24.0 |  |  | ü |
| 030203d | Efficient Gas-Fired, Forced-Air Heating Systems | 24.0 |  |  | ü |
| 030203e | Basic Hot Water Heating Systems | 24.0 |  |  | ü |
| 030203f | Cooling Systems | 24.0 |  |  | ü |
| 030203g | HVAC Rooftop Units | 24.0 |  |  | ü |
| 030203h | Heat Trace | 24.0 |  |  | ü |
| 030204a | Electrical Control Drawings | 24.0 |  |  | ü |
| 030204b | Relays and Contactors | 24.0 | ü |  | ü |
| 030204c | Timers and Smart Relays | 24.0 | ü |  | ü |
| 030204d | Protection Devices | 24.0 |  | ü | ü |
| 030204e | Motor Starters | 24.0 |  |  | ü |
| 030204f | Diagram Conversion | 24.0 | ü |  | ü |
| 030204g | Single Motor Control/Pilot Devices and Symbols | 24.0 |  |  | ü |
| 030204h | Reversing Motor Starters | 24.0 |  |  | ü |
| 030205a | Service Conductor Ampacity for a Single Dwelling | 24.0 | ü | ü | ü |
| 030205b | Services and Service Equipment for a Single Dwelling | 24.0 | ü | ü | ü |
| 030205c | Feeder and Branch Distribution Requirements for a Single Dwelling | 24.0 | ü | ü | ü |
| 030205d | Grounding Requirements for a Single Dwelling | 24.0 |  | ü | ü |
| 030205e | Service Ampacity for Apartments and Similar Buildings | 24.0 |  | ü | ü |
| 030205f | Service Protection and Control for Apartments and Similar Buildings | 24.0 | ü | ü | ü |
| 030205g | Capacitor Bank Installations | 24.0 | ü | ü | ü |
| 030205h | Pools, Mobile Home and Temporary Wiring - Sections 68, 72 and 76 | 24.0 | ü | ü | ü |
| 030205i | Diagrams | 24.0 | ü | ü | ü |
| 030205j | Specifications | 24.0 | ü | ü | ü |
| 030205k | Drawings and Plans | 24.0 | ü | ü | ü |

### Third Period

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Module Number** | **Module Name** | **New Version**2 | **Maintenance Updates\*** | **Module Re-development** | **Rebrand Updates**  |
| 030301a | Third Period Math Applications | 24.0 | ü |  | ü |
| 030301b | Three-Phase Systems | 24.0 |  |  | ü |
| 030301c | Three-Phase Wye Connection | 24.0 |  |  | ü |
| 030301d | Three-Phase Delta Connection | 24.0 | ü | ü | ü |
| 030301e | Three-Phase Delta Wye Connection | 24.0 |  | ü | ü |
| 030301f | Three-Phase Power Calculations | 24.0 | ü |  | ü |
| 030301g | Three-Phase Measurement for Power Calculations | 24.0 |  |  | ü |
| 030301h | Three-Phase Power Factor Correction | 24.0 |  |  | ü |
| 030302a | Introduction to Three-Phase Induction Motors | 24.0 | ü |  | ü |
| 030302b | Operation of Three-Phase Induction Motors | 24.0 | ü |  | ü |
| 030302c | Three-Phase Motors and Starters | 24.0 | ü |  | ü |
| 030302d | Introduction to Variable Frequency Drives | 24.0 |  |  | ü |
| 030303a | Introduction to Transformers | 24.0 |  |  | ü |
| 030303b | Transformer Operation (Single-Phase Transformers) | 24.0 |  |  | ü |
| 030303c | Autotransformers | 24.0 |  |  | ü |
| 030303d | Transformer Connections (Three-Phase Transformers) | 24.0 |  | ü | ü |
| 030303e | Energy Measurement | 24.0 | ü | ü | ü |
| 030304a | Grounding and Bonding - Section 10 | 24.0 | ü | ü | ü |
| 030304b | Protection and Control - Section 14 | 24.0 |  | ü | ü |
| 030304c | Installation of Equipment - Section 26 | 24.0 | ü | ü | ü |
| 030304d | Individual Motors | 24.0 | ü | ü | ü |
| 030304e | Motor Banks | 24.0 | ü | ü | ü |
| 030304f | Hazardous Locations - Section 18 | 24.0 | ü | ü | ü |
| 030304g | Class I Locations - Section 20 | 24.0 | ü | ü | ü |
| 030304h | Corrosive and Wet Locations - Section 22 | 24.0 | ü | ü | ü |

### Fourth Period

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Module Number** | **Module Name** | **New Version**2 | **Maintenance Updates\*** | **Module Re-development** | **Rebrand Updates**  |
| 030401a | Fourth Period Math Applications | 24.0 | ü |  | ü |
| 030401b | Alternators and Generators | 24.0 | ü |  | ü |
| 030401c | Direct Current (dc) Machines | 24.0 | ü |  | ü |
| 030401d | Alternators | 24.0 | ü |  | ü |
| 030401e | Synchronous Motors | 24.0 |  |  | ü |
| 030401f | Single-Phase Motors | 24.0 | ü |  | ü |
| 030402a | Drawings and Basic Circuits | 24.0 | ü |  | ü |
| 030402b | Diagram Conversion | 24.0 | ü |  | ü |
| 030402c | Controls and Switching Circuits | 24.0 | ü |  | ü |
| 030402d | Special Control Circuits | 24.0 | ü | ü | ü |
| 030402e | Programmable Logic Controllers | 24.0 | ü |  | ü |
| 030403a | Fire Detection and Alarm Systems | 24.0 |  | ü | ü |
| 030403b | Fire Detection and Alarm System Regulations | 24.0 |  | ü | ü |
| 030403c | Fire Alarm System Occupancy Classifications | 24.0 |  | ü | ü |
| 030403d | Wiring Procedures for Fire Alarm Systems | 24.0 |  | ü | ü |
| 030403e | Arc Flash and Electrical Safety | 24.0 | ü | ü | ü |
| 030403f | Interprovincial Standards Red Seal Program | 24.0 | ü |  | ü |
| 030403g | Alberta’s Industry Network | 24.0 | ü |  | ü |
| 030403h | Workplace Coaching Skills | 24.0 | ü |  | ü |
| 030404aA | Rectifiers and Battery Chargers - Part A | 24.0 |  |  | ü |
| 030404aB | Rectifiers and Battery Chargers - Part B | 24.0 |  |  | ü |
| 030404b | Welders and Filters | 24.0 | ü |  | ü |
| 030404c | Controlled Rectifiers | 24.0 | ü |  | ü |
| 030404d | Uninterruptable Power Supply Systems | 24.0 |  |  | ü |
| 030404e | Variable Frequency Drives | 24.0 | ü |  | ü |
| 030404f | Cathodic Protection | 24.0 | ü | ü | ü |
| 030404g | Renewable Energy Systems | 24.0 | ü | ü | ü |
| 030405a | Conductors - Section 4 | 24.0 | ü | ü | ü |
| 030405b | Grounding and Bonding and Distribution Layout - Section 10 | 24.0 | ü | ü | ü |
| 030405c | Wiring Methods - Section 12 | 24.0 |  | ü | ü |
| 030405d | Protection and Control - Section 14 | 24.0 |  | ü | ü |
| 030405e | Lighting, Emergency Systems and Unit Equipment - Sections 30 and 46 | 24.0 | ü | ü | ü |
| 030405f | Communication Systems and Cabling - Sections 54, 56 and 60 | 24.0 | ü | ü | ü |
| 030405g | Electrical Requirements for a Single Dwelling - Section 8 | 24.0 | ü | ü | ü |
| 030405h | Electrical Requirements for Apartments - Section 8 | 24.0 | ü | ü | ü |
| 030405i | Individual Motors andMotor Banks - Section 28 | 24.0 |  | ü | ü |
| 030405j | Installation of Capacitors and Transformers - Section 26 | 24.0 | ü | ü | ü |
| 030405k | Electric Welders - Section 42 | 24.0 | ü | ü | ü |
| 030405l | Hazardous and Special Locations - Sections 18, 20, and 22 | 24.0 | ü | ü | ü |
| 030405m | Electrical Installations in Patient Care Areas - Section 24 | 24.0 | ü | ü | ü |
| 030405n | High-Voltage - Section 36 | 24.0 | ü | ü | ü |
| 030405o | Occupational Applications | 24.0 | ü | ü | ü |

### Additional Modules

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Module Number** | **Module Name** | **New Version**2 | **Maintenance Updates\*** | **Module Re-development** | **Rebrand Updates**  |
| A030101b | Circuit Fundamentals | 24.0 | ü |  | ü |
| A030303d | Three-Phase Motor Principles | 24.0 | ü |  | ü |
| A030402b | Direct Current Machines | 24.0 | ü |  | ü |
| A030402c | Direct Current Machines | 24.0 | ü |  | ü |
| A030402d | Direct Current Machines | 24.0 | ü |  | ü |
| A030402e | Direct Current Machines | 24.0 | ü |  | ü |

1. Modules without references to CE Code were not in-scope and their content was not updated as part of this project. [↑](#footnote-ref-2)
2. ILMs are updated on a module-by-module basis; not all modules in a Period are updated within the same cycle, and a combination of different version numbers within a Period is normal. **However, every module has received a new version number for the 2022 publishing cycle to reflect their rebranding.** The most current, published version of each module will always be the version that is posted on the [Order Modules](https://ilm.nait.ca/order-modules) page of the ILM website. [↑](#footnote-ref-3)