# ILM Publishing Report 2022: Refrigeration and Air Conditioning Mechanic

## 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 Refrigeration and Air Conditioning Mechanic, there were 13 modules updated due to QA meeting maintenance, and a total of 25 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.

## 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[[1]](#footnote-2)** | **Maintenance Updates\*** | **Rebrand Updates**  |
| 140101a | Safety Legislation, Regulations & Industry Policy in the Trades | 24.0 | ü | ü |
| 140101b | Climbing, Lifting, Rigging, and Hoisting | 24.0 | ü | ü |
| 140101c | Hazardous Materials and Fire Protection | 24.0 | ü | ü |
| 140101d | Apprenticeship Training Program | 24.0 | ü | ü |
| 140101e | Tools and Instruments | 24.0 |  | ü |
| 140101f | Ladders, Scaffolds, and Lifts | 24.0 | ü | ü |
| 140101g | Rigging and Hoisting Equipment | 24.0 | ü | ü |
| 140101h | Relevant Codes | 24.0 |  | ü |
| 140101i | Customer Relations | 24.0 | ü | ü |
| 140101j | Introduction to Drawing Interpretation | 24.0 | ü | ü |
| 140101k | Pipe Working Skills, Soldering and Brazing | 24.0 |  | ü |
| 140101l | Materials and Fastening Devices | 24.0 | ü | ü |
| 140102a | Refrigeration Principles | 24.0 | ü | ü |
| 140102b | Vapour Compression Cycle | 24.0 |  | ü |
| 140102c | Introduction to Refrigeration Enthalpy and Gas Laws | 24.0 | ü | ü |
| 140102d | Air Properties and Airflow Designs | 24.0 | ü | ü |
| 140102e | Air Handling Systems and Accessories | 24.0 |  | ü |
| 140102f | Air Filtration | 24.0 | ü | ü |
| 140102g | Refrigeration and Air Conditioning Relevant Codes | 24.0 |  | ü |
| 140102h | Introduction to Valve Design and Functions | 24.0 | ü | ü |
| 140102i | Refrigerant and Oil Handling | 24.0 | ü | ü |
| 140102j | Introduction to Gasfitting Fundamentals | 24.0 | ü | ü |
| 140102k | Properties of Gas and Principles of Combustion | 24.0 | ü | ü |
| 140102lA | Introduction to Gasfitting Codes and Regulations - Part A | 24.0 | ü | ü |
| 140102lB | Introduction to Gasfitting Codes and Regulations - Part B | 24.0 | ü | ü |
| 140103a | Introduction to Electrical, Safety Connections and Meters | 24.0 | ü | ü |
| 140103b | Current, Voltage, and Resistance | 24.0 | ü | ü |
| 140103c | Series Resistive Circuits | 24.0 | ü | ü |
| 140103d | Parallel Resistive Circuits | 24.0 | ü | ü |
| 140103e | Series-Parallel Resistive Circuits | 24.0 | ü | ü |
| 140103f | Methods of Producing Electro Motive Force (EMF) and Magnetism | 24.0 | ü | ü |
| 140103g | Fundamentals of Alternating Current | 24.0 | ü | ü |
| 140103h | Arc Flash and Electrical Safety | 24.0 | ü | ü |
| 140104a | Introduction to Control Systems | 24.0 | ü | ü |
| 140104b | Control Components | 24.0 | ü | ü |
| 140104c | Refrigeration Control Circuits | 24.0 | ü | ü |
| 140104d | Heating Ventilating Air Conditioning (HVAC) Control Circuits | 24.0 | ü | ü |
| 140104e | Building Systems Controls | 24.0 | ü | ü |

### Second Period

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Module Number** | **Module Name** | **New Version**1 | **Maintenance Updates\*** | **Rebrand Updates**  |
| 140201a | Evaporator Feed Controls and Refrigeration Effect | 24.0 | ü | ü |
| 140201b | Automatic Flow Controls and Applications | 24.0 | ü | ü |
| 140201c | Refrigeration Accessories | 24.0 | ü | ü |
| 140201d | Compressors | 24.0 | ü | ü |
| 140201e | Evaporators and Condensers | 24.0 | ü | ü |
| 140201f | Evaporative Condensers and Cooling Towers | 24.0 | ü | ü |
| 140201g | System Install and Commissioning | 24.0 | ü | ü |
| 140201h | System Calculation and Analysis | 24.0 | ü | ü |
| 140201i | Retrofitting and Conversions | 24.0 | ü | ü |
| 140201j | Split Systems | 24.0 | ü | ü |
| 140202a | Natural Draft Burner Adjustments and Gas Consumption | 24.0 | ü | ü |
| 140202b | Pilots, Pilot Burners, Thermocouples and Thermopiles | 24.0 | ü | ü |
| 140202c | Pressure Regulators and Orifices | 24.0 | ü | ü |
| 140202d | Introduction to Flues, Draft Hoods and Vent Connections | 24.0 | ü | ü |
| 140202e | Single Line Drawings | 24.0 | ü | ü |
| 140202f | Heating with Alternative Methods | 24.0 | ü | ü |
| 140203a | Principles of Automatic Heating and Cooling Controls | 24.0 | ü | ü |
| 140203b | Temperature-Sensing and Control Devices | 24.0 | ü | ü |
| 140203c | Basic Gas-Fired, Forced-Air Heating Systems | 24.0 | ü | ü |
| 140203d | Mid/High-Efficiency/Gas-Fired/Forced-Air Heating Systems | 24.0 | ü | ü |
| 140203e | Basic Hot Water Heating Systems | 24.0 | ü | ü |
| 140203f | HVAC Units | 24.0 | ü | ü |
| 140204a | Single-Phase Transformers | 24.0 | ü | ü |
| 140204b | Single-Phase Motors | 24.0 | ü | ü |
| 140204c | Compressors and Electrical Circuit Components | 24.0 | ü | ü |
| 140204d | Three-Phase Fundamentals | 24.0 | ü | ü |
| 140204e | Troubleshooting Electrical Problems | 24.0 | ü | ü |
| 140204f | Introduction to Canadian Electrical Code | 24.0 | ü | ü |
| 140204g | Class 1 and Class 2 Circuits | 24.0 | ü | ü |

### Third Period

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| --- | --- | --- | --- | --- |
| **Module Number** | **Module Name** | **New Version**1 | **Maintenance Updates\*** | **Rebrand Updates**  |
| 140301aA | Refrigeration Load Calculations and Design - Part A | 24.0 | ü | ü |
| 140301aB | Refrigeration Load Calculations and Design - Part B | 24.0 | ü | ü |
| 140301b | Piping Design and Installation Practices | 24.0 | ü | ü |
| 140301c | Defrosting Methods Circuits and Controls | 24.0 | ü | ü |
| 140301d | Troubleshooting of Refrigeration and HVAC Systems | 24.0 | ü | ü |
| 140301f | Industrial Refrigeration Systems | 24.0 | ü | ü |
| 140301g | Codes Related to Refrigeration and Air Conditioning Installations | 24.0 | ü | ü |
| 140302a | Electronic Ignition Systems | 24.0 | ü | ü |
| 140302bA | Natural and Fan Assisted Draft Appliances - Part A | 24.0 | ü | ü |
| 140302bB | Natural and Fan Assisted Draft Appliances - Part B | 24.0 | ü | ü |
| 140302c | Introduction to Make-Up Air | 24.0 | ü | ü |
| 140303a | Three-Phase Motors | 24.0 | ü | ü |
| 140303b | Motor Installations | 24.0 | ü | ü |
| 140303c | Variable Speed Drives (VSD) | 24.0 | ü | ü |
| 140303d | Diagrams | 24.0 | ü | ü |
| 140304a | HVAC Load Calculations and Design | 24.0 | ü | ü |
| 140304b | Advanced Air Properties | 24.0 | ü | ü |
| 140304c | Air Conditioning Systems | 24.0 | ü | ü |
| 140304d | Air Instruments and System Balancing | 24.0 | ü | ü |

### Fourth Period

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Module Number** | **Module Name** | **New Version**1 | **Maintenance Updates\*** | **Rebrand Updates**  |
| 140401a | Chillers | 24.0 | ü | ü |
| 140401b | Ultra-Low Compression Systems | 24.0 | ü | ü |
| 140401c | Multiplex Systems | 24.0 | ü | ü |
| 140401dA | Industrial Refrigeration Systems - Part A | 24.0 | ü | ü |
| 140401dB | Industrial Refrigeration Systems - Part B | 24.0 | ü | ü |
| 140401e | Circulating Pumps | 24.0 | ü | ü |
| 140401f | B52 Piping Codes and Canadian Code of Practice | 24.0 | ü | ü |
| 140401g | Advanced Drawing Interpretation | 24.0 | ü | ü |
| 140402a | Troubleshooting Gas-Fired Equipment | 24.0 | ü | ü |
| 140402b | Combustion Analysis | 24.0 | ü | ü |
| 140402c | Advanced Make-Up Air Systems | 24.0 | ü | ü |
| 140402d | Troubleshooting Make-Up Air Systems | 24.0 | ü | ü |
| 140402e | Workplace Coaching Skills | 24.0 | ü | ü |
| 140403a | Complex HVAC Systems | 24.0 | ü | ü |
| 140403b | Troubleshooting Complex HVAC Systems | 24.0 | ü | ü |
| 140403c | Advanced Mechanical Drives for Fan Systems | 24.0 | ü | ü |
| 140403d | Installation of HVAC Equipment | 24.0 | ü | ü |
| 140403e | Energy Management Systems (EMS) and Indoor Air Quality | 24.0 | ü | ü |
| 140403f | Alberta’s Industry Network | 24.0 | ü | ü |
| 140404a | Specialized Electronic Control Systems | 24.0 | ü | ü |
| 140404b | Electromechanical Control Systems | 24.0 | ü | ü |
| 140404c | Advanced Electrical Troubleshooting | 24.0 | ü | ü |
| 140404d | Schematic Diagrams | 24.0 | ü | ü |
| 140404e | Economizer Controls and Accessories | 24.0 | ü | ü |
| 140404f | New Environmental Technology | 24.0 | ü | ü |
| 140404g | Interprovincial Standards Red Seal Program | 24.0 | ü | ü |

### Additional Modules

n/a

1. 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-2)