

DATE		LOCATION	
Thursday, March 20, 2025		Building Trades Advancement College IBEW Local 625	
TIME	TASK		
8:00 am – 8:30 am	Orientation		
8:30 am – 10:30 am	Project		
10:30 am – 10:45 am	Break		
10:45 am – 12:30 am	Project continues		
12:30 am– 1:00 pm	Lunch (provided)		
1:00 pm– 3:15 pm	Project continues		
3:15 pm– 4:00 pm	Judging		

2. Purpose of the Contest

Assess the competitor’s skills and abilities at performing various installation tasks in the field of Industrial Controls Installations. To install the required remote wiring, conduit, and enclosures. To develop a user program for a programmable logic controller to control motors in an industrial process using a partially fabricated control panel.

3. Criteria

There is a six (6) hour time limit for this competition, therefore time will be a factor. The first person to complete, however, may not be the winner. If the time expires, you will be marked on what you have completed. If time allows, the competitor is permitted to redo any skills that they feel may improve their marks.

All work must be completed according to the current CEC specifications and diagrams / blueprints. Quality of work, including neatness, and compliance with rules and regulations will be evaluated.

4. Number of Stations / Allocations

There is a maximum of four (4) spaces available.

5. Skills & Knowledge to be Tested

- Performance of all required elements in a safe manner;
- Interpretation of various electrical symbols used in electrical drawings;
- Performance of the required tasks using drawings and specifications provided;
- Ability to install wiring and wiring components using standard trade practices;
- Connection of proper protection devices for equipment and components;
- Connect a programmable logic controller to control and monitor an industrial process;
- Develop, install and debug a user program for a controller to provide control as specified;
- Troubleshoot circuit faults using standard electrical test equipment.

Note: due to contest time restrictions, each competitor will be working on a pre-fabricated main panel remote enclosures to be mounted and connected with conduit and associated wiring.

6. Prerequisites

Contest-Specific Prerequisites

- Knowledge of safety practices;
- Knowledge of PLC programming software (ladder logic format);
- Ability to develop, interpret and de-bug a PLC program;
- Knowledge of symbols used in an electrical wiring and schematic diagrams;
- Ability to interpret specifications for an industrial process;
- Proper installation practices for control panel wiring;
- Effective trouble shooting techniques using standard testing means.

Contestants **must demonstrate mastery of the following technical skills:**

- Measuring and marking dimensions on a work surface using scale plans and drawings based on both metric and imperial measuring systems;
- Installing electrical equipment, cables, conduit, tubing and raceways;
- Measuring, sawing, drilling and deburring metals and plastics;
- Assembling components using screws, staples and bolts;
- Linking lines and equipment to control panels and their components;
- Wiring and connecting electrical components;
- Identifying and marking conductors according to plans and drawings.

Contestants **must demonstrate mastery of the following theoretical skills:**

- Reading, interpreting and executing plans, drawings, diagrams and schematics in
- compliance with standards;
- Knowledge of electrical materials and construction work methods;
- Knowledge of basic electrical circuits along with devices and equipment;
- Knowledge of OH&S standards and regulations;
- Knowledge and application of electrical code requirements in Canada and
- Installation to comply with CEC 2024 edition.

SCNS Prerequisites

- Enrolled in a community college, university or private school OR be registered as an apprentice with the Department of Labour and Advanced Education;
- Registered as a competitor with Skills Canada – Nova Scotia (SCNS);
- The competitor cannot be a certified journey-person;
- The competitor must possess a Canadian citizenship or landed immigrant status and be a resident of Nova Scotia. Competitors are responsible for verifying this information if requested;
- Have been earning post-secondary credits any time during the academic school year (September to June);
- All competitors must be able to show either current apprenticeship status and/or proof of enrollment in a post-secondary institution upon request of the Provincial Technical Committee (PTC) or SCNS.

7. Equipment & Clothing

a) What Will Be Supplied

- A ladder;
- ½" EMT Bender;
- All power tools (cordless drill)

b) What Competitors Must Supply

- CSA-approved safety gear (hard hat, boots, safety glasses and gloves);
- Supplies for writing and drawing, i.e. pencil, eraser;
- Metric/Imperial measuring tape;
- Set of screwdrivers (Robertson, Flat and Phillips);
- Pliers (Linesman, Needle nose and Side cutting);
- Electrician's knife;
- Wire Strippers ;
- Torpedo Level;
- Pump pliers (Channel Channel-Locks);
- Claw Hammer;

- Hack-saw (32 TPI blade)
- 1 Multimeter (V-O-M);
- Current edition of the Canadian Electrical Code Book CSA C22.1
- Programmable Logic Controller, communication cable and software. Laptop computer with appropriate operating system and PLC software. Computer to be free of all pre-programmed PLC files. Computer may be inspected by Judges prior to usage.

The PLC must have the following minimum requirement:

- 120 VAC power will be provided to supply the Enclosure
- 24 Volt inputs/outputs are preferred
- Fit into a space 250mm high x 250mm deep x 500 mm wide
- 16 – Inputs
- 16 - Relay Outputs
- PLC technical documents/manuals will be permitted provide they are free of additional notes and writings and contain only original manufacturer information. Note : Additional backup PLC (Recommended)

PLEASE NOTE: Safety equipment must be worn at all times on the competition site while complying with occupational health and safety regulations. Rings, chains, metal watches etc. will not be permitted while the competition is in progress. Contestants' clothing must be neat and clean in appearance (torn, loose, or ripped clothing will not be permitted).

8. Evaluation & Judging Criteria

Judging Criteria:

- Observance of safety and housekeeping rules;
- Interpretation of diagrams and specifications;
- Installation techniques;
- Selection and connection of conductors;
- Program development;
- Functionality of process system.

POINT BREAKDOWN	/ 100
Operation	35
Equipment/Component Installation	10
Use of Supplies	5
Measurement	10
Conductor Installation	10
Conduit Installation	10
Connection of Conductors	10
OH&S Compliance	10
TOTAL	_____ / 100

9. Additional Information

Tie-break procedures:

- a) Project time completion;
- b) Operation score;
- c) Conduit Installation;
- d) Connection of Conductors;

10. PTC Contact Information

Name	Employer	Email	Position
John Harding	IBEW Local 635	jharding@ibew625.ca	Chair

LAYOUT TBD