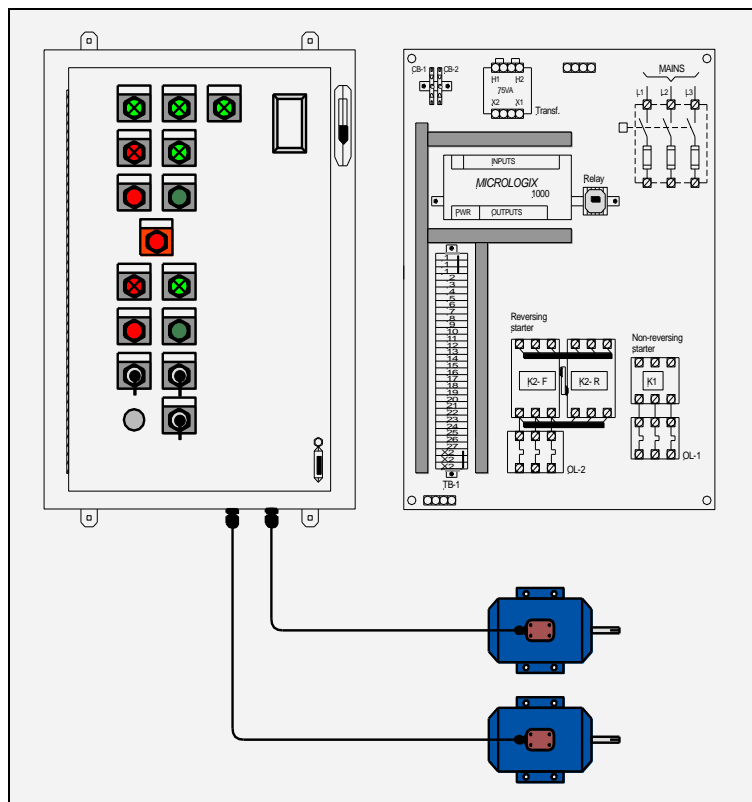


## 15<sup>th</sup> Annual Nova Scotia Skills Competition

Event: <i>Automation &amp; Control (Industrial Wiring)</i>	Level: <i>Secondary, Post-secondary, Integrated</i>
Trade: <i>International No. 19</i>	Location: <i>NSCC Strait Area Campus Room 248</i>
Date: <i>March 07, 2012</i>	Start time: <i>8:30 A.M.</i>
Competitor stations: <i>7</i>	Duration: <i>6.5 hours</i>

### Purpose of challenge.

To install the required wiring and develop a user program for a programmable logic controller to control motors in an industrial process using a partially fabricated control panel.



### Skills and knowledge 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.
- Trouble shoot circuit faults using standard electrical test equipment.

Prerequisites.

- Knowledge of safety practices.
- Ability to configure communications drivers for Allen Bradley *MicroLogix 1000* PLC (*RSLinx*).
- Knowledge of PLC programming in ladder logic.
- 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 a control panel wiring.
- Effective trouble shooting techniques using standard testing means.

Competition stations allotted to School, Campus and Apprentice.

School / Campus / Apprentice	No.
Akerley Campus	
Annapolis Valley Campus	
Burridge Campus	
Cumberland Campus	
Halifax Campus	
Institute of Technology Campus	1
Kingstec Campus	1
Lunenburg Campus	1
Marconi Campus	1
Pictou Campus	1
Shelburne Campus	
Strait Area Campus	1
Truro Campus	
Apprentice	1
University	
Private Career College	

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.

Competition element evaluation and point breakdown.

Competition judging and evaluation will be done by three (3) judges with supervision from the competition captain. The captain will be a Skills Nova Scotia provincial technical committee member.

Competition element evaluated		Points
1	Personal safety.	50
2	Installation of wiring.	300
3	Controller programming techniques.	150
4	Completed project functions.	500
Total		1000

Tools and clothing required.

The competitor will be responsible for personal tools and safety wear (*safety glasses and safety shoes are mandatory*).

- 1 set of flat-head screwdrivers - sizes 1 to 5	- 1 set of Robertson screwdrivers sizes 1, 2 & 3
- 1 set of Phillips screwdrivers - sizes 1 to 5	- 1 set of terminal screwdrivers (3 mm for 1492-J4 terminals)
- 1 electricians side cutting pliers	- 1 diagonal cutting pliers
- 1 needle nose pliers	- 1 crimping pliers
- 1 slip-groove gripping pliers	- 1 wire stripper tool
- 1 electrician's knife	
	- 1 pair safety glasses / goggles
- 1 Multimeter (V-O-M)	- 1 pair safety boots / shoes

Technical Committee Members.

Darrell Sampson (Captain) [darrell.sampson@nsc.ca](mailto:darrell.sampson@nsc.ca) Tel: (902) 625-4038 Fax: (902) 625-0193

Tom Molloy [tom.molloy@ns.sympatico.ca](mailto:tom.molloy@ns.sympatico.ca) Tel: (902) 625-2589