2027 Provincial Skills Canada Competition

Contest Description
Edmonton Expo Centre, Edmonton
May 5 & 6, 2027

EVENT: Industrial Control	**LEVEL:** Post-Secondary
WORLDSKILLS TRADE #: 19	**LOCATION:** Hall A, Edmonton Expo Centre, Edmonton
DURATION: 12 hrs. (Two Days)	

COMPETITION SCHEDULE:

MAY 4:

MANDATORY ORIENTATION	4:00PM – 5:30PM

MAY 5:

ORIENTATION	8:00 AM - 8:15 AM
COMPETITION	8:15 AM - 11:30 AM
LUNCH	11:30 AM - 12:30 PM
COMPETITION	12:30 PM - 3:45 PM

MAY 6:

ORIENTATION	8:00 AM - 8:15 AM
COMPETITION	8:15 AM - 11:30 AM
LUNCH	11:30 AM - 12:15 PM
COMPETITION	12:15 PM - 2:30 PM

Please Note: This document is subject to change as competition information is updated. Competitors are responsible for staying up to date with the most recent information. Check the footer for last updated date. Changes will be highlighted in yellow.

CONTEST INTRODUCTION
Description of the associated work role(s) or occupation(s).
https://skillsalberta.com/skills/industrial-control/

Purpose of the Challenge
Install and program an industrial control system.

Skills and Knowledge to be Tested
Designing, installating, and commissioning of an automated process using a Programmable Logic Controller (PLC).

CONTEST DESCRIPTION

Tasks that may be performed during the contest

- Interpreting and using electrical designs, diagrams and a process flow chart to assemble a functional control system.
- Installing various industrial cables and raceways to a wall mounted control panel.
- Programming a PLC, to meet project requirements.
- Installing and commissioning terminal components (push buttons, limit switches, pilot device, etc.)
- Wiring a panel using standard trade practices, complying with relevant sections of the Canadian Electrical Code.
- Determining adequate protection for equipment,components and personnel.
- Diagnostic and fault finding on actual project.
- Proper Occupational Health and Safety procedures

Prerequisites

- Knowledge of the current Canadian Electrical Code.
- Ability to effectively locate information in technical documents.
- Effective troubleshooting techniques.
- Ability to install various industrial cables and raceways.
- Knowledge of symbols used in an electrical diagram and a control diagram.
- Proper layout,installation practices and techinquies for a control panel.
- Knowledge of fail safe designing.
- Knowledge of safety practices in the work enviroment.
- Knowledge of PLC programming.
- Effective use of alotted time

EQUIPMENT, MATERIAL, CLOTHING

Equipment and Material Provided by <u>Skills Canada Alberta (SCA):</u>

- All required materials to assemble the project
- Power bar
- Step Ladder
- Ferrule crimper + Ferrules (No strip ferrules or automatic ferruling tools permitted)

COMPETITORS WILL BE REQUIRED TO USE THE MATERIAL AND EQUIPMENT PROVIDED BY SCA.
ALL OTHER MATERIAL AND EQUIPMENT WILL BE REMOVED FROM THE SKILL AREA IF NOT PRE-APPROVED.

Equipment and Material Provided by the <u>Competitor:</u>

- Programmable Logic Controller, communication cable and software.
- Laptop computer with appropriate operating system and PLC software. Computer & PLC need to be free of all pre-programed PLC files. Computer will be inspected by the Provincial Technical Committee (PTC) prior to usage.
- The PLC must have the following minimum requirement:
  - 120 V_{AC} power will be provided to supply the enclosure
  - 24 V_{DC} Inputs and Outputs
  - Fit into a space 250mm high x 250mm deep x 500mm wide
  - 16 – 24 V_{DC} Inputs
  - 16 - Relay Outputs for 24 V_{DC} Outputs
  - Internal Battery (if applicable)
  - PLC technical documents/manuals will be permitted provide they are free of additional notes and writings and contain only original manufacturer's information.
  - Additional backup PLC (Recommended)
- DC Power Supply (120V_{AC} : 24V_{DC}) (if required for competitors PLC)
- Cordless Drill + Impact Driver
- Multimeter
- Complete set of pliers (diagonal cutting, needle nose, electrician's, terminal crimper, slip-joint type)
- Complete set of screwdrivers (Phillips, Robertson, Slotted or Standard)
- Level(s)
- Wire strippers
- Utility or Electrician's knife (Snap-off "olfa" blades not permitted)
- Metric measuring tape
- Ruler, straight edge, and/or T-square
- Metal saw (Hack saw - recommended 32TPI) & mitre-box/vise
- Flat and round metal file with handle
- Hammer
- Centre punch
- Set of metal drill index
- Knockout punches or carbide hole saw (22 mm) or metal step bit
- Full compliment of screwdriver tips for cordless drill (short & long including nut drivers)
- Set of termination screwdrivers (slotted)
- Adjustable wrench
- Allen keys (metric and imperial)
- Sta-kon crimper
- Any additional tools are subject to approval from Provincial Technical Committee Chair prior to competition start.
- Electric screwdrivers will be permitted. 12V maximum. No driver bits provided for terminating.
- No additional power tools and no pre-fabricated templates allowed.

Required Clothing Provided by the Competitor:

- Proper work site clothing (no shorts allowed)
- Long sleeves are recommended for the installation portion of the project

SAFETY REQUIREMENTS

Safety Workshop

Upon arrival at the Skill area, Competitors will participate in a Safety workshop, and they will be expected to work and maintain a safe working area during the competition. Any Competitor breaking any health, safety and environmental rules, may be required to undertake a second safety workshop, this will not affect the Competitor's competition time.

List of Required Personal Protective Equipment (PPE) Provided by <u>Competitor:</u>

- Safety Glasses with side shields
- CSA approved Safety Shoes
- Protective Gloves (high dexterity)
- Hearing protection
- Hard Hat
- Lockout Hasp for Main Disconnect

Competition Specific Rules

The following Competition Specific rules along with SCA's overall Policies and Procedures provide specific details in competition areas that may vary from one another. Any additional contest rules will be reviewed during the Competitor Orientation.

Topic/Task	**Contest Specific Rule**
Use of Technology	Competitors are **not allowed** laptops*, tablets, cameras, cell phones, ear buds, other personal electronics in the competition area unless specified by the committee for certain tasks. *Laptops can be used for the PLC programming and commissioning portion. No internet connection will be permitted. Laptops will be inspected by PTC prior to competition for programming files or ineligible documents.
Use of Artificial Intelligence (AI)	Competitors **cannot** use AI to develop/generate any of the submitted work for any aspects of the competition.

ASSESSMENT

POINT BREAKDOWN	/100
Measurements	20
Wiring & Components Installation	42
Functionality	30
Safety practices	8

Tie Breaker (No ties are allowed)

- Tiebreaker #1: The Competitor with the highest score in the Wiring & Workmanship will be declared the winner.
- Tiebreaker #2: The Competitor with the highest score in the Functionality will be declared the winner.
- Tiebreaker #3: The Competitor with the highest score in the Installation Measurements will be declared the winner.

ADDITIONAL INFORMATION

Questions?
Please click the below link for all questions related to this Contest Description.

https://skillsalberta.jotform.com/262295335905967

All questions will be forwarded to the Provincial Technical Committee (PTC) for review and response. Responses will be compiled into a Q&A document, which will be posted on the Skills Alberta website alongside this Contest Description.

Please check the Q&A document regularly for updates and responses to submitted questions.

Any additional questions, please contact Taylor Marko TaylorM@SkillsAlberta.com

Skills Canada Alberta Regional and Provincial Rules and Regulations
Regional and Provincial Rules and Regulations

Skillz & Thrillz Podcast
Check out our podcast – Skillz & Thrillz: Alberta's Trade & Tech Youth Podcast. Our talented alumni share tips and tricks on how to succeed in competitions and your career! Their insights can help you prepare for your Skills journey, and who knows, you might just be a future guest! https://skillsalberta.com/student-resources/skillz-thrillz-albertas-trade-tech-youth-podcast/

Test Project Change at the Competition
Where a Test Project has been circulated to competitors in advance, the PTC may modify the project by up to a maximum of 30% of the total work content for the competition.

Lunch
Lunch for competitors will be provided by Skills Canada Alberta.

Parking & Venue Maps
Parking is FREE for all attendees.
Attendees **MUST** register for FREE parking by clicking the below link. Attendees can pre-register their vehicle at anytime prior to the PSCC or register onsite at the PSCC.
https://www.offstreet.io/events/N6D61P2N

Competitor Onsite Registration
Competitor registration will take place on Tuesday May 4th from 12:00 PM-4:00 PM at the Edmonton Expo Center.

Competitor Welcome and Registration Event
In lieu of Opening Ceremonies, all competitors and teachers are invited to attend the Competitor Welcome and Registration Event from 3:00pm to 4:00pm at the Edmonton Expo Center.

Awards Ceremony
The Awards Ceremony will take place on Thursday May 6, 2027, at 6:30 PM in Hall D of the Edmonton EXPO Centre. Admission is free and everyone is welcome to attend. The Awards Ceremony will be shown live at http://skillsalberta.com/

Team Alberta Information
Team Alberta will be selected at the PSCC Awards Ceremony. Gold medalists will then be eligible to participate at the Skills Canada National Competition (SCNC) on May 26- May 29, 2027, in Calgary, AB. It is recommended that competitors review and become familiar with the SCNC contest description and project at https://www.skillscompetencescanada.com/en/event/scnc2027/

During the PSCC Awards Ceremony on Thursday May 6, 2027, gold medalists will be given their Team Alberta information package and will confirm their participation in the SCNC. Students must be present at the Awards Ceremony to claim their position on Team Alberta. If the Gold medalist is not able to attend SCNC, the next highest-ranking individual will be asked to participate. If a student is not able to attend the Awards Ceremony an email confirming the student's interest in Team Alberta participation must be emailed to javierad@skillsalberta.com prior to the start of competition on May 5, 2027.

Please prepare your students in advance to accept a position on Team Alberta and review how your school will support their participation.
Please see this link for additional Team Alberta information: https://skillsalberta.com/team-alberta/

COMMITTEE MEMBERS

Ben Cooney – SAIT	**Peter Friesen** – Retired
Chelsea Dyck – SAIT	**Sean Costello** – Pembina Pipeline – Co-Chair
Jesse Stephenson – Pembina Pipeline	**Zack Hartle** – SAIT – Chair
Michael Carrick – NAIT	