



## Contest Description

### Edmonton Expo Centre, Edmonton

### May 8 & 9, 2024

<b>EVENT:</b> Electronics	<b>LEVEL:</b> Secondary																														
<b>WORLDSKILLS TRADE #:</b>	<b>LOCATION:</b> Hall B, Edmonton Expo Centre, Edmonton																														
<b>DURATION:</b> 13 hrs (Two Days)	<b>REGIONALIZED:</b> No																														
<b>COMPETITION SCHEDULE:</b> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>May 8:</b>  <table border="1" style="width: 100%;"> <tr><td>ORIENTATION</td><td>7:30AM-8:00AM</td></tr> <tr><td>COMPETITION</td><td>8:00AM-9:45AM</td></tr> <tr><td>BREAK</td><td>9:45AM-10:00AM</td></tr> <tr><td>COMPETITION</td><td>10:00AM-11:30AM</td></tr> <tr><td>LUNCH</td><td>11:30AM-12:30PM</td></tr> <tr><td>COMPETITION</td><td>12:30PM-2:00PM</td></tr> <tr><td>BREAK</td><td>2:00PM-2:15PM</td></tr> <tr><td>COMPETITION</td><td>2:15PM-3:30PM</td></tr> </table> </td> <td style="width: 50%; vertical-align: top;"> <b>May 9:</b>  <table border="1" style="width: 100%;"> <tr><td>ORIENTATION</td><td>7:30AM-8:00AM</td></tr> <tr><td>COMPETITION</td><td>8:00AM-9:45AM</td></tr> <tr><td>BREAK</td><td>9:45AM-10:00AM</td></tr> <tr><td>COMPETITION</td><td>10:00AM-11:30AM</td></tr> <tr><td>LUNCH</td><td>11:30AM-12:30PM</td></tr> <tr><td>COMPETITION</td><td>12:30PM-2:15PM</td></tr> </table> </td> </tr> </table> <p>The times above are approximate and may change as required.</p>		<b>May 8:</b> <table border="1" style="width: 100%;"> <tr><td>ORIENTATION</td><td>7:30AM-8:00AM</td></tr> <tr><td>COMPETITION</td><td>8:00AM-9:45AM</td></tr> <tr><td>BREAK</td><td>9:45AM-10:00AM</td></tr> <tr><td>COMPETITION</td><td>10:00AM-11:30AM</td></tr> <tr><td>LUNCH</td><td>11:30AM-12:30PM</td></tr> <tr><td>COMPETITION</td><td>12:30PM-2:00PM</td></tr> <tr><td>BREAK</td><td>2:00PM-2:15PM</td></tr> <tr><td>COMPETITION</td><td>2:15PM-3:30PM</td></tr> </table>	ORIENTATION	7:30AM-8:00AM	COMPETITION	8:00AM-9:45AM	BREAK	9:45AM-10:00AM	COMPETITION	10:00AM-11:30AM	LUNCH	11:30AM-12:30PM	COMPETITION	12:30PM-2:00PM	BREAK	2:00PM-2:15PM	COMPETITION	2:15PM-3:30PM	<b>May 9:</b> <table border="1" style="width: 100%;"> <tr><td>ORIENTATION</td><td>7:30AM-8:00AM</td></tr> <tr><td>COMPETITION</td><td>8:00AM-9:45AM</td></tr> <tr><td>BREAK</td><td>9:45AM-10:00AM</td></tr> <tr><td>COMPETITION</td><td>10:00AM-11:30AM</td></tr> <tr><td>LUNCH</td><td>11:30AM-12:30PM</td></tr> <tr><td>COMPETITION</td><td>12:30PM-2:15PM</td></tr> </table>	ORIENTATION	7:30AM-8:00AM	COMPETITION	8:00AM-9:45AM	BREAK	9:45AM-10:00AM	COMPETITION	10:00AM-11:30AM	LUNCH	11:30AM-12:30PM	COMPETITION	12:30PM-2:15PM
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*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.*

### SKILLS AND KNOWLEDGE TO BE TESTED

The contest will cover the theoretical and practical aspects of current state of the art electronic industry standards. The competitor may be asked to demonstrate abilities in the following areas:

- Interpret electronic schematic diagrams, pictorials, manufacturers technical specifications and suppliers' catalogues.
- Identify common electrical and electronic components.
- Construct, analyze, and troubleshoot DC circuits including series resistance, parallel resistance, series-parallel resistance and solid-state switching circuits

- Construct, analyze, and troubleshoot circuits which may include diodes, transistor amplifiers, IC amplifiers, operational amplifiers and comparator circuits, TTL/CMOS gates, timers.
- Construct, analyze, and troubleshoot circuits using solderless breadboards as well as soldering/desoldering through-hole components on PCBs.
- Apply the appropriate test procedures and equipment to a given situation.
- Interpret the observed values from the test equipment. (DC voltages, currents and waveforms and circuit resistance).
- Answer questions related to basic electrical/electronic theory.

## PROJECT DESCRIPTION

*Actual project details will be released the morning of the competition.*

Tasks that may be performed during the contest:

### Day 1

- **Part 1 – Schematic Reading and Breadboarding:** Construct a circuit (or circuits) from provided schematics and datasheets on a solderless breadboard.
- **Part 2 – Electronics Theory:** Answer short-answer and/or multiple choice questions on electronics theory, components, digital logic, circuit analysis, and/or measurement interpretation.

### Day 2

- **Part 3 – Soldering/Desoldering:** Hand solder through-hole components on a printed circuit board to acceptable industry standards. Desolder through-hole components, preserving the PCB pads in order to solder in new components.
- **Part 4 – Measurement and Troubleshooting:** Identify and correct errors with a provided circuit. Use a digital multimeter to measure DC voltage, current, and continuity in the corrected circuit. Use measurements to determine what to change in the circuit to produce provided results.

## EQUIPMENT & MATERIALS

### Skills Canada Alberta Provided Tools, Materials, and Equipment

- Workstation (Table, chair, powerbar)
- Soldering Equipment
  - Soldering Iron
  - Fume extraction
  - ROHS Compliant Lead-Free Solder
  - Solder wick
  - Flux
  - Third hand or other appropriate work-holding device
- Electronics Components, Power Supply, PCBs

### Competitor Provided Tools, Materials, and Equipment\*

- Digital multimeter (w/ a fresh battery)
- Spare Fuse for multimeter
- Long nose pliers
- Side Cutters
- Wire Stripper
- Screwdrivers (including precision set)
- “Third Hand” including magnifying glass. (optional)
- Safety Glasses
- Pens, Pencils, Eraser, Ruler
- Stand-alone calculator (non-programmable i.e. TI-30Xa)

\*Competitors and schools will need to work together to arrange for the tools, equipment, and materials provided by the competitor. If a competitor and/or school is not able to procure a certain item, please contact Tim Chapman at [timc@skillsalberta.com](mailto:timc@skillsalberta.com) to inquire if additional arrangements can be made.

## JUDGING CRITERIA

Task	Weight
1. Schematic Reading and Breadboarding	30%
2. Electronics Theory	20%
3. Soldering/Desoldering	30%
4. Measurement/Troubleshooting	20%



## TIE BREAKING PROCESS

In the case of a tie, the winner will be determined by the highest score in Part 3: Soldering/Desoldering. If these scores are tied, the winner will be determined by the highest score in Part 1: Schematics Reading and Breadboarding. If these scores are also tied, the winner will be determined by the highest score in Part 4: Measurement/Troubleshooting.

## CLOTHING REQUIREMENT

Appropriate work clothing must be worn to compete. All clothing must be neat and clean, and free of rips and tears. Casual wear such as shorts and open toed shoes/sandals will not be permitted. No loose-fitting clothes or jewelry. Long hair must be tied back for the soldering/desoldering task.

## ADDITIONAL INFORMATION

**Skills Canada Alberta Regional and Provincial Rules and Regulations**  
[Regional and Provincial Rules and Regulations](#)

### Test Project change at the Competition

Where the Test Project has been circulated to competitors in advance, PTC can change a maximum of 30% of the work content.

### Lunch

Lunch for competitors will be provided by Skills Canada Alberta.

### Parking & Venue Maps

<http://edmontonexpocentre.com/attend/parking/>

Parking is FREE for all attendees.

### Opening Ceremonies / On-site Provincial Competitor Registration

Opening Ceremonies for the PSCC will take place on Tuesday May 7, 2024, at 6:00 pm in Hall D of the Edmonton EXPO Centre. Admission is free, and everyone is welcome to attend. It is important to note that competitor registration will open immediately following the Opening Ceremonies.

### Awards Ceremony

The Awards Ceremony will take place on Thursday May 9, 2024, 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 27- June 1, 2024, in Quebec City, QC. It is recommended that competitors review the SCNC contest description to be familiar with the national contest description and project at <http://www.skillscanada.com/>.

During the PSCC Awards Ceremony on Thursday May 9, 2024, 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 top ranking individuals will be asked to participate. If a student is not able to attend the Awards Ceremony a letter confirming the student’s interest in Team Alberta participation must be emailed to [javierad@skillsalberta.com](mailto:javierad@skillsalberta.com) prior to the start of competition on May 8, 2024.

**Please prepare your students in advance to accept a position on Team Alberta and outline how your school will support their participation.**

### Questions?

Please contact Whitney Koop at [whitneyk@skillsalberta.com](mailto:whitneyk@skillsalberta.com) if you have any questions regarding the Contest Description.

### COMMITTEE MEMBERS

Joe Wilson	Lee Bannister	
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