

Attention Competitors

**At the 2012
Provincial Skills Competition Safety is #1**

**Each Event Area Will Have Safety Equipment
Requirements That Competitors Must Follow**

Important: Must Read!

**Competitors Must Meet All Safety Requirements To
Compete At The Provincial Skills Competition**

**Please Consult The Scope Document To Determine
The Safety Requirements For Your Area**

**It Is Recommended That Competitors Check The
Scope Document To Ensure All Safety
Requirements Are Met**

Scope Documents May Be Updated Until March 29th, 2012

2012 Provincial Skills Competition

Scope Document



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|--|--|
| EVENT: ELECTRONICS | LEVEL: SECONDARY |
| START TIME: 8:00 a.m., March 16, 2012 Note: Orientation Morning of Competition | LOCATION: SIAST – Wascana Campus Room 342E |
| INTERNATIONAL TRADE #: 16 | DURATION: 8 HOURS (8:00-4, including orientation and lunch) |

SAFETY REQUIREMENTS: Competitors are required to follow all industry safety standards during the competition. Safety glasses are mandatory for all competitors.

PURPOSE OF THE CHALLENGE:

To evaluate each competitor's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of electronics technology. Also, this competition is designed to develop and foster an interest in the electronics trade.

SKILLS AND KNOWLEDGE TO BE TESTED:

The competition is broken down into the following areas:

- 1) Solder Project #1.....1 Hour
- 2) Breadboard Projects.....3 ½ Hours
- 3) Troubleshooting.....1 Hour
- 4) Solder project #2.....2 Hours

*Note: Some areas will have Theory questions and calculations. They pertain to basic the DC and AC circuits that you will be working on. **Project information WILL NOT be provided in advance.***

We will adhere to this structure as long as time permits. Lunch will be provided, and a 45 minute break allowed. Competitors will not be allotted extra time.

Each competitor will be evaluated in the following areas: Practical: **80%**
Theory: **20%**

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

- Interpret electronic schematic diagrams, pictorials, manufacturer's technical specifications.
- Identify common electrical and electronic components.
- Construct, analyse and troubleshoot DC circuits including series resistance, series parallel resistance, and solid state switching.
- Construct, analyse and troubleshoot AC circuits including capacitive, inductive and complex RLC circuits.
- Construct, analyse and troubleshoot analog circuits.
- Construct, analyse and troubleshoot digital circuits including TTL/CMOS gates, timers, and optical devices.
- Hand-solder components on a printed circuit board to acceptable industry standards.
- Hand-desolder through-hole-mount components on a printed circuit board.
- Set-up and demonstrate use of common electronic measuring equipment including multimeters, and a DC power supply.
- Troubleshoot simple electronic circuits.



EQUIPMENT AND MATERIALS:

Supplied by the Committee:

- Dual Power Supply 0 to +/- 25 volts @ 1 amp
- Digital Multimeter
- AC Function Generator
- Projects and Documentation

NOTE: All competitors MUST bring their own soldering irons.

Supplied by the Competitor:

- Pencils, pens, erasers, rulers
- Safety glasses – not required if prescription glasses are worn
- Two Breadboards, minimum size each 2" x 6" (wire will be supplied)
- Hand-vacuum solder extractor--with or without heating tip-- or solder wick
- Long nose pliers
- Side cutters
- Adjustable pliers
- Wire stripper
- Screwdrivers: blade, Phillips, Robertson (#1, #2)
- "Third Hand" including magnifying glass, or similar PCB holding device
- Power bar, 4 or more outlet (at least)
- Soldering iron and tip cleaner

The Technical Committee will inspect other tools for suitability

CLOTHING REQUIREMENTS:

- Competitors are to be dressed in a clean and appropriate manner.
- No jewellery on hands or wrists. A wrist-watch may be worn.
- Competitors will be allowed to listen to music from a personal player during the competition. Only original recordings will be acceptable.

JUDGING CRITERIA

Point Breakdown:

The following descriptors will be used:

| | | | | | |
|---------------|----|----------------|---|----------------------|------------|
| Perfect = | 10 | Medium = | 5 | | |
| Very Good = | 9 | Weak = | 4 | | |
| Good = | 8 | Insufficient = | 3 | BREADBOARD PROJECTS: | 50% |
| Rather Good = | 7 | Bad = | 2 | SMALL KITS CONST.: | 35% |
| Sufficient = | 6 | Very Bad = | 1 | TROUBLESHOOTING: | <u>15%</u> |
| | | Zero = | 0 | | 100% |

ADDITIONAL NOTES:

- In the event of a tie in the competition, the tie will be broken by the mark achieved on the following project sections:
- Safety glasses must be worn for the soldering/desoldering project as well as the AC breadboarding.

COMMITTEE MEMBERS:

Heath Armbruster: SIAST – Wascana Campus, Regina

Brian Sather: SIAST – Wascana Campus, Regina

