



2012 15th ANNUAL SKILLS MANITOBA COMPETITION CONTEST SCOPE

CONTEST NAME: Electronics

CONTEST NO: 16

CATEGORY: Secondary and Post-Secondary – Maximum 12 competitors

CONTEST LOCATION: Red River College – The Roblin Centre (formally Princess) Campus

CONTEST START TIME AND DURATION:

8:30 am start time

3 hours, immediately after morning registration

PURPOSE OF CHALLENGE:

To evaluate each competitors skills and to recognize outstanding students for excellence and professionalism in the field of Electronics Technology

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, manufacturer's technical specifications and supplier catalogues.
- Identify common electrical and electronic components.
- Analyze and troubleshoot DC circuits including capacitive, inductive and complex RLC circuits.
- Analyze and troubleshoot analog circuits, including discrete amplifiers, operational amplifiers and comparator circuits.
- Analyze digital circuits, including TTL/CMOS gates, timers and optical devices.
- Hand solder components on a printed circuit board to acceptable industry standards.
- Hand de-solder through hole mount components on a printed circuit board.
- Troubleshoot simple electronic circuits.
- Reverse Engineer a simple electronic circuit.
- Use DMM to test solid state components.

POINT BREAKDOWN / 1000 TOTAL:

Theory – 50%

Practical – 50%

NATIONAL COMPETITION ELIGIBILITY:

- A mark of **70% or higher** must be scored by the gold medalist in each contest in order for them to attend the National Skills Competition

EQUIPMENT, TOOLS, MATERIALS TO BE PROVIDED BY COMMITTEE:

All equipment/materials required for contest, but not supplied by competitor.

EQUIPMENT, TOOLS, MATERIALS TO BE SUPPLIED BY COMPETITOR:

Hand Tools:

- 25 watt Solder Iron, Stand, Tip Cleaner, tips of choice. **Butane solder devices will not be allowed.**
- Hand vacuum extractor or Solder Wick
- Long nose pliers
- Side Cutters
- Wire Stripper
- Screwdrivers; Slot, Philips
- “Third Hand” including magnifying glass
- Power bar, 4 or more outlet

Technical Committee will inspect other tools for suitability.

Miscellaneous:

- Pens, pencils, eraser, ruler
- Safety Glasses/Goggles
- 2 breadboards, minimum size each 2” x 6” (wire will be supplied)
- Desk Lamp (optional)
- No programmable calculator
- Hearing protection to block out some of the noise from other contests

WORKSITE SAFETY RULES / REQUIREMENTS:

Competitors are to be dressed in a clean and safe manner (no jewelry on hands or wrists).

Safety glasses must be worn for the soldering/desoldering project. Failure to comply with Tech Committee Members may result in disqualification from the competition at the discretion of the Committee.

SPECIAL CONDITIONS / ADDITIONAL INFORMATION:

Competitors will be allowed to listen to music from a personal CD or tape player during the competition. Only original recordings will be acceptable.

TECHNICAL COMMITTEE MEMBERS CONTACT INFORMATION:

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