



# 2010 13<sup>th</sup> ANNUAL SKILLS MANITOBA COMPETITION CONTEST SCOPE

**CONTEST NAME:** Electronics

**CONTEST NO:** 16

**CATEGORY:** Secondary and Post Secondary

**CONTEST LOCATION:** Red River College - Princess Street 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%

### **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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