2023
25th ANNUAL SKILLS MANITOBA COMPETITION
CONTEST DESCRIPTION

CONTEST NAME: Electronics

CONTEST NO: 16

CATEGORY: Secondary and Post-Secondary – Maximum 12 competitors

CONTEST LOCATION: Manitoba Institute of Trades and Technology – 7 Fultz – ACDC lab

CONTEST START TIME AND DURATION:
8:30 am start time – approximately 1:00 pm

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 **(20 %)** and practical **(80%)** 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, wiring diagrams, and technical specifications.
- Identify and test common electrical and electronic components. Such as diodes and transistors.
- Analyze and troubleshoot **basic** analog electronic circuits, including **circuits with discrete components such as diodes, transistors and circuits such as rectifier circuits. This will be in the theory test only.**
- Solve basic digital problems using common logic gates. **This will be in the theory test only.**

Last Update: January 16, 2023

- Hand solder components on single sided printed circuit boards using 60/40 solder to acceptable industry standards. **Students will solder a LED flasher circuit and a DIP package.**
- **Students will have to bread board two circuits: A bipolar power supply using 78xx and 79xx voltage regulators, and transistor LED flasher circuit.**
- Hand de-solder a circuit that has through hole mounted components on a printed circuit board.
- Reverse Engineer an electronic circuit that has a 555 timer and a few other components or a typical power supply circuit. Students will only be reverse engineering one circuit to be determined by judges on the day of competition...
- Use DMM to test solid state components.
- **Theory test is worth 20% will cover basic solid states components such as diodes, rectifiers, transistors and basic digital circuits.**

POINT BREAKDOWN / 1000 TOTAL:
Theory – **20%**   Practical – **80%**

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
- **Extra equipment will be available if needed**
- **Students will be provided with instruction on any test equipment being used.**

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.

THE IMPORTANCE OF ESSENTIAL SKILLS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY;
In response to the evolving labour market and changing skill needs, the Government of Canada has launched the new Skills for Success (former Essential Skills) model defining nine key skills needed by Canadians to participate in work, in education and training, and in modern society more broadly. SCC is currently working with Employment and Social Development Canada (ESDC) to bring awareness of the importance of these skills that are absolutely crucial for success in Trade and Technology careers. Part of this ongoing initiative requires the integration and identification of the Skills for Success in contest descriptions, projects, and project documents. The following 9 skills have been identified and validated as key skills for success for the workplace: 1.Numeracy, 2.Communication, 3.Collaboration, 4.Adaptability, 5.Reading, 6.Writing, 7.Problem Solving, 8.Creativity and Innovation, 9.Digital

TECHNICAL COMMITTEE MEMBERS CONTACT INFORMATION:
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