



2021 23rd ANNUAL SKILLS MANITOBA COMPETITION VIRTUAL EDITION 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 DEADLINES:

- Registration opens online through the Skills Canada Manitoba website on **Monday, February 1, 2021.**
- **Friday, March 12, 2021** - Competitor Registration Deadline
- Skills Canada Manitoba Competition to be held **April 5 – 16, 2021**
- Deadline for student's work to be submitted – **April 14, 2021**
- Students work to be evaluated by – **April 16, 2021**
- Results to be posted on the Skills Manitoba website and social media sites on **Wednesday, April 21, 2021.**
- There will be an **Orientation Session** prior to the competition. Details and time to be announced by the Provincial Technical Committee. Competitor and advisor attendance is mandatory.

CONTEST START TIME AND DURATION:

8:30 am start time – approximately 1:00 pm. This could change depending how the test is done.

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 (**40 %**) and practical (**60%**) 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, data sheets, and technical specifications.
- Identify and test common electrical and electronic components. Such as diodes and transistors. (Theory only)
- 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.**
- 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 or an equivalent circuit.**
- **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...
- **Theory test is worth 40% will cover basic solid states components such as diodes, rectifiers, transistors and basic digital circuits.**

POINT BREAKDOWN / 1000 TOTAL:

Theory – 40%

Practical – 60%

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 AND MATERIALS:

Virtual Competition Resource Support Form

A \$40 competition resource subsidy is available to all competitors of the Skills Canada Manitoba Competition – Virtual Edition who are required to purchase items for their respective competition. It is intended for items that were purchased to support competitors. (e.g. food supplies, materials, technical equipment, tools etc.) Please complete the Virtual Competition Resource Support Form found on the Skills Manitoba website. Please note that receipts or a school invoice are required:

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
- **Students will have to provide all of the test equipment being used.**

Technical Committee will inspect other tools for suitability. Not applicable this year. (2021)

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

SAFETY RULES / REQUIREMENTS:

The health, safety and welfare of all individuals involved with Skills Canada Manitoba are of vital importance.

At the discretion of the judges and technical committees, any competitor submission can be denied should the participant not have the required proper safety equipment and/or act in an unsafe manner that can cause harm to themselves or others.

All competitors must complete and submit a Safety Checklist with your project submission. The Safety Checklist is located in the Skills Manitoba Competition Information package as well as on the Skills Manitoba website.

Submissions will not be judged if the completed Safety Checklist is not included in the submission.

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.

Ethical Conduct: We recognize that participants will be competing individually in their own schools and therefore not all conditions can be monitored. However, we expect all competitors to compete fairly, respecting and abiding by the established rules in the true spirit of Skills Canada Manitoba.

Supervision of Competitor: Competitors will be required to have an adult with them that is qualified /competent in the contest area, to both supervise and ensure safety.

COVID 19 Protocol

Please follow all established COVID 19 protocol as per your school and Manitoba Health guidelines.

THE IMPORTANCE OF ESSENTIAL SKILLS FOR CAREERS IN THE SKILLED TRADES;

Essential skills are used in nearly every job and at different levels of complexity. They provide the foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change. Good Essential Skills means you will understand and remember concepts introduced in technical training. The level of Essential Skills required for most trades is as high as or higher than it is for many office jobs.

The following 9 skills have been identified and validated as key essential skills for the workplace:

Numeracy, Oral Communication, Working with Others, Continuous Learning, Reading Text, Writing, Thinking, Document Use, Digital.

Essential Skills Required for Electronics: Numeracy, Thinking: Critical, Document Use

TECHNICAL COMMITTEE MEMBERS CONTACT INFORMATION:

Jose Bettencourt

989-6598

Jose.Bettencourt@mitt.ca