Regional Electronics Competition
Scope Document Secondary 2025

Name:_____

Shared by Central Okanagan Region

Purpose of Competition

- To encourage participation in the exciting field of electronics because there are interesting and rewarding careers as Electronics Technicians and Technologists
- To evaluate competitor's skills and recognize outstanding students for excellence and professionalism in the field of electronics technology

Skills and Knowledge to be Tested

The contest will cover theoretical and practical aspects of the electronics industry. The competitors may be asked to demonstrate abilities in the following areas:

- Interpreting electronic schematic diagrams, pictorials, and technical specifications
- Identifying common electrical and electronic components
- Constructing and analysing DC circuits including series resistance, parallel resistance, series-parallel resistance and sold state switching circuits.
- Constructing and analysing AC circuits including capacitive, inductive, and complex RLC circuits
- Constructing and analysing electronic circuits including transistor amplifiers, IC amplifiers, operational amplifiers, and comparator circuits
- Answer questions related to basic electrical/electronic theory
- Hand soldering components on a printed circuit board to acceptable industry standards
- Hand de-soldering from printed circuit boards to acceptable industry standards.
- Setting-up and demonstrating the use of common electronic measuring equipment including digital multimeter, power supply, function generator, and oscilloscope
- Troubleshooting simple electronic circuits
- Reverse Engineering a simple electronic circuit.

Tasks that may be performed during the contest

- Hand-solder through-hole components on a printed circuit board to acceptable industry standards
- Assemble a circuit from a kit of printed circuit board and parts
- Assemble a circuit on a breadboard from a kit of components
- Setup and demonstrate use of common electronic measuring equipment
- Complete circuit analysis on a simple electronic circuit which may include generating a schematic diagram

Equipment, Tools, Supplies, Clothing

Clothing Requirements:

- Competitors are to be dressed in a clean and safe manner. Competitors may be asked to remove jewellery that the judges consider to be unsafe
- Competitors wishing to block out noise from the environment may use hearing protectors
- At the judges' discretion, competitors may be allowed to play music during some portions of the competition. Music must be played though earbuds or headphones.
- Competitors will not be allowed to access personal electronic devices such as cellphones or laptops during the competition.

Equipment Provided by Organizing Committee:

- Oscilloscope: minimum 40MHz, 2 channels, and 10x probes
- Function generator
- Dual power supply
- Digital multimeters
- Competition projects and documentation: To comply with the recommendations of the National Technical Committee, the project documentation will be released only at the competition
- Wire
- solder

Equipment Provided by the Competitor

Each competitor must supply the following equipment. Failure to comply with this requirement may result in the competitor not being allowed to participate.

Hand Tools

- Soldering iron, soldering iron stand, tips of choice and tip cleaner
    - Butane/gas soldering devices will not be allowed
    - flux remover will not be permitted
- Hand vacuum solder extractor and/or solder wick
- Long nose pliers
- Side cutters
- Wire stripper
- Screwdrivers
- "Third hand" or similar bench vice including magnifying glass

Miscellaneous

- Pens, pencils, eraser, ruler
- Calculator (not cellphone calculator). Judges will inspect the calculator for suitability
- Safety glasses

- Breadboard. Pre-cut or pre-bent wires **are not** permitted. Wire will be supplied.

Points Breakdown

Competitors will be marked objectively in the following areas:

- Project assembly and testing (including soldering)
- Circuit analysis
- Breadboarding technique

There will NOT be a separate theory exam. Each assigned task will have a series of questions to test theory.

Additional Competition Notes

- Marks for each section of the competition will be calculated to two (2) decimal places.
- In the event of a tie in the evaluation, the tie will be broken by the mark achieved on the following project sections:
    1. Project assembly and testing
    2. Reverse engineering
    3. Breadboarding technique

- Competition documents will be available to the competitor only at the time of competition
- Safety glasses must be worn during wiring, soldering and rework sessions. Failure to comply with this requirement may lead to disqualification
- Programmable calculators may be reset if the judges believe the owner will have an unfair disadvantage over other competitors
- Butane soldering irons will not be permitted
- Flux remover will not be permitted
- Pre-cut or pre-formed wires will not be permitted

If you have any questions, contact the technical committee chair:

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