

WORLDSKILLS SINGAPORE 2027

TECHNICAL DESCRIPTION

ELECTRONICS



Skill Competition

The Electronics competition involves designing, prototyping, programming, testing, and documenting electronic projects.

Competitors have to complete the Test Projects within 16 hours over 3 days.

Scope of Competition

The Electronics competition covers the following areas:

- Theoretical knowledge of analogue and digital electronics with emphasis on application of electronics devices in modules/systems.
- Circuit design skills for small electronic circuits.
- Translate theoretical design to final design through printed circuit board (PCBA) ready for manufacturing.
- Product prototyping skills ranging from PCB assembly (PCBA), wire harness, test & measurement of electronic circuits and light mechanical assembly.
- Embedded Software design using the C programming language.

Assessment

Competitors will be assessed based on Measurement and Judgement marking. The WorldSkills Standards and Assessment Guide from the last international WorldSkills is used as a guide for marking.

Areas of focus include the correctness of the design, presentation of results, functionality of firmware, and assembly/rework workmanship.

The mark allocation of the various tasks are:

Criterion		Marks
A	Circuit Design and Analysis	20
B	Schematic Capture and PCB Design	15
C	PCB Assembly and Functional Test	15
D	Software Design	30
E	Fault Finding	20
Total		100

Major Equipment and Tools

Organiser will provide the major equipment, such as workbench, oscilloscope, power supply, function generator, multimeter, laptop with required software, keyboard, mouse, and monitor. They will also provide miscellaneous tools and consumables such as test leads, solder, and breadboard.

Competitors may bring their own equipment, but the general rule is that competitors cannot use their own item if it is already provided by the organiser.

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Tools and Equipment the competitors can bring:

S/N	Equipment
1	Component tray
2	General hand tools (pliers, cutter, wire-stripper, screw drivers)
3	PCB work piece holder
4	De-soldering pump (manually operated)
5	Pocket calculator (non-programmable)
6	Workbench vice
7	PCB soldering and rework station