

**2012 SKILLSUSA MICHIGAN
CHAMPIONSHIPS TASK AND MATERIALS LIST**

SKILL OR LEADERSHIP AREA: _____ ELECTRONIC TECHNOLOGY

TASKS THAT MAY BE PERFORMED

1. Components identification
2. Technical and SkillsUSA Professional Development Test
3. Proper use of test equipment
 - A) DMM
 - B) OSCOPE
 - C) Funcgen - Global 2206
4. Apply troubleshooting techniques, within design
5. Breadboarding techniques
6. DC circuit design, construction and testing
7. AC circuit design, construction and testing
8. Transistor circuit design, construction and testing
9. Digital circuit design, construction and testing
10. Analog (op amp) circuit design, construction and testing
11. Analog to Digital/Digital to Analog Conversions, Memory Decoding
12. 555-Monostable, astable design/construction/testing
13. Soldering techniques/ Surface Mount Technology
14. Reading and understanding of manufacturer's spec sheets
15. Drawing circuit schematic from data sheets

Testing Schedule - Friday, April 20, 2012:

All Electronics Technology contestants need to take the following tests.

Attendance is mandatory! Failure to take these tests will result in NO POINTS for that section of the contest! If a contestant misses the written exam, they will still be able to participate on Saturday at the practical exam. They will not be able to take the written exam on Saturday and will receive zero points for that section of the contest. Contestants will also be receiving their datasheets for Saturday's competition. They will need to return these sheets on Saturday or they will be docked points.

- Between 2:00 pm and 4:00 pm - Leadership Test, Ballrooms A-D, Causeway Bay Hotel

- 4:00 pm – Electronics Technology Test, Imperial Room, Causeway Bay Hotel

Saturday, April 21, 2012:

The competition will be held at
ITT Technical Institute - Wyoming
1980 Metro Court
Wyoming, MI 49519
616-406-1200

ONLY COMPETITORS WILL BE BUSSED TO THE CONTEST SITE.

An interactive map is available at:

http://www.communitywalk.com/2012_skillsusa_michigan_state_conference_april_2012_2012/map/1313654

Revised 1/4/12

2012 SKILLSUSA MICHIGAN CHAMPIONSHIPS

Electronics Technology - Task that may be performed:

1. Component Identification
2. Proper use of test equipment
 - A) DMM
 - B) Oscilloscope
 - C) Function Generator (Global 2206)
3. Written technical test - 50 Questions technical
25 Questions skills USA (tie breaker)
4. Apply troubleshooting techniques within design (circuit design)
5. **Breadboarding** techniques (constriction, design, layout and neatness)
6. **DC circuits design**, construction and testing
7. **AC circuits design**, construction and testing (RCL circuits Peak and/or RMS)
8. **Digital circuits design**, construction and testing
9. Reading technical manuals (understanding spec sheets)
10. Transistor design, construction and testing (NPN, PNP, SCR's, or TRIAC's)
11. Analog to digital / digital to analog conversion /memory
12. Analog (Op amp) design, construction and testing - 741, 318, 358, or 4011
13. Soldering / Desoldering techniques - SMT (Surface Mount Technology)
14. 555 - Monostable, astable design / construction and testing or other oscillators
15. Part of the contest...Drawing out the circuit, showing pin # and connections.

Electronics Technology — The contest will last approximately 4 hours and has been divided into three sections.

Section 1: Written exam consisting of 50 questions. Last year's covered basic topics from DC analysis to digital analysis. The last 10 Questions of the test will be on how to read data sheets.

Performed on Friday

Section 2: Design, construct, and analyze the operation of a predetermined circuit. The contestants will be furnished all pertinent data sheets. Troubleshooting was added to the contest.

Performed on Saturday

Section 3: Covers soldering techniques. The contestant will assemble a circuit. Neatness, safety, and circuit operation will be judged. ***Note: At State Surface Mount Soldering will be required.***

Performed on Saturday

2012 MICHIGAN SKILLS USA CHAMPIONSHIPS

Electronics Technology

Students Must Supply:

Assortment of hand tools, minimum tools:

1. Soldering iron (variable wattage), holder and sponge
2. Desoldering - Manual solder extractor **ONLY**, solder wick or solder sucker.
3. Needle nose pliers
4. Diagonal cutters
5. Wire strippers
6. Solder - 60/40 resin core, 22 gauge (about, small solder)
7. Logic probe (optional)
8. Safety glasses with side shields or goggles (must)
9. Test leads (Banana to 1C, Banana to Alligator, and Banana to Banana) - 2 sets
10. Solderless breadboard (jameco JE 24 or similar)
11. Assortment of wire - 22gauge (different color and lengths) for bread boarding
12. Pencil and/or pen
13. Pocket scientific calculator (non programmable)
14. Oscilloscope probe leads (BNC connectors) - 2 sets
15. Grounding straps - Banana end (wrist)
16. Tweezers, Xacto knife, and/or dental pick (SMT soldering)
17. 3 prong to 2 prong adapter
18. Meter - DMM Fluke 77 (optional)
19. Static Mat (for breadboarding)

SCORECARD Electronics Technology*

Contestant Number

Items Evaluated	Possible Points							
Written Exam	200							
Soldering	200							
Bread Boarding/Trouble Shooting	600							
Résumé Penalty	0 or -50 only							
Clothing Penalty	0 to -50							
Total Possible Points	1000							

* Scoring may be different than what is shown.

Date:

Judges' Signatures:
