

**2021 MICHIGAN SKILLSUSA CHAMPIONSHIPS  
TASK & MATERIALS LIST**

SKILL OR LEADERSHIP AREA:                     Mechatronics                    

**CONTEST LOCATION:**

At participating school – connected via Zoom and Google Classroom

**RESUME:**

Each student must submit a one-page printed resume before the contest start at the contest site (present to contest coordinator, not judges). This is the only time that resumes can be turned in. Failure to do so will result in a 10-point penalty.

**TASKS TO BE PERFORMED:**

**Knowledge Performance**

The contest will include a 50 to 100 question exam assessing general knowledge of Mechatronics technology. Questions pertaining to mechanics, industrial electricity, fluid power systems (pneumatic and hydraulic), and programmable controllers will be included.

**Skill Performance**

The contest includes an electro-pneumatic construction project. Teams of two contestants, in a timed event, will accurately and neatly build an electro-pneumatic system based on a provided print.

**STUDENT MUST SUPPLY:**

- Computer with internet connection for each contestant
- Camera to view contestants as they take the online exam and build the project.
- Pneumatic parts:
  - Double acting cylinder
  - Single acting cylinder
  - One-way flow control valve (2)
  - 5/2 directional control valve, solenoid operated in both directions
  - 3/2 directional control valve, solenoid actuated, spring return
  - Air supply
- Electrical parts:
  - Push Button – Normally Open
  - Limit Switch (2)
  - Control Relay
  - Wires for connection of components
  - Power supply (24 VDC recommended)

- Tools as required to build the project
  - Project can be built with stand alone components or with an electro-pneumatic trainer
- Hand-held calculator (optional)
- Notepad (size optional)
- One-page résumé

**TECHNICAL COMMITTEE WILL SUPPLY:**

Links for written exam and print for the electro-pneumatic build. The electrical portion of the print will be in ISO format.

**CLOTHING REQUIREMENT (if different from National contest):**

- Work shirt and pants
- Work shoes
- Safety glasses with side shields or goggles. (Prescription glasses can be used only if they are equipped with side shields. If not, they must be covered with goggles.)

Revised 2/23/2021

# Mechatronics Scorecard

		Contestant Number						
Items Evaluated	Possible Points	1	2	3	4	5	6	7
Mechanical Build	300							
PLC Program	300							
Written Test	200							
Mec Lab	200							
Résumé Penalty	0 or -10 only							
Clothing Penalty	0 to -50							
Team Penalty (if competing with less than the required number of team members)	-100							
<b>Total Possible Points</b>	<b>1,000</b>							