

MECHATRONICS CONTEST

REQUIREMENTS AND SCOPE OF CONTEST

Scope of Contest:

To better reflect the emerging industrial technology called “Mechatronics”, this year’s competition will include mechanical, fluid power, electronic and control components. Teams of 2 students will be required to assemble, integrate, and program these components to create an automated system capable of completing a specific task. Troubleshooting will also be part of the contest. Programming can be done with committee-provided FluidSIM software or team-provided PLC (teams must register their choice by March 16, 2022 to allow for equipment planning). Scores will be based on task completion, accuracy and efficiency.

Contest will also include two math challenges. The first will be a motor and pulley speed calculation. The second will be based on input and output electrical signals from a PLC.

Bonus points will be added for teams that complete the exercises first. Point deductions will be administered for safety violations and soft skills.

NOTE THAT BOTH PROGRAMMING OPTIONS REQUIRE A TEAM-PROVIDED COMPUTER (WITH ADMINISTRATIVE RIGHTS).

*Tool Requirements: *One-page type-written resume required for every contestant*

Mechatronics Technical Committee provides:

- Three stations of FESTO MecLab trainers ((Stacking, Transfer, Handling)
- PLC Programming Challenges for both Fluid-Sim and/or School Supplied PLC
- Integration cables and power cords for above
- Pneumatic tubing for above
- Mini Compressor for above
- Math Calculation Challenges
- Schematics and cabling for PLC Programming
- Written Mechatronics Test
- Troubleshooting Challenge
- Motor Wiring exercise

School to Provide

- 3' x 6' workstations per team of students
- Chairs at each workstation (2)
- 110VAC at each workstation

Teams provide:

- Computer with a working copy of Fluid Sim or PLC software and matching PLC
- PLC (any brand with 16 or more 24VDC sinking inputs and 16 or more 24VDC sourcing outputs) with matching programming software and all necessary interface cables/wires.
- #2 pencil
- Safety glasses
- Multimeter
- Small Screw Drivers (Phillips and Regular)
- Wire Cutter/Stripper
- Allen Wrench Set (Inch and Metric)
- Open-Ended Wrenches (Inch and Metric)
- Appropriate Clothing
- Calculator

If you have questions, please contact:

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