2018 SkillsUSA Kansas
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 15, 2016 to allow for equipment planning). Scores will be based on task completion, accuracy and efficiency.

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)

-FluidSIM software

-Integration cables and power cords for above

-Pneumatic tubing for above

-Mini Compressor for above

-Math Calculation problem

-Schematics and cabling for PLC Programming

-Written Mechatronics Test

School to Provide

- (2) Pneumatic Stations consisting of:
    cylinders, contactors, relays, push buttons, tubing, low voltage wiring,
    power supply, other mechatronic components

  -Development of Contest utilizing Pneumatic Stations incorporating
   mechanical, electric wiring, electronic skillsets. Provide schematic and related
   task to run. EXAMPLE: Assembly of components, wiring of pushbutton,
   activation of cylinder hitting a sensor/switch, activating another action of
   some sort.

   -3' x 6' workstations

  -Chairs at each workstation (2)

  -110VAC at each workstation

Teams provide:

-Computer with Windows XP or above and CD/DVD drive

-OPTIONAL 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.

-Pen/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