**Mechatronics**

**Instructor**

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**Course description**

This entry-level course combines mechanical principles with robotics and electronics. Basic electronics principles are covered utilizing NIDA computer based electronics program. At the end of the electronics portion the students purchase inexpensive kits to show their component understanding and soldering skills. The next portion of the class deals with FESTO brand robotics training units for materials handling and sorting processes.

Time is provided in class to accomplish the assigned work. If class time is used wisely, all homework should be able to be completed in class. The NIDA lessons are web based and available on line with the assigned password.

**Learning outcomes:**

* 1. The Student will gain an understanding of various basic AC and DC principles and components.
* 2. The Student will demonstrate an understanding of various advanced AC principles and components.

**Standards:** 3, 5, 8 ,10, 12, 16

**Grade Levels:**

* 9-12

**Course Level:**

* Introductory

**Course Length:**

* 20 weeks

**Course Type:**

* Career-Technical Preparation
* Pathway: Manufacturing/Communication

**Topics:**

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| Apply OHMs law to design circuits. |
| Measure resistance in a circuit. |
| Determine performance specifications of components. |
| Calculate and measure current in a circuit. |
| Calculate power of a circuit. |
| Describe operation of electromechanical components. |
| Design electrical circuits using software. |
| Troubleshoot electrical circuits. |
| Build and operate electrical circuits. |