Utica Community Schools in partnership with

Macomb Community College

Presents: School Day - **Dual Enrollment for Robotics**

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| **Year 1** | **Year 2** |
| **Fall** | **Fall** |
| ROBO 1200 - Robot Operations, Handling Tool,  and Programming  Credit Hours: 3.00  ATTR 1600 - Industrial Safety-Skilled Trades  Credit Hours: 2.00 | ROBO 2450 - Vision Robot  Credit Hours: 3.00  MECT 1540 - Industrial Networks  Credit Hours: 2.00 |
| **Winter** | **Winter** |
| MECT 1141 – Basic Electricity and  Troubleshooting Skills  Credit Hours: 3.00  ATEM 1350 – Electro-Mechanical Blueprint  Reading  Credit Hours: 2.00 | ROBO 1435 – Arc-Tool Robot Welding  Credit Hours: 3.00  ATEE 2200 – Industrial Electronics Fundamentals  Credit Hours: 2.00 |

**ROBO 1200 - Robot Operations, Handling Tool, & Programming:** The student will be introduced to the tasks and procedures needed to safely set up, program, and maintain a robot with handling tool software.  It involves both classroom instruction and hands-on training.

**ATTR 1600 - Industrial Safety-Skilled Trades:** The student will gain an understanding of safety/health rules, procedures, safety responsibilities, and hazard recognition associated with the following: lockouts, machine tools, machine guarding, hand tools, portable power tools, safe use of energy sources, powered trucks, material handling, hazardous materials, lifting, climbing, ladders, scaffolds, rigging, slings, ropes, cranes, hoists, and basic fire safety. Accident causation, impact, prevention, and basic human anatomy and physiology will be studied.

**MECT 1141 - Basic Electricity and Troubleshooting Skills**: The student will be introduced to basic electricity concepts such as electrical components, fundamental circuit laws and applications, AC/DC circuit types, motors, soldering, test equipment usage, wire and cable terminations, and basic troubleshooting of simple electrical circuits. Computer simulation software will be used to simulate circuits. Industrial technical terms and safety procedures will be taught.

**ATEM 1350 - Electrical-Mechanical Blueprint Reading**: The student will practice in print reading using large blueprints for process control for temperature, flow, pressure, etc., delta-y connections, application of SCR controls, relay circuit for automated conveyor systems, robot operated hoist systems using programmable controllers, application of hydraulic, pneumatic and combustion controls, plumbing layout, power wiring layout, plant layout and interconnecting wiring.

**ROBO 2450 - Vision Robot:** The student will be introduced to the FANUC Vision system. Students will set up and calibrate a vision camera and create, test, and modify a vision‑style program.

**MECT 1540 - Industrial Networks:** The student will be introduced to industrial communication systems. The student will learn concepts such as network models, hardware components, configuration of devices, and network and transport protocols. Students will be taught industrial technical terms and safety procedures.

**ROBO 1435 – Arc-Tool Robot Welding**: ROBO 1435 covers the tasks and procedures students need to set up and program a FANUC Robotics Arc-Tool software package. Using the FANUC welding robot, students program, modify, and test a welding task.

**ATEE 2200 - Industrial Electronic Fundamentals:** The student will be introduced to the construction and function of electronic components that are used in building applications. Also, the electronics used in electrical systems such as fire, security, and controls are discussed in this course. Troubleshooting techniques for these components will be explained and applied in this course.

**These courses are designed to prepare students for success in careers in advanced manufacturing across many industries**, including automotive die/mold, medical, aerospace, defense, renewable energy, “green” technologies, and consumer products. This program is ideal for those who enjoy working with their hands.

**Students are required to drop two UCS courses to participate in this School Day - Dual Enrollment for Robotics. Transportation will be provided by UCS, and you be back at your high school prior to the end of the school day.**