Mechatronics Engineering Tech (MECET)

MECET 1500: Mechanical Systems
This course will prove the student with a basic understanding of common mechanical systems found in industrial and manufacturing facilities. Topics will examine industrial safety, mechanical system operations, configurations, and common maintenance. Emphasis will be on motor and drive systems such as belts, pulleys, chains, gears, and various coupling components. Common mechanical linkages and actuators will also be explored, along with a survey of industrial fluid power systems. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Restricted to Engineering Technology students only

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MECET 2500: AC/Linear and Solid-State Electronics
This course introduces advanced AC concepts and fundamental linear electronics, along with an introduction to solid-state devices. Analysis will be from both a theoretical and applied perspective. The course will examine advanced AC RCL circuit theory and applications, along with multi-phase AC and transformer theory. The fundamentals of solid-state devices are introduced with an exploration of diodes, BJTs, FETs, operational amplifiers, thyristors, and timer circuits. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Grade of C- or higher in MECET 1500 and ENGTC 2150. Restricted to Engineering Technology students only

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MECET 2600: Industrial Electricity and Control
This course will provide a fundamental understanding of industrial electricity and motor control applications. The course will examine concepts and applications of industrial electricity and modern motor control systems. Topics will include electrical safety, symbols and diagrams, multi-phase power, industrial transformers, control devices, and industrial ladder diagrams. Electrical motor theory is explored including motor construction, start/stop methods, reversing, and speed control. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Grade of C- or higher MECET 2500. Restricted to Engineering Technology students only

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MECET 3400: Advanced Robotics
This course will provide an advanced exploration of industrial robotics, with a focus on advanced programming concepts and techniques. Applied labs will include extensive work with two different robotic systems. Students will work with Fanuc 200iD and Universal Robotics UR3e robotic systems, covering advanced topics such as conveyor control, machine tending, palletizing, planes, and safety settings. Robotic risk assessment and mitigation practices are explored along with general robotic maintenance and system troubleshooting. Emphasis is placed on hands-on programming and integration practices. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Grade of C- or higher in ENGTC 3200. Restricted to Engineering Technology students only

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MECET 3800: Digital and Microcontroller Systems
This course will provide a fundamental understanding of digital electronics coupled with a review of microcontroller applications. The course will examine concepts and applications of digital electronics from simple logic gates to advanced digital circuits such as keyboard decoding, multiplexed displays, and memory systems. Additionally, the student will be introduced to micro control applications utilizing the Arduino microcontroller systems. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Grade of C- or higher in MECET 2600. Restricted to Engineering Technology students only

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