Mechanical Engineering Technology (MET)

Courses

MET 105. Fundamentals of Drawing. 3 Credits.
This course equips students with the computer aided design software tools such as AutoCAD to generate 2D engineering graphics, including engineering drawings, that meet industry standards.
P: MATH 101 with at least a C grade or WPT-MFND score >465 and WPT-AALG score >525, AND in Mechanical, Electrical, or Environmental Engineering Technology major or Electrical Engineering major or Electrical Engineering Principles Certificate
Fall and Spring.

MET 207. Computer Aided Design. 3 Credits.
This course introduces students to the creation of 2D sketching and engineering drawings using the AutoCAD software. In addition, this course provides skills and knowledge to enhance computer-aided design and solid modeling concepts with the help of the SOLIDWORKS software. Also Introduces kinematics motion and finite element simulation concepts to design and analyze parts.
FSS.

MET 218. Fluid Mechanics. 3 Credits.
This course covers the theory of fluids including hydrostatics, hydrostatic forces, buoyancy and stability, Bernoulli's equation, pipe flow, open channel flow, drag and lift.
P: PHYSICS 103 with a C or higher OR PHYSICS 201 with a C or higher OR ME 213 with a C or higher, and declared major in Environmental Engineering Technology or Mechanical Engineering Technology
Spring.

MET 318. Fluid Power Systems. 3 Credits.
This course covers the concept of fluid power and introduces common hydraulic and pneumatic systems used in engineering applications. Design, analysis, operation, maintenance, and application of these fluid power systems are discussed. Topics also include fluid directional, flow and pressure control.
P: MET 218 with a C or higher
Fall Only.

MET 324. Motors and Drives. 3 Credits.
This course analyzes selection, set-up, and circuitry associated with AC and DC drives and motors. Topics include DC motor characteristics. AC induction, specialty machine performance and characteristics, stepper motors, servomotors, and three phase power systems are also included.
P: ME 308 with a C or higher, and declared major in Mechanical Engineering Technology
Spring.

MET 380. Industrial Automation Control. 3 Credits.
This course provides exposure to the technology of automation and control for both discrete and continuous manufacturing industries; architecture of industrial automation systems; introduction to automatic control; fundamentals and programming principles of programmable logic controllers (PLC) and relay logic controllers (RLL).
P: ME 216 with a C or higher, and ME 308 with a C or higher
Fall Only.

MET 385. Robotics. 3 Credits.
This course introduces the fundamentals of robotics, transformation of coordinate frame, kinematics, dynamic modeling, trajectory generation and control of robots. Will involve robot simulations using MATLAB/Simulink.
P: ME 204 with a C or higher, and ME 214 with a C or higher
Fall Only.

MET 390. Mechatronics. 3 Credits.
This course provides the knowledge and skills for the design and development of mechanical systems that utilize microcontrollers (dedicated control computers) in order to achieve performance that is not possible with purely mechanical systems, for example: feedback control, automatic acquisition of performance data, adaptive behavior, and interacting with operators (user interface). Students will gain lab-based, hands-on exposure to the design of mechatronic systems including: real-time programming of a microcontroller; selecting sensors and actuators and interfacing them to a microcontroller; and the development and testing of an actual mechatronic system. In addition, students will gain an appreciation for key aspects of mechatronic systems including: sampling rates, noise, interrupts, open and closed-loop control, system integration, and the importance of good documentation.
P: ME 204 with a C or higher, and ME 308 with a C or higher
Spring.

MET 405. Applied Thermodynamics. 3 Credits.
This course provides senior level students with an overview of applied thermodynamics. Students will apply basic thermodynamics laws to analyze different cycles and systems, including: Vapor power cycles; Gas power cycles; Internal combustion engines; Refrigeration cycles and air conditioning systems; Combined heat and power (CHP) systems; Waste heat recovery technologies, especially organic Rankine cycles.
P: ME 324 with a C or higher
Spring.