MECHANICAL ENGINEERING TECHNOLOGY (2920)

2920:100. Survey of Mechanical Engineering Technology. (2 Credits)
Corequisite: 2920:154. Overview of the Mechanical Engineering Technology degree programs; pre-testing; career opportunities; professional societies & certification; standards; and useful tools of the MET field.

2920:101. Introduction to Mechanical Design. (3 Credits)
Prerequisite: 2880:140 or 2920:121. Corequisite: [2880:230 or 2920:100] and 2030:124. Topics in engineering drawing: conventions, sections, dimensioning and tolerancing. Detail drawings, subassembly and assembly drawings. Introduction to various mechanical components and mechanical design tools.

2920:121. Fundamentals of Engineering Drawing. (3 Credits)
Fundamentals of engineering drawing using freehand sketching and CAD; orthographic and isometric projections, sectioning, assemblies, and introduction to geometric dimensioning and tolerancing. Laboratory.

2920:130. Introduction to Hydraulics and Pneumatics. (3 Credits)
Principles of hydrostatic forces, pressure, density, viscosity, incompressible and compressible fluids. Principles of hydraulic and pneumatic devices and systems.

2920:142. Introduction to Material Technology. (3 Credits)
Fundamental properties of materials. Material testing. Applications of methods to control material properties.

2920:243. Kinematics. (3 Credits)
Prerequisite: 2990:125; Corequisite: 2920:101. Study of rigid-body motions of simple linkages, cams, gears, and gear trains. Vector solutions emphasized. Industrial applications presented and computers used to analyze mechanisms.

2920:245. Mechanical Design II. (5 Credits)

2920:249. Applied Thermal Energy I. (2 Credits)

2920:251. Fluid Power. (2 Credits)

2920:252. thermo-fluids Laboratory. (1 Credit)
Prerequisite: 2920:251; corequisite: 2920:249. Laboratory experiments in applied thermal energy and fluid power.

2920:290. Special Topics: Mechanical Engineering Technology. (1-3 Credits)
(May be repeated for a total of four credits) Prerequisite: Permission. Selected topics or subject areas of interest in Mechanical Engineering Technology.

2920:310. Economics of Technology. (3 Credits)
Prerequisite: 64 credits or permission. Economic principles as they pertain to technology. Equivalence, alternatives, costs, depreciation, valuation. Project studies.

2920:344. Dynamics. (3 Credits)
Prerequisites: 2920:243; 2030:255; 2990:125. Introduces particle dynamics, displacement, velocity, and acceleration of constrained rigid bodies in plane motion. Kinetics of particles and rigid bodies, work and energy, mechanical vibration.

2920:346. Mechanical Design III. (4 Credits)
Prerequisites: 2920:245 and 2920:344. Continuation of design of mechanical components: gears, bearings, shafts, springs, and fasteners. Special topics presented will be coordinated with assigned design projects.

2920:347. Production Machinery & Processes. (3 Credits)
Prerequisites: 2030:255 & [2880:110 or 2920:142] or permission. Study of manufacturing processes (casting, forging, welding, forming sheet metal), integrating material technology, mechanical design, and mechanics of materials.

2920:365. Applied Thermal Energy II. (3 Credits)
Prerequisites: 2920:249, 2920:251, 2030:255. Review and application of basic thermodynamic principles used in designing automotive engines and refrigeration equipment. Introduction to heat transfer, heating, ventilation, and air conditioning.

2920:370. Plastics Design & Process. (3 Credits)
Prerequisites: 2820:111 or higher. Introduction to structure and properties of polymers, selection based on properties and cost, design of products and tools, basic principles of the major processes.

2920:402. Mechanical Projects. (1 Credit)
Prerequisites: 2920:310, 2920:365, 2920:370, 2920:490, and [2870:301 or 2920:405]. Individual projects emphasizing creative technical design.

2920:405. Introduction to Industrial Machine Control. (3 Credits)
Prerequisites: 2860:370 (previously 2920:270). Principles and design of industrial machine control systems. Application oriented study of typical control devices. Utilization of programmable controllers as the system logic controllers.

2920:470. Plastics Processing & Testing. (2 Credits)
Prerequisites: 2920:370 or permission. Use of basic polymer testing methods. Setup and operation of modern molding and extrusion equipment. Basic troubleshooting procedures. Study of processing effects on final properties.

2920:490. Mechanical Engineering Technology Senior Seminar. (1 Credit)
Prerequisites: 2920:346 and 2920:347. An opportunity for post-testing of all MET students and the presentation of social and professional responsibilities, diversity, professional certification, life-long learning, and career opportunities.

2920:497. Senior Honors Project in Mechanical Engineering Technology. (1-3 Credits)
(May be repeated for a total of six credits) Prerequisites: senior standing in Honors Program, permission of area honors preceptor and major in mechanical technology. Independent research leading to completion of senior honors thesis or other original work.

2920:498. Independent Study in Mechanical Engineering Technology. (1-4 Credits)
Prerequisite: Department permission. Directed study in a special field of interest chosen by the student in consultation with the instructor (may be repeated for a total of six credits).