MECHANICAL ENGINEERING TECHNOLOGY (2920)

2920:100. Survey of Mechanical Engineering Technology. (2 Credits)
Corequisite: 2030:154. 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 2030:154. 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)

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)
Prerequisite: Permission. Selected topics or subject areas of interest in Mechanical Engineering Technology. (May be repeated for a total of four credits)

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, and 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 and [2880:110 or 2920:142]. 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: 2030:255, 2920:249, and 2920:251. 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)
Prerequisite: 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)
Prerequisite: 2920:370. 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)
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. (May be repeated for a total of six credits)

2920:498. Independent Study in Mechanical Engineering Technology. (1-4 Credits)
Prerequisite: 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).