

INDUSTRIAL TECHNOLOGY (I T)

- 105-3 Principles of Drafting. (2-4)** An introduction to mechanical drafting involving geometrical constructions, orthographic projection, dimensioning techniques, sectional views, auxiliary views, isometric views, and other topics related to manufacturing and other areas of drafting. Lab fee \$10.
- 106-3 Power Transfer Technology. (2-4)** A study of power transfer mechanisms used in industrial machines including those used for obtaining mechanical advantage (gears, pulleys, inclined planes, and levers), pneumatics, and hydraulics. The theory of operation and practical applications are stressed. Lab fee \$10.
- 117-3 Metals Technology. (2-4)** A study of metals and their machining characteristics and application. Emphasis is placed on layout, precision measurement, and heat treating. Laboratory experiences include work with sheet metal, metal casting, and metal lathe operation. Lab fee \$10.
- 205-3 Welding Technology. (2-4)** A course involving the study of equipment, materials, and processes used in oxyacetylene and arc welding and cutting of metals, with emphasis on metallurgy, testing, and inspection of welds. Prerequisite: I T 117 or approval of department head. Lab fee \$10.
- 215-3 Manufacturing Drafting. (2-4)** A course emphasizing the principles of engineering drawing in the fields of mechanical engineering, sheet metal, welding, and other industrial areas of manufacturing and construction. Working drawings and tolerancing are emphasized. Prerequisite: 3 hrs of drafting. Lab fee \$10.
- 303-3 Industrial Materials. (2-4)** A study of the structure, properties, processing, and application of metallic, polymeric, ceramic, and composite materials utilized in manufacturing. Laboratory exercises include processing methods, physical and mechanical testing, modification of properties, manufacturing applications, and material identification. Lab fee \$10.
- 314-3 Principles of Technology Education. (3-0)** A study of the Texas Technology Education curriculum, to include the areas of communication, manufacturing, construction, energy, power, transportation, computer applications, bio-related technology, electricity, electronics, graphics, principles of technology, and other related technologies.
- 317-3 Machine Tool Technology. (2-4)** Fundamentals and principles of metal removal processes. Emphasis is placed on metal lathes, milling machines, grinding machines, and electric discharge machines. Prerequisite: I T 117. Lab fee \$10.
- 318-3 Research and Reporting for Technologists. (3-0)** A study of research tools, methods, and data collection techniques used in the field of Engineering Technology. Emphasis will be placed on gathering, analyzing, and presenting technical information related to manufacturing topics in both oral and written form. Technical reports, product documentation, and correspondence will also be discussed. Prerequisites: ENGL 112 and junior status or approval of the department head.
- 320-3 Industrial Safety. (3-0)** A study of principles and practices used to establish a safe and healthful environment for industrial personnel. Includes a study of general industrial safety, safety and health regulation agencies, hazard recognition and correction, and first aid. Credit for both I T 320 and MGMT 320 will not be awarded.
- 324-3 Thermoplastic Processing. (2-4)** A study of thermoplastic materials and processes used in plastics manufacturing. Emphasis will be placed on injection molding, thermoforming, extrusion, rotational casting, expansion

processes, hot melt casting, and coatings. Also the impact of material selection on processing parameters will be stressed. Lab fee \$10.

- 325-3 Thermoset Plastic Processing. (2-4)** A study of the processes, equipment, and molds that are used to produce thermoset products. Emphasis will be placed on pultrusion, compression molding, transfer molding, filament winding, and hand lay-up of glass reinforced composite materials. The properties of thermoset materials will also be studied. Lab fee \$10.
- 340-3 Ceramics and Jewelry. (2-4)** A study of the history, media, and processes used in the design and creation of jewelry, ceramics, and pottery. Other three-dimensional media may also be studied. Emphasis is on the historical significance of three-dimensional artifacts as an expression of cultural advancement. Principles and techniques of investment casting, sculpting in wax, slip casting, and other methods of creating three-dimensional art will be emphasized. Lab fee \$10.
- 350-3 Numerical Control Systems. (2-4)** Principles, techniques, and applications found in numerically controlled machine tool programs. The course will focus on the application of computer assisted machine programs to generate and verify tool paths. Laboratory experiences include generating, posting, simulating, and machining N/C part programs. Prerequisite: I T 117 or approval of the instructor. Lab fee \$10.
- 361-3 Solid Modeling. (2-4)** An extensive study of the construction and analysis of complex three-dimensional solid models used in manufacturing and engineering. Orthographic views projected from solid models and renderings are used to study the applications. Prerequisite: IT 105 or approval of the instructor. Lab fee \$10.
- 393-3 Modular Technology. (2-4)** This course will investigate various systems used in modular technology education. Modular technology studies will include broadcasting technology, applied physics, power energy, transportation, graphic communication, composites, and computer application. Prerequisite: junior standing. Lab fee \$15.
- 399-v Cooperative Education. (variable)** This course is designed to offer students the opportunity to integrate academic study with work experience that is germane to their major or minor. Enrollment requires a two-semester minimum commitment that may be accomplished by 1) alternating semesters of full-time study with semesters of curriculum-related employment, or 2) enrolling in courses at least half-time (6 semester hours) and working part-time in parallel positions of curriculum-related employment. The department Cooperative Education advisor will supervise the student's experience and assign the final grade based on the student's final report which is required to complete the course. Students may participate in the Cooperative Education program for an unlimited number of semesters but a maximum of 6 hours credit may be counted toward a degree. Prerequisites: Completion of 30 semester hours which includes 12 hours in the major or minor discipline in which the Cooperative Education course is desired, minimum overall GPA of 2.5 and a minimum GPA of 3.0 in the appropriate major or minor field, and department head approval. Field experiences fee \$50.
- 405-3 Architectural. (2-4)** A course in residential architectural drafting using computer-aided drafting. Emphasis is placed on residential design and home planning. Lab fee \$10.
- 450-3 Numerical Control Programming. (2-4)** A study of advanced machine control techniques used in manufacturing including; in-part fixturing, high speed machining, and table driven parts programs. The role and function of

post processors for machine control will be explored. Lab experiences include designing fixtures, creating post processors and machining assemblies using N/C part programs. Prerequisite: IT 350. Lab fee \$10.

- 461-3 Computer Aided Visualization. (2-4)** The principles of computer aided visualization and simulation as they relate to mechanical design and assemblies. Software tools will be used to analyze parametric parts and assemblies for strength, function, range of motion and interference. Photorealistic animation and images will also be produced to simulate realistic lighting, texture, and colors. Prerequisite: IT 361 or approval of the instructor. Lab fee \$10.
- 484-6 Internship. (0-6)** An approved, supervised, comprehensive work experience consisting of a minimum of 240 hours (6 weeks) in an industrial or manufacturing enterprise. Prerequisites: Junior or senior classification and approval of academic advisor and department head. The internship may be repeated for a maximum of 6 hours of credit. Field experience fee \$50.
- 486-v Problems. (variable)** This course is designed to meet the needs of Engineering Technology students who have above average academic ability and who need to pursue subject matter that is not normally included in the Engineering Technology curriculum. Approval for enrollment in this course shall be with the concurrence of the individual instructor and the department head. The student must be currently enrolled in one of the majors offered in the Engineering Technology Department. Prerequisite: completion of 30 or more hours in the Department of Engineering Technology.
- 495-3 Engineering Technology Projects. (2-4)** A capstone projects course emphasizing a team approach to the analysis and solutions of manufacturing problems. Projects will be supplied by industry whenever possible. Emphasizes scheduling, design, working in teams, final written report and presentation. Restricted to Engineering Technology majors. Prerequisite: Senior standing. Lab fee \$15.
- 586-v Problems. (variable)** Open to students who are pursuing graduate work and have a background in Engineering Technology. Problem chosen by the student and developed through conferences and activities directed by the supervising professor. Prerequisite: Graduate classification and approval of department head.

