

## INDUSTRIAL TECHNOLOGY (IT)

**111. Engineering Drafting.** Credit 3 hours. The basic elements of drafting: selection and use of instruments, lettering, applied geometry, freehand sketching, orthographic projection, sectioning, dimensioning, isometric and oblique pictorial representation, fastener symbols and simple auxiliary views. Two hours of lecture and two hours of laboratory per week. Laboratory fee: \$45.00.

**112. Descriptive Geometry.** Credit 3 hours. Prerequisite: Industrial Technology 111. Industrial and engineering application of design concepts involving the uses of points, planes, and lines; spatial relationships. The application of primary, secondary, and successive auxiliaries used in the various engineering disciplines. Two hours of lecture and two hours of laboratory per week. Laboratory fee: \$45.00.

**202. Fundamentals of Supervision.** Credit 3 hours. Prerequisite: Sophomore standing. A basic study of the role of the supervisor in modern organizations, including the basic knowledge required to effectively supervise, interact with and motivate employees of various demographics in a variety of current work environments.

**205. Preventive/Predictive Maintenance.** Credit 3 hours. Prerequisite: Sophomore standing. A study of the methods required to develop and implement a comprehensive preventive/preventive/predictive maintenance management program to minimize equipment and system breakdown. Major topics include methods of monitoring critical equipment and systems, predicting machine failures, scheduling equipment maintenance, and the use of computer software in preventive/predictive maintenance programs.

**209. Special Topics.** Credit 3 hours. Organized class or individual instruction. May be repeated when topics vary for a maximum of six credit hours.

**215. Computer-Aided Drafting (CAD).** Credit 3 hours. Prerequisites: Industrial Technology 111 and permission of Department Head. Study of terminology, concepts, theories, and fundamental skills necessary to understand and operate a CAD system. Two hours of lecture and two hours of laboratory per week. Laboratory fee: \$45.00.

**233. Introduction to Basic Electricity and Electronics.** Credit 3 hours. Prerequisite: MATH 162. The fundamental concepts of electricity and electronics that involve direct current (dc), alternating current (ac), series and parallel resistive circuits, network analysis, magnetism, inductance, capacitance, transformers, motors, residential wiring, electronic components, and various types of test equipment found in industry. Two hours of lecture and two hours of laboratory problem solving per week. Laboratory fee: \$45.00.

**236. Advanced Electronics.** Credit 3 hours. Prerequisite: Industrial Technology 233. The study of semiconductor electronics beginning with the diode, progressing through transistors, amplifiers, JFETs, MOSFETs, OP-AMPS, power supplies, oscillators, thyristors, and integrated circuits (ICs). Two hours of lecture and two hours of laboratory problem solving per week. Laboratory fee: \$45.00.

**242. Materials and Processes.** Credit 3 hours. An introductory study of materials and processes as applied to industrial materials with special emphasis on metals, plastics, woods and ceramics. Two hours of lecture and two hours of laboratory per week. Laboratory fee: \$45.00.

**256. Principles and Metallurgy of Welding.** Credit 3 hours. Theory and practice in oxy-fuel gas and electric arc welding processes with emphasis on preparation of joints, manipulation in various weld positions, and the selection and use of welding accessories and equipment. Two hours of lecture and two hours of laboratory per week. Laboratory fee: \$45.00.

**262. Principles of Technology.** Credit 3 hours. Prerequisite: Sophomore standing or permission of the Department Head. A course designed to help students perceive the interaction of science, technology, and society. Scientific theories and law are merged with technological skills through the study of mechanical, fluid, electrical, and thermal systems found in technological devices. Through experimentation, students learn that technology is the application of science to the solution of practical problems. Two hours of lecture and two hours of laboratory per week.

**264. Industrial Fluid Power.** Credit 3 hours. Theory and practice of hydraulic and pneumatic power for industrial production. Functional examination of units: pumps, valves, boosters, etc. Simulated systems used to emphasize design and other industrial materials. Two hours of lecture and two hours of laboratory per week. Laboratory fee: \$45.00.

**291. Industrial Internship.** Credit 3 hours. Prerequisite: Sophomore standing and permission of the Department Head. This course is a cooperative venture between Southeastern Louisiana University and a variety of industries. It combines the student's academic and technical preparation at the university with actual on-the-job experiences in approved modern industrial enterprises. For three (3) hours credit a student must be employed a minimum of 20 hours per week during a regular semester and a minimum of 40 hours per week during the summer. Grades assigned on a Pass/Fail basis only.

**292. Independent Study.** Credit 3 hours. Prerequisites: A "B" average or recommendation by the faculty and approval of the Department Head. An honors course devoted to research and development through laboratory experimentation of selected problems of special interests. Enrollment limited. Grades assigned on a Pass/Fail basis only.

**308 [408]. Production Planning and Controlling.** Credit 3 hours. Prerequisite: Junior standing. A problem-based approach to the organization and control of production planning. The course also addresses reliability centered maintenance programs and automatic data collection relative to production and inventory control.

**309. Special Topics.** Credit 3 hours. Organized class or individual instruction. May be repeated when topics vary for a maximum of six credit hours.

**322. Materials Science and Metallurgy.** Credit 3 hours. Prerequisite: Industrial Technology 242. Study of the major materials used in industrial engineering, considering structure and properties, testing methods (destructive and nondestructive), and microscopic examination. Two hours of lecture and two hours of laboratory a week. Laboratory fee: \$45.00.

**331. Industrial Control Systems.** Credit 3 hours. Prerequisites: Industrial Technology 236 and 264. The study and the application of microprocessor based control systems in industrial operations. Two hours of lecture and two hours of laboratory per week. Laboratory fee: \$45.00.

**351. Machine Tool Technology.** Credit 3 hours. Prerequisite: Industrial Technology 111 and 242. Principles and practices of metal machining involving lathes, shapers, millers, planers, and precision grinders. Two hours of lecture and two hours of laboratory per week. Laboratory fee: \$45.00.

**391. Industrial Internship.** Credit 3-12 hours. Prerequisite: Permission of Department Head. Students receive on-the-job work experience with selected and approved industrial firms. For three hours credit a student must be employed a minimum of 20 hours per week during a regular semester and a minimum of 40 hours per week during the summer semester. Course may be repeated for a maximum of 12 credit hours. Grades assigned on a Pass/Fail basis only.

**402. Industrial Supervision.** Credit 3 hours. Prerequisites: Junior standing and credit for or enrollment in Management 351. The competencies and knowledge required of industrial supervisors to effectively manage production, groups and work teams in a dynamic workplace comprised of diverse populations.

**405 [306]. Work Methods and Measurement.** Credit 3 hours. Prerequisite: Industrial Technology 351. A study of the work methods and measurement concepts and techniques that are common to modern industry, including productivity improvement, work methods, work measurement, labor reporting, ergonomics, incentives and alternative methods for increasing productivity.

**406 [304]. Facilities Planning and Design.** Credit 3 hours. Prerequisite: Industrial Technology 405. A study of principles, methods, and techniques for analyzing existing and proposed facilities to achieve improvements in productivity. Major topics include strategic facilities planning; plant location; product, process and schedule requirements; materials handling and costing. Two hours of lecture and two hours of laboratory per week. Laboratory fee: \$45.00.

**407. Six Sigma Industrial Quality.** Credit 3 hours. Prerequisites: Math 165 or 241 or permission of Department Head. An approach to quality that focuses on the improvement of processes. Topics include teams, strategic planning, cause-and-effect diagrams, Pareto diagrams, basic statistics, probability, control charts, project management, flow diagrams and failure modes and effects analysis.

**409. Special Topics.** Credit 3 hours. Organized class or individual instruction. May be repeated when topics vary for a maximum of six credit hours.

**442. CAD/CAM/Robotics.** Credit 3 hours. Prerequisites: Industrial Technology 331 and 351 and a 200-level Computer Science Course. A course designed to cover the application of Computer-Aided Design, Computer-Aided Manufacturing and robotics in modern industrial settings. Two hours of lecture and two hours of laboratory per week. Laboratory fee: \$45.00.

**444. Computer-Integrated Manufacturing (CIM).** Credit 3 hours. Prerequisites: Industrial Technology 442. This course will cover the integration of various automated systems and peripherals into a functioning and flexible manufacturing system. The interfacing of the central control computer and robot systems into a workable manufacturing cell will also be covered. Two hours of lecture and two hours of laboratory per week. Laboratory fee: \$45.00.

**492H. Research and Development.** Credit 3 hours. Prerequisites: A "B" average or recommendation by the faculty and approval of the Department Head. An honors course devoted to research and development of selected problems. Course may be repeated for a total of six hours with no more than three hours in any one semester. Grades assigned on a Pass/Fail basis.

**625. Automated Design and Manufacturing.** Credit 3 hours. Prerequisites: DDT 316, IT 442 or permission of the ISAT Coordinator. A study of design principles and rapid prototyping through solid model development. Students will develop solid models, convert them to machine tool software for code development and produce prototypes with CAM and 3D printing. Two hours of lecture and two hours of laboratory work each week.