**Engineering Technology**

**ENGT 1000 - Introduction to Engineering Technology**

3 Credits 5 Contact Hours

Provides a study of engineering technology as a career field and describes the knowledge and skills required for academic and occupational success. Topics include engineering technology career, measurement and standards, mathematical operators, engineering tools, and engineering concepts. Labs reinforce mathematical, mechanical, and electrical concepts through practical exercises, such as measurement and calculation of density of objects; relative humidity; use of digital multi-meter; building circuits; use of precision instruments; and team exercises.

**MEGT – Mechanical Engineering**

**MEGT 1010 – Manufacturing Processes**

3 Credits 4 Contact Hours

Prerequisites: Regular Status; ENGT 1000

Introduces industrial manufacturing processes that employ processes for material shaping, joining, machining and assembly to the student. Topics include casting, shaping and molding of metals, ceramics and polymers; particulate processing of metals and ceramics, metal forming, machining, sheet metal working, joining and assembling, surface treatment, and manufacturing design considerations. Emphasis is provided on raw materials, quality, and costs of finished products. The course includes lab exercises that demonstrate the applications of the topics covered in actual manufacturing processes.

**MEGT 1211 – Machining and Welding**

2 Credits 4 Contact Hours

Prerequisites: Regular Status

Introduces machining and welding technology. This course will include emphasis of use and operation of selected machinery, various machining operations, selected welding processes and precision measuring instruments to be combined with laboratory projects and safety. Topics include industrial safety and health practices; welding quality; use of cutting and grinding tools; introduction to welding terms and symbols; shielded metal arc welding (SMAW); gas metal arc welding (GMAW); gas tungsten arc welding (GTAW); basic machining operations; and precision measuring instruments.

**MEGT 2100 – Manufacturing Quality Control**

3 Credits 5 Contact Hours

Prerequisites: ENGT 1000 or MATH 1013 with a minimum grade of C

Introduces statistical quality control and quality assurance techniques in manufacturing processes. Topics include: fundamentals of Six Sigma methodology, creating customer focus, statistical control techniques, control charts, process capability, failure modes and effects analysis (FMEA), teams and teamwork, leadership and strategic planning, optimization and reliability studies, lean manufacturing, and inspection tools and practices. The course is an effective training aid for those preparing to take the American Society for Quality (ASQ) Certified Quality Inspector (CQI) examination. Students will perform lab exercises applying quality concepts, tools and techniques to realistic industry examples.

**ECET – Electrical and Computer Engineering Technology**

**ECET 1101 – Circuit Analysis I**

4 Credits 6 Contact Hours

Prerequisites: MATH 1111 with a minimum grade of C; ENGT 1000

Emphasizes the knowledge and ability to analyze basic DC circuits and introductory concepts of AC circuits. Topics include international units, basic electrical laws, series and parallel circuits, network analysis concepts, network theorems concepts, DC instruments, grounding techniques, magnetism, inductance/capacitance, transient analysis, and introduction to dependent sources and 2-port parameters. Laboratory work parallels class work.

**ECET 1110 – Digital Systems I**

4 Credits 6 Contact Hours

Prerequisites: ENGT 1000

Study of digital circuit fundamentals with an emphasis on digital electronics and techniques, programmability of logic circuits, sequential and combinational logic circuits, programmable logic devices, flip-flops and registers, binary number system, and arithmetic and logic operations. Laboratory work parallels class work using trainers, DesignWorks and Altera simulation software and system.

**ECET 2101 – Circuit Analysis II**

4 Credits 6 Contact Hours

Prerequisites: ENGT 1000

Continues study of AC circuit analysis, which emphasizes complex networks. Topics include analysis of complex networks, networks with multiple sources, AC network theorems, resonance, transformers, three-phase systems, filters and bode plots, non-sinusoidal waveforms, and pulse response of RLC circuits. Laboratory work parallels class work.

**ECET 2120 – Electronic Circuits I**

4 Credits 6 Contact Hours

Introduces the conduction process in semiconductor materials and devices. Topics include semiconductor physics; diodes; basic diode circuits and applications; biasing, stability and graphical analysis of bipolar junction transistors and field effect transistors; introduction to silicon controlled rectifiers; device curve characteristics; and related devices with selected applications. Laboratory work includes circuit construction, use of appropriate instruments, troubleshooting and circuit simulation using P-SPICE.