

# Engineering

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## Program Description

The field of Engineering deals with the design, production, and testing of new products as well as maintaining and improving existing ones. Engineers are professionals who apply mathematical and scientific principles to solve technical problems.

## Associate Degree

Not offered in this discipline.

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### **ENGR 001**

**1.0 Unit**

#### **Introduction To Engineering**

*Course Advisory: Eligibility for English 001 and SCC minimum Math standard.* A first, non-technical course for engineering students and students considering majoring in engineering. Introduction to different engineering fields, the campus life of engineering students, schedule guidelines, opportunities in engineering, engineers' roles in society, ethics in engineering, and strategies and approaches required to survive math, science, and engineering courses. Possible field trips. *One hour lecture.*

### **ENGR 017**

**5.0 Units**

#### **Introduction To Electrical Engineering**

*Prerequisite: MATH 023 with a minimum grade of C (may be taken concurrently), and PHYS 007 with a minimum grade of C.* *Course Advisory: Eligibility for English 001.* Required for engineering majors, the course presents a study of basic circuit analysis techniques including Kirchoff's laws, mesh-current, node-voltage, Thevenin and Norton equivalent; transient and steady-state responses of passive circuits; sinusoidal steady-state analysis; power calculations; operational amplifier; semiconductor devices. Weekly homework assignments and written tests, including a comprehensive final examination and lab reports, will be used to evaluate student success. Four hours lecture, three hours lab.

### **ENGR 030**

**4.0 Units**

#### **Engineering Mechanics: Statics**

*Prerequisite: A minimum grade of C in both MATH 021, and PHYS 006.* *Course Advisory: Eligibility for English 001.* This course, which is required for engineering majors, presents a study of the principles of statics of particles and rigid bodies as applied to equilibrium problems of two and three-dimensional structures, and the principles of friction, virtual work, and stability of equilibrium. *Four hours lecture.*

### **ENGR 045**

**4.0 Units**

#### **Properties Of Materials**

*Prerequisite: PHYS 006 and CHEM 001.* *Course Advisory: Eligibility for English 001.* This required course for engineering majors covers the application of basic principles of physics and chemistry to the structure and properties of engineering materials. Special emphasis is devoted to the relationship between microstructure and the mechanical properties of metals, polymers and ceramics, and the electrical, magnetic, and optical properties of materials. Possible field trips. *Three hours lecture, three hours lab.*