



**Course Name:** Introduction to Electronics

**Course Number:** CST\* E144

**Credits:** 4

**Catalog description:** An introduction beginning with the explanation of electrical energy, voltage, current and power concepts and proceeds to fundamental DC, AC, analog, and digital circuits. Practical applications are stressed, and the lab exercises are run as though they are industry job assignments. Field practices are discussed, and safety is stressed as a basic objective which includes integrated lab exercises with the use of electronic test equipment and writing lab reports.

**Prerequisite:** MAT\* 095 *or* permission of the instructor

**Corequisite or Parallel:**

## **General Education Competencies Satisfied:**

**HCC General Education Requirement Designated Competency Attribute Code(s):**

None

**Additional CSCU General Education Requirements for CSCU Transfer Degree Programs:**

None

**Embedded Competency(ies):**

None

**Discipline-Specific Attribute Code(s):**

COMP                      Computer Science Elective

## **Course objectives:**

**General Education Goals and Outcomes:**

None



### **Course Specific Objectives:**

1. Gain a theoretical understanding of basic electrical concepts, units and formulae.
2. Be able to explain the relationship between AC and DC voltage, current, power, Ohm's law; be able to safely demonstrate these relationships in a laboratory.
3. Conduct a basic design of electrical elements, including resistors, inductors, capacitors and voltage/current sources.
4. Be able to apply the concepts to select and wire low house-hold voltage circuits.
5. Successfully select and use basic electrical/electronic test instruments.

### **Course Content:**

- ***FUNDAMENTALS OF ELECTRICITY***
  - A. Current and Voltage
  - B. Resistance/Ohm's Law
  - C. Lab Practices and Safety
  - D. Power Concepts and Magnetism
- ***DC CIRCUITS***
- ***INDUCTANCE AND CAPACITANCE***
- ***AC FUNDAMENTALS – FREQUENCY AND PHASE***
  - A. AC Circuits
  - B. AC Measurements
  - C. Transformers and Multi-Phase Systems
  - D. Inductive and Capacitive AC Circuits
  - E. Resonance and Frequency
  - F. Frequency Spectrum
- ***ELECTRICAL (INDUSTRY) CODES***
- ***ANALOG CONCEPTS AND CIRCUITS***
- ***DIGITAL CONCEPTS AND CIRCUITS***

Date Course Created:

Date of Last Revision: 04/03/2017