

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: ETR 273

Credits: 3

Course Title: Computer Electronics I

Course Description (including lecture hours, lab hours, total contacts)

Teaches principles of digital electronics and microprocessors to familiarize the student with typical circuits and methods used to interface computer and/or controllers with various I/O devices. Includes exposure to high level programming as well as assembly language routines. Part I of II. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

General Course Purpose

This is a required course in the Electronics Technology Career Studies Certificate program.

Course Prerequisites/Corequisites (*Entry-level competencies required for enrollment*)

Prerequisite: ETR 203 or equivalent.

Course Objectives

Upon successful completion of the course, the student will be able to

- a. describe basic digital systems.
- b. apply number systems and codes.
- c. describe switching circuits.
- d. utilize Boolean algebra and logic circuits.
- e. describe the components of the various types of flip-flop counters and registers, their operation and applications.
- e. describe the use of integrated circuits and operating characteristics of the most commonly used logic families.
- f. present a representative cross-section of the common types of MSI devices, their basic operating principles and uses.

Major Topics to be Included

LECTURE

- a. introductory concepts of digital systems
- b. number systems and codes
- c. logic gates and Boolean Algebra
- d. combinational logic circuits
- e. flip-flops and related devices
- f. digital arithmetic: operations and circuits
- g. counters and registers
- h. IC logic families
- i. MSI logic families

LABORATORY

- a. switches, inverters and gates
- b. logic circuits
- c. flip-flops
- d. counters and registers
- e. clocks and one-shots

Effective Date of Course Content Summary: May 2009