COURSE SYLLABUS

LAST REVIEW   Fall 2021

COURSE TITLE   Microcontrollers

COURSE NUMBER   ELEC-0220

DIVISION   Math, Science, Business & Technology

DEPARTMENT   Electronics Technology

CIP CODE   15.0303

CREDIT HOURS   4

CONTACT HOURS/WEEK Class: 3   Lab: 2

PREREQUISITES   ELEC-0215 Digital Electronics II, CIST-0120 Programming

Fundamentals

COREQUISITES

COURSE PLACEMENT Students must meet the correct placement measure for this course. Information may be found at: https://www.kckcc.edu/admissions/information/mandatory-evaluation-placement.html

COURSE DESCRIPTION
This course is an introduction to the basic principles and fundamental concepts of microprocessor systems. This course is a continuation of topics introduced in Digital Electronics I and II. Included are hardware and software topics in operating systems, peripherals, displays, processors, storage media, maintenance, diagnostics, and troubleshooting. Analog and digital data acquisition and processing will also be covered.

TEXTBOOKS
http://kckccbookstore.com/

METHODS OF INSTRUCTION
A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE
    I.   Introduction to Embedded Systems
    II.   Operation and Architecture
    III. Programming Development and Data Flow
    IV. Memory Interfacing
    V.   Analog I/O Interfacing
    VI. Serial Interfacing
    VII. Peripherals Interface
    VIII. Applications

COURSE LEARNING OUTCOMES AND COMPETENCIES
Upon successful completion of this course, the student will:

A. Describe the internal structure of a typical microprocessor.

B. Develop a program flowchart to define a problem.

C. Program a representative microprocessor with a typical language.

D. Describe the operating principles of applicable types of RAM (Random Access Memory) and ROM (Read Only Memory).

E. Interface a representative microprocessor with representative RAM and/or ROM.

F. Input and output data through appropriate ports.

G. Interface a representative microprocessor with typical peripherals.

H. Describe the operating principles of digital-to-analog and analog-to-digital converters.

I. List several applications of digital-to-analog and analog-to-digital converters.

J. Interface digital-to-analog and analog-to-digital converters to a microcomputer system.

K. Interface and program a programmable ROM.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES
Assessment methods may include, but are not limited to, the following: Homework, Assignments, Quizzes, Class Participation, Chapter Tests, and Final Exam. The grading scale and the process for calculating the course grades are to be determined by the individual instructors. This information will be included in each instructor's syllabus.

COLLEGE POLICIES AND PROCEDURES
Student Handbook
https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf

College Catalog
https://www.kckcc.edu/academics/catalog/index.html

College Policies and Statements
https://www.kckcc.edu/about/policies-statements/index.html

Accessibility and Accommodations
https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html.