REGULAR COURSE SYLLABUS

School of: Professional Studies
Department: Engineering Technology
Prefix & Course Number: EET 4370  Crosslisted With*: _____
Course Title: Microcontrollers

Check All That Apply:  Required for Major: X  Required for Minor: _____  Specified Elective: X
Required for Concentration:  Elective:  Service Course: _____

Credit Hours: 3 (2+2)

Total Contact Hours per semester (assuming 15-16 week semester):
  Lecture 30  Lab 30  Internship _____  Practicum _____  Other (please specify type and hours): _____
Schedule Type(s): D  Grading Mode(s): L

Variable Topics Courses (list restrictions, including the maximum number of hours that can be earned**):

** NOTE: This information must be included in the course description.

Restrictions (Variable Topics Course): _____

Prerequisite(s): EET 2350 and EET 3330 with grades of “C” or better
Corequisite(s): _____

Prerequisite(s) or Corequisite(s): _____

Banner Enforced:
  Prerequisite(s): EET 2350 and EET 3330 with grades of “C” or better
  Corequisite(s): _____
  Prerequisite(s) or Corequisite(s): _____

Catalog Course Description:
This course teaches microcontroller design. Topics include: Programming, Monitor functions, Hardware
configurations, Timing, Analog to Digital Conversion, Parallel I/O, and Serial I/O.

APPROVED:  Richard Ragg

Department Chair OR Program Director

Dean OR Associate Dean

Associate VP, Academic Affairs

*If crosslisted, attach completed Course Crosslisting Agreement Form
Required Reading and Other Materials will be equivalent to:


**Specific, Measurable Student Behavioral Learning Objectives:**
Upon completion of this course the student should be able to:
1. Define the architecture of microcontrollers
2. Write interrupt-driven programs
3. Use assembly language or C to program a microcontroller
4. Apply program control structures to microcontroller programming and develop formal program documentation
   a) Program a microcontroller to communicate with external digital and analog circuitry Using I/O ports
      Using analog/digital ports

**Detailed Outline of Course Content (Major Topics and Subtopics) or Outline of Field Experience/Internship (experience, responsibilities and supervision):**

I. Introduction to Microcontroller
   A. Programming Model
   B. Addressing Modes
   C. Block Diagram

II. Instruction Set of the Microcontroller

III. Assembly Language Programming
   A. Assemblers
   B. Assemblers Directives
   C. Simulators

IV. The Microcontroller Evaluation Board
   A. Capabilities
   B. Operation
   C. Buffalo Monitor Functions
   D. Memory Map

V. Hardware Configuration of Microcontroller
   A. Operating Modes
   B. Pin Functions
   C. Read/Write Timing

VI. Parallel Input and Output
   A. Ports B and C
   B. Handshaking

VII. The Timing System
   A. Port A
   B. Input Capture
   C. Output Compare
   D. Pulse Accumulator

VIII. Analog to Digital Conversion

IX. Serial Input and Output
   A. Port D
   B. Serial Communications Interface
   C. Serial Peripheral Interface

**Evaluation of Student Performance:**
1. Written exams
2. Written lab reports