COMMON COURSE OUTLINE: Course discipline/number/title: ENGR 1153: Microprocessors

A. CATALOG DESCRIPTION
1. Credits: 4
2. Hours/Week: 3 hours lecture/discussion and 2 hours lab per week
3. Prerequisites (Course discipline/number): ENGR 1152 or permission of instructor.
4. Co-requisites (Course discipline/number): None
5. MnTC Goals (if any): NA

This course is the study of programmable logic devices, member devices, microprocessors, input/output for a microprocessor and peripheral devices, interrupt driver input/output, and design of microprocessor-based systems. The accompanying integrated laboratory allows study of the operating characteristics of microprocessors. The course is intended to be a lower division course for those majoring in electrical engineering. Recommended Entry Skills/Knowledge: College level reading and writing skills are required.

B. DATE LAST REVISED (Month, year): April, 2008

C. OUTLINE OF MAJOR CONTENT AREAS:
Lecture:
1. Overview of computer architecture
2. Assembly language programming
3. Number systems and data representations
4. Arithmetic and logical operations
5. Floating point arithmetic
6. Data structures and addressing modes
7. Procedures
8. Input/Output
9. Interrupts and exception handling
10. Performance issues and architectural tradeoffs

Lab:
1. Measurement
2. Electronic equipment familiarity
3. Breadboards
4. Creation of circuits from a design
5. Trouble-shooting
6. Testing
7. Oscilloscopes
8. Technical writing

D. LEARNING OUTCOMES (GENERAL): The student will be able to:
Develop familiarity with:
1. The microprocessor, microprocessor memory types and support logic
2. Microprocessor Instruction Set
3. The operations for a specific microprocessor

E. LEARNING OUTCOMES (MNTC): NA

F. METHODS FOR EVALUATION OF STUDENT LEARNING:
Evaluation methods may include any or all of the following:
1. Objective exams
2. Essay exams
3. Research papers
4. Quizzes
5. Written homework
6. Small group projects
7. Oral presentations
F. METHODS FOR EVALUATION OF STUDENT LEARNING: Continued...
   8. Laboratory reports
   9. Or any other as deemed appropriate by the instructor and so indicated by his/her syllabus (original or revised)

G. SPECIAL INFORMATION (if any): The student is required to have a scientific calculator