Engineering Technology –ECET Option

Course Number and name: ET 344 Microcomputer Systems

Credits & Contact Hours: ET 344 is a 3credit course. Each week has two lectures of 75 min. Total semester contact hours are approximately 45 hr.

Instructor's name: Lynn Kelly

Textbook title, author, and year: *Essentials of Computer Architecture, Douglas E. Comer*, Prentice Hall, 2005;

Additional Materials: Altera's DE-1 board and Altera's supporting tutorials for the NIOS II architecture, the SOPC builder (builds user defined microprocessors), Altera's Monitor program to compile assembly code and Instruction Set for Altera's assembly language.

Specific Course Information:

a) **Course Catalog Description –** Microcomputer and/or microcontroller systems applications and architecture with a software emphasis using assembly language programming.
b) **Co- or Prerequisite:** ET 362 (Co), ET 182(Pre)
c) This course is required for ECET and IET degrees. It can be taken as part of the Digital Applications Minor.

Course Goals & Objectives:
Introduce students to the following.
Fundamentals of microcomputer architecture including
    Registers
    Memory
Fundamentals of programming in assembly language including
    Understanding basic instructions (arithmetic, data transfer, logic)
    More advanced instructions (compare, jump, loop) & Program development

Related ABET Objectives and Outcomes: The department of Engineering Technology and Survey Engineering ECET option has an objective of having its graduates possess the following skills and knowledge.

1. An appropriate mastery of the knowledge, techniques, skills and the modern tools of their disciplines including:
    - **Digital circuit analysis and design techniques**, architecture and applications of microcomputer systems, and the building, testing, operation and maintenance of electronic and computer systems.
    - The use **of Boolean mathematics in support of** the analysis, design, and application of electronic systems.
2. An ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering and technology;

Course topics and lecture hours devoted to each topic:

TOPICS	**HRS.**
• Basic Computer Architecture	3
• Computer Architecture and the RISC system	6
• Computer Architectures and the NIOS II architecture	9
• Assembly Language General & Altera's Assembly language	9
• Altera's DE-1 Board & programming techniques	9
• If time SOPC builder tutorial	3
• Tests and Quizzes, Review, Problem Solving and Examples	9

Prepared by: Lynn Kelly **Date: 1/14/11**