ELEN 304
INTRODUCTION TO MICROPROCESSORS

2002 - 2004 Catalog Data: ELEN 304. INTRODUCTION TO MICROPROCESSORS (Credit, 3 Hours) (Lecture, 3 hours). Presents the use of microprocessors to cover topics in computer hardware and software. Hardware topics and control buses are discussed. Trade-offs of different microprocessor architecture are explored. Software topics include instruction formats and types, program flow charts, algorithm construction, micro data structures, and monitors. Prerequisite: Digital Logic (ELEN 203). Co-requisite: Microprocessor Lab (ELEN 306).

Textbook: Barry B. Brey, *The Intel Microprocessor: Architecture, Programming, and Interfacing*, 6th Edition, Prentice Hall, 2003.

References: John Crisp, *Introduction to Microprocessors*, Newnes, 2001

Lecture: 10:00 a.m.-10:50 a.m. MWF Moore Hall, Rm. 221

Instructor: Dr. Fred Lacy, Assistant Professor
Office Location: Room 426, Pinchback Hall
Office Telephone: 771-4094
Office Hours: 0:00 a.m.-11:00 a.m., 2:00 p.m.-3:00 p.m. (M,W, F), 10:00 a.m.-12:00 p.m., 1:00 p.m.-3:00 p.m.(Th)
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Course Coordinator: Dr. Fred Lacy **Preparation Date:** April 2003

Prerequisites by Topics:
Digital Logic (ELEN 203)

ABET Content:
Math/Basic Science: 0.0 credits General Education: 0.0 credits
Engineering Topics: 3.0 credits Engineering Design: 0.0 credits

Course Objectives:

1. To give students a working knowledge of microprocessors, their organization and architecture (Program Educational Objective: 1)
2. To teach students various assembly language commands along with function and syntax of these commands (Program Educational Objective: 1)
3. To teach students the skills required to write assembly language programs (Program Educational Objectives: 1, 2, and 4)

Course Educational Strategies:

1. Provide clear lectures and detail examples of solutions to problems.
2. Provide students with the opportunity to prepare ahead of class through reading assignments.
3. Allow students to work collaboratively in groups on all assignments.
4. Allow students to demonstrate mastery of the concepts through exams, quizzes, homework assignments.

Course Content:

Introduction to the Microprocessor and Computer, The Microprocessor and its Architecture, Addressing Modes, Data Movement Instructions, Arithmetic and Logic Instructions, Program Control Instructions, Programming the Microprocessor, Interrupts. [Note that these topics will be covered as time permits].

Course Requirements:

1. Class attendance is important and it is required. Students who are within one percentage point of the next

higher letter grade will only be considered for that higher grade if they missed no more than 3 class periods.

2. Exams will focus on concepts developed during lectures and on problems covered in lectures and on homework. There will be no make-ups for missed exams (tests or quizzes) unless the student has a legitimate excuse that is documented properly (e.g., letter from court clerk that he/she must appear in a court, letter from physician that he/she is sick).
3. Homework assignments will be selected from the textbook and/or additional references. Homework assignments must be performed independently. Assignments will be collected on the due date when class is dismissed. Homework assignments not submitted on the due date before the instructor leaves the classroom will be considered late. Late homework will not be accepted under any circumstances.

Grading Policy: The final grade will be determined from the following weighted components:

Homework Assignments	10%
Quizzes	15%
Exam 1	15 %
Exam 2	15 %
Exam 3	15 %
Comprehensive Final Exam	30%
	100%

The grading is as follows: 90-100 (A) , 80-89 (B), 70-79 (C), 60-69 (D), and below 60 (F).

COURSE ASSESSMENT:

Course Objectives	**Intended Educational Outcomes**	**Means of Assessment**	**Criteria of Success**	**Relationship to Program Outcomes**
Objective 1: *To give students a working knowledge of microprocessors, their organization and architecture.*	Students will demonstrate their knowledge of microprocessors, their organization and architecture.	1. Locally developed 2. exams and quizzes 3. Course opinion survey 4. Collaborative exercises 5. DCE course score 6. BKS competencies evaluation	1. 80% passing rate 2. 90% positive response 3. 80% passing rate 4. 70% passing rate 5. 80% will achieve Critical Level of Performance (CLP)	Program Outcomes: 1-3 ABET: a, e, f, g, and k
Objective 2: *To teach students various assembly language commands along with function and syntax of these commands.*	Students will demonstrate their knowledge of various assembly language commands along with function and syntax of these commands.	1. Locally developed 2. exams and quizzes 3. Course opinion survey 4. Collaborative exercises 5. DCE course score 6. BKS competencies evaluation	1. 80% passing rate 2. 90% positive response 3. 80% passing rate 4. 70% passing rate 5. 80% will achieve Critical Level of Performance (CLP)	Program Outcomes: 1-3 ABET: a, e, f, g, and k
Objective 3: *To teach students the skills required to write assembly language programs.*	Students will demonstrate their ability to write assembly language programs.	1. Locally developed 2. exams and quizzes 3. Course opinion survey 4. Collaborative exercises 5. DCE course score 6. BKS competencies evaluation	1. 80% passing rate 2. 90% positive response 3. 80% passing rate 4. 70% passing rate 5. 80% will achieve Critical Level of Performance (CLP)	Program Outcomes: 1-3 ABET: a, e, f, g, k, and n