

SAN JOSE STATE UNIVERSITY
Department of Aviation and Technology
Tech 160 – Microprocessor Theory and Applications

Fall 2016 Manizheh Zand

Lecture: Tu 3:00 pm – 4:45 pm

Eng 103

Lab: Th 3:00 pm – 5:45 pm

IS 117

Office Hours: Tu 4:45 pm - 5:45 pm

IS 102

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408-924-3204

Course Description

Microprocessor concepts and applications applied to testing and data management. Assembly language and high-level language programming and techniques, including assembling, compiling, and debugging. Current trends and issues in microprocessors. Prereq: Tech 63; CS 49 or CompE 46

Course Objectives

Upon successful completion of this course, you will be able to:

- A) Understand the architecture and programming of Intel processor;
- B) Write, assemble, link, and debug assembly language application programs on a PC;
- C) Use assembly language to create both system-level software tools and application programs;
- D) Perform interaction between assembly language programs, the operating system, and other application programs; and
- E) Interface with high-level language

Textbook

Irvine, Kip R. (2011). Assembly Language for X86 Processors. (7th ed.). Upper Saddle River, NJ: Prentice-Hall.

Grading Criteria

The total points earned on all the midterms, quizzes, assignments, lab experiments, and final exam will be divided by the total possible points and the resulting percentage will determine the course grade

Midterms(2)	30%
Quizzes	10%
Homework Assignments	10%
Programming Assignments	30%
Final exam	20%

The final grade will be determined according to the following scale:

A+	97 -100%	B+	87 - 89%	C+	77 - 79%	D+	66 - 69%
A	93 - 96%	B	83 - 86%	C	73 - 76%	D	60 - 65%
A-	90 - 92%	B-	80 - 82%	C-	70 - 72%	F	0 - 59%

I. **Midterms & Quizzes**

There will be 2 midterms given during the semester **No makeup will be allowed.**

There will also be several quizzes given during the semester. **No makeup will be allowed.**

II. **Homework Assignments**

Do odd numbers of all Section Review questions in the chapters covered to reinforce the concepts covered during lectures. Assignments will be turned in on the day of each midterm and final exam.

III. **Programming Assignments**

You are expected to complete 4 assigned programming assignments from the programming exercises in the textbook beginning with Chapter 4. It is your responsibility to do a conscious work in a professional manner.

You are required to write, assemble, link, and debug the programs. Each program should include proper documentation. **Each student is required to turn in a source file and an output file showing the result for each program. The due date for each programming assignment will be 2 or 3 weeks from the assigned date. Each late assignment will be deducted 20% for whatever the excuses.**

IV. **Final Exam**
Monday May 23rd 1445-1700

Academic Integrity:

Your own commitment to learning, as evidenced by your enrollment at San Jose State University, and the university's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Conduct and Ethical Development. The policy on academic integrity can be found at http://sa.sjsu.edu/student_conduct.

Americans with Disabilities Act:

If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with DRC to establish a record of their disability.

Course Outline

Days	Date	Lecture	Topics
Th-Week 0	Aug 25 th		Orientation
Tu-Week1	Aug 30 th	Ch 1	Basic Concepts
Th	Sept 1 st	Ch 2	Processor Architecture
Tu-Week 2	Sept. 6 th	Ch 3	Assembly Language Fundamentals
Th	Sept 8 th	Ch 3	Quiz #1 Assembly Language Fundamentals
Tu-Week 3	Sept. 13 th	Ch 4	Data Transfers, Addressing, and Arithmetic
Th	Sept. 15 th	Ch 4	Data Transfers, Addressing, and Arithmetic
Tu-Week 4	Sept. 20 th	Ch 4	Data Transfers, Addressing, and Arithmetic
Th	Sept 22 th		Quiz #2 Review Midterm#1
Tu-Week 5	Sept. 27 th	Ch 4	Data Transfers, Addressing, and Arithmetic
Th	Sept. 29 th		Midterm #1
Tu-Week 6	Oct. 4 th	Ch 5	Procedures
Th	Oct. 6 th	Program #1 (4-6) Fibonacci Numbers	Procedures
Tu-Week 7	Oct. 11 th	Ch 5	Chapter 5 Procedures
Th	Oct 13 th	Program #2 (5-8) Color Matrix	
Tu-Week 8	Oct 18 th	Ch 6	Chapter 6 Conditional Processing Quiz #3
Th	Oct 20 th	Program #3 (6-5) College Registration Program #1 due	
Tu- Week 9	Oct 25 th		Chapter 6 Conditional Processing

TH	Oct 27 th		
Tu-Week 10	Nov 1 th	Ch 7	Chapter 7 Integer Arithmetic
Th-Week 11	Nov 3 rd ^h	Program #2 due	
Tu -Week 12	Nov 8 th	Ch 7	Chapter 7 Integer Arithmetic
Th	Nov 10 th	Program #4 (7-7) Prime Number Program #3 due	
Tu-Week 13	Nov 15 th	Ch 14	Chapter 14 Function calls
Th	Nov 17 th		Midterm #2
Tu-Week 14	Nov 22 nd	Ch 9	Chapter 9 String and Arrays
Th	Nov 24 th	Program #4 due	Happy Thanksgiving
Tu-Week 15	Nov 29 th	Ch 10	Chapter 10 Structures and Macros
Th	Dec 1 st		Quiz #4
Tu-Week 16	Dec 6 th	Ch 10	Chapter 10 Structures and Macros
Th	Dec 8 th		Review for Final
<u>Tu</u>	Dec 20th		<u>Final Exam 14:45-17:00</u>