

CMPS 302 Computer Organization

Credit: 3 hours

Catalog Description: Understanding the behavior of elementary computer hardware. Content of course deals with two state logic, flip flops, implementation of binary arithmetic, elementary Boolean algebra and elementary computer design. Addressing modes; implementation of a datapath; interfacing processors.

Instructor: Dr. Mohammad Abdus Salam, Department of Computer Science, T.T. Allain Hall, Room 145, and Phone: (225) 771-4383, Email: professor.salam@gmail.com.

Course Goals: The goals of the course are to:

1. Familiarize the students with the introductory concepts in computer organization.
2. Improve the knowledge of computer design.

Course Objectives and Learning Outcomes:

Upon completion of the course, students will be able to understand:

1. The functions of various computer components and their interconnections [Outcome a]
2. The computer arithmetic [Outcome a]
3. The elementary of Boolean algebra [Outcome a]
4. Combinational and sequential circuits [Outcome a]
5. Internal and external memory [Outcome a]

Computer Science Program Outcome:

Outcome a: an ability to apply knowledge of computing and mathematics appropriate to the discipline. [PEO1]

- a.1 Applies knowledge of mathematics
- a.2 Applies knowledge of science concepts
- a.3 Applies knowledge of computer science concepts

Program Educational Objectives:

The educational objectives of the Computer Science Program are to produce graduates who:

PEO1: Are thoroughly trained in methods of analysis, including the mathematics and computational skills appropriate for problem solving.

Textbook: Computer Organization and Architecture – Designing for Performance, Tenth Edition by William Stallings, Prentice Hall Inc., ISBN 978-0-13-41061-3, ©2016, 833 pages.

References:

<http://williamstallings.com/ComputerOrganization/>

Topic Covered: Computer Function, Cache memory, Internal Memory, External Memory, I/O system, Operating System Support, Number Systems, Computer Arithmetic, Digital Logic, Instruction Sets and Functions.

Prerequisite: CMPS 191 (Programming Techniques and Algorithm Development II), CMPS 200 (Discrete Structures).

Classroom: Henry Thurman Jr. Hall, Room 206.

Meeting time: Monday, Wednesday, and Friday: 11:00 am to 11:50 pm.

Evaluation and Grading: Standard grading scale will be followed. Following is a tentative distribution of various components of the course:

	<u>Points Distribution</u>		<u>Grading</u>	
Mid-term	25%	A:	90-100%	<u>Midterm Grading:</u> <i>10% Homework</i> <i>10% Quizzes</i> <i>80% Mid-term</i>
Quizzes	20%	B:	80-89%	
Homework	5%	C:	70-79%	
Class Performance	5%	D:	65-69%	
Project and Presentation	15%	F:	below 65%	
Final Exam	30%			
Total	100%			

Mid-term and final examination:

There will be mid-term examination and final examination. **It is mandatory that you take the mid-term and final. Make-up tests will be given in extenuating circumstances only.** All tests and examinations missed due to illness or emergency require a **written, verified excuse** or a grade of zero will be assigned.

Presentation and Report:

Each student is required to select a particular research topic and study in-depth of that area. Each student need to make *at least one oral* presentation of typically *10 minutes duration* and to submit a written report of about *5~7 pages long* about his/her research topic. All research topics must be approved by the instructor. Each student must submit a brief project title that outlines project objectives. You are encouraged to discuss research topics with the instructor and to submit your research topics as early as possible.

Quizzes:

Quizzes will be given in class at the discretion of the instructor. **No make-up quizzes will be given. At any time without any advance notice, pop-up quiz should be expected.**

Homework:

Homework will be assigned and collected. **Late assignments will not be accepted.** Selected assignments will be graded. Other assignments will be returned with general comments. The intent of assigning and collecting homework is to evaluate the progress of the students in mastering the concepts presented. Use regular-size paper, staple the sheets together, and put your name, date of homework, homework number on the cover page.

Attendance:

Students are responsible for all information covered in class. Attendance is strongly recommended and 5% bonus will be assigned.

Plagiarism:

Plagiarism in any course work (home works, quizzes, projects, exam, etc.) will not be tolerated. A course grade of "F" will automatically be assigned to anyone who cheats on assignments or examinations.

Cellular Phones and Portable Electronic Devices:

Please use common courtesy when bringing cellular phones and other portable electronic devices into class. They should be set to a non-audible signaling mode. If it is absolutely necessary to answer a cellular phone or beeper call, please discretely exit the classroom and do so. Please use common sense as to what constitutes an absolute necessity. No electronic devices such as cellular phones, laptop computers are allowed without the permission of the instructor during test.

Changes in Course Requirements:

Since all classes do not progress at the same rate, the instructor may wish to modify the above-mentioned requirements or their timing as circumstances dictate. For example, the instructor may wish to change the number and frequency of examinations, or the number and sequence of assignments. If such modification is needed, the student will be notified.

Disability Statements:

Students with documented disabilities who believe that they may need accommodations in this class are encouraged to contact the Disability Services Coordinator in the Office of Disability Services, 246 A.C. Blanks Hall, [225-771-3546](tel:225-771-3546) (Voice), [225-771-3949](tel:225-771-3949) (Fax), as soon as possible to ensure that such accommodations are implemented in a timely fashion. Students who need accommodations must be registered with the Office of Disability Services. Students are responsible for informing the instructor of any instructional accommodations and/or special learning needs at the beginning of the semester. All discussions will remain confidential.