SJSU SAN JOSÉ STATE UNIVERSITY

College of Science · Computer Science

Introduction to Computer Systems

CS 47

Fall 2025 Section 02 In Person 3 Unit(s) 08/20/2025 to 12/08/2025 Modified 08/18/2025

Contact Information

Instructor:

Seshadri Paravastu

Department of Computer Science

San Jose State University

Class Time:

Aug 20, 2025-Dec 8, 2025

TuTh 4:30PM - 5:45PM

First day of class: Aug 21, 2025

Last day of class: Dec 4, 2025

Final: Tue, Dec 16, 3:15 PM – 5:15 PM

Classroom: MacQuarrie Hall 520

Office Hours: Tuesdays from 3.30 to 4.30 (MacQuarrie Hall 520)

Wednesdays from 6:00 to 7:00 PM

(Appointment required via email seshadri.paravastu@sjsu.edu)

Seshadri Paravastu

Email: seshadri.paravastu@sjsu.edu

Office Hours

Tue 3.30 to 4.30 PM (in class) and Wednesdays from 6:00 to 7:00 PM via zoom.
in class

Office Hours: Tue from 3.30 to 4.30 PM in class.

Wednesdays from 6:00 to 7:00 PM via zoom.

Course Description and Requisites

Instruction sets, assembly language and assemblers, linkers and loaders, data representation and manipulation, interrupts, pointers, function calls, argument passing, and basic gate-level digital logic design.ï¿½

Prerequisite(s):ï¿½ CS/MATH 42 or 42X, andï¿½CS 46B (with a grade of "C-" or better); Allowed Majors: Computer Science, Data Science or Forensic Science: Digital Evidence

Letter Graded

Classroom Protocols

Attendance for the first 2 classes is mandatory, absence for either will lead to being dropped from the class. For the remainder of the sessions, please be on time for classes. I will be taking attendence within the first 15 min.

Eating:

Eating and drinking (except water) are prohibited in the Boccardo Business Center. Students with food will be asked to leave the building. Students who disrupt the course by eating and do not leave the building will be referred to the Judicial Affairs Officer of the University.

Note: Hats will not be worn in the classroom.

Cell Phones:

Students will turn their cell phones off or put them on vibrate mode while in class. They will not answer their phones in class. Students whose phones disrupt the course and do not stop when requested by the instructor will be referred to the Judicial Affairs Officer of the University.

Computer Use:

Students use computers only for class-related activities. These include activities such as taking notes on the lecture underway, following the lecture on Web-based PowerPoint slides that the instructor has posted, and finding Web sites to which the instructor directs students at the time of the lecture. Students who use

their computers for other activities or who abuse the equipment in any way, at a minimum, will be asked to leave the class and will lose participation points for the day, and, at a maximum, will be referred to the Judicial Affairs Officer of the University for disrupting the course. (Such referral can lead to suspension from the University.) Students are urged to report to their instructors computer use that they regard as inappropriate (i.e., used for activities that are not class related). No recording devices may be used in the classroom.

Academic integrity statement (from Office of Judicial Affairs):

Your commitment to learning, as evidenced by your enrollment at San José 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 Judicial Affairs. The policy on academic integrity is at http://www2.sjsu.edu/senate/S04-12.pdf

Campus policy in compliance with the Americans with Disabilities Act:

If you need course adaptations or accommodations because of a disability, or if you need special arrangements for this online class, please email me as soon as possible and make an appointment to see me. Presidential Directive 97-03 requires that students with disabilities register with AEC to establish a record of their disability.

Proctoring Software and Exams

Exams will be proctored in this course through Respondus Monitor and LockDown Browser. Please note it is the instructor's discretion to determine the method of proctoring. If cheating is suspected the proctored videos may be used for further inspection and may become part of the student's disciplinary record. Note that the proctoring software does not determine whether academic misconduct occurred, but does determine whether something irregular occurred that may require further investigation. Students are encouraged to contact the instructor if unexpected interruptions (from a parent or roommate, for example) occur during an exam.

Recording Zoom Classes

If necessary, portions of this course (i.e., lectures, discussions, student presentations) may be recorded for instructional or educational purposes. The recordings will only be shared with students enrolled in the class through Canvas.

Students are not allowed to record without instructor permission

Students are prohibited from recording class activities (including class lectures, office hours, advising sessions, etc.), distributing class recordings, or posting class recordings. Materials created by the instructor for the course (syllabi, lectures and lecture notes, presentations, etc.) are copyrighted by the instructor. This university policy (S12--7) is in place to protect the privacy of students in the course, as well as to maintain academic integrity through reducing the instances of cheating. Students who record, distribute, or

post these materials will be referred to the Student Conduct and Ethical Development office. Unauthorized recording may violate university and state law. It is the responsibility of students that require special accommodations or assistive technology due to a disability to notify the instructor.

Program Information

Diversity Statement - At SJSU, it is important to create a safe learning environment where we can explore, learn, and grow together. We strive to build a diverse, equitable, inclusive culture that values, encourages, and supports students from all backgrounds and experiences.

Course Goals

The course consists of an introduction to computer hardware organization and the hardware/software interface. Programming assignments are used to reinforce concepts of data representation, addressing modes, memory organization, run time stacks, and interfacing with high-level languages.

Course Learning Outcomes (CLOs)

Upon successful completion of this course, students should be able to:

- To be familiar with the architectural components of a computer system: CPU (registers, ALU), memory, buses
- To be able to convert between decimal, binary, and hexadecimal notations.
- To work with two's complement integers, floating-point numbers, and character encodings
- To be able to write assembly programs that use load/store, arithmetic, logic, branches, call/return and push/pop instructions.
- To understand the gate-level operations of basic ALU

Course Materials

Required Texts/Readings

COMPUTER ORGANIZATION and DESIGN | Edition: 5

Author: DAVID A. PATTERSON

ISBN:9780124077263

Publication Date:10/10/2013 Publisher:ELSEVIER

Other Readings

Logic & Computer Design Fundamentals 5th Edition

ISBN 9780133760637

Author(s): M. Morris R. Mano; Charles R. Kime; Tom Martin

Publisher: PEARSON

Technology Requirements

Students are required to have an electronic device (laptop, desktop or tablet) with a camera and built-in microphone. SJSU has a free equipment loan program available for students. Students are responsible for ensuring that they have access to reliable Wi-Fi during tests.

Zoom Classroom Requirements

- If necessary, zoom dial-in information will be provided.

LockDown Browser + Webcam Requirement

This course requires the use of LockDown Browser and a webcam for online quizzes. The webcam can be the type that's built into your computer or one that plugs in with a USB cable. Watch this brief video to get a basic understanding of LockDown Browser and the webcam

feature. https://www.respondus.com/products/lockdown-browser/student-movie.shtml

Download Instructions

Download and install LockDown Browser from this link: https://download.respondus.com/lockdown/download.php?id=9679

37270

Once Installed

Start LockDown Browser

Log into to Canvas

Navigate to the quiz

Note: You won't be able to access a quiz that requires LockDown Browser with a standard web browser. If this is tried, an error message will indicate that the test requires the use of LockDown Browser. Simply start LockDown Browser and navigate back to the exam to continue.

Guidelines

When taking an online quiz, follow these guidelines:

Ensure you're in a location where you won't be interrupted

Turn off all other devices (e.g. tablets, phones, second computers) and place them outside of your reach

Take the exam in a well-lit room, but avoid backlighting

Remember that LockDown Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted

Grading Information

This course follows weighted grading with weights for the course deliverables components, as follows:

Participation/Project/Homework/Discussions 25%

Quizzes (Average of All) 25%

Midterm- I: 15%

Midterm-II: 15%

Final Exam: 20%

Total 100%

Extra Credits: *No extra credit or make-up credits*

Your overall grade is calculated as a sum of all assessment elements mentioned above. No curve will be added to an individual element. If necessary, I will curve the overall grades.

For this class, overall grades are converted to letter grades as follows:

A+ = 97 – 100	**B+** = 87 – 89	**C+** = 77 – 79	**D+** = 67 – 69	**F** = below 60
A = 94 – 96	**B** = 84 – 86	**C** = 74 – 76	**D** = 64 – 66	

A- = 90 – 93	B- = 80 – 83	C- = 70 – 73	D- = 60 – 63	

Grade earned in every component above will be calculated as a percentage, and the grade percentage * weight gives you the weighted score for that component. The total of all weighted scores for individual components will give you the weighted score for the course. Your final letter grade will be based on this weighted score.

Attendance for the first 2 classes is mandatory, absence for either will lead to being dropped from the class.

University Policies

Per University Policy S16-9 (PDF) (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on the Syllabus Information (https://www.sjsu.edu/curriculum/courses/syllabus-info.php) web page. Make sure to visit this page to review and be aware of these university policies and resources.

Course Schedule

Date	Lecture	Notes
08/21	*Syllabus Overview, Intro, Submit Prerequisite Survey (First Class)*	
08/26	Introduction to Computer	Use cases in real world, system programming
08/28	Computer Organization	Architecture and Working, Code Instruction Flow at hardware-level
09/02	Number Representations in Computers	Data Types, Team Formation for Presentations
09/04	Programming a computer	Compilation Flow- Assembler, linker and loader, Code flow in depth
09/09	Assembler, Linker, Loader SPIM IDE & MIPS Simulator	

09/11	Intro to Assembly Programming	How to code in Assembly, syntax, simple programs
09/16	Assembly Programming- deep dive	**Announcement of PA-1-** How to submit programming assignments
09/18	MIPS Assembly Language, Arithmetic & Logic Instructions	Quiz 1, **in class**
09/23	Memory Usage I	
09/25	Memory Usage II	
09/30	Comparison, branch & jump Instruction	
10/02	Short topic + Quiz 2	Quiz 2, in class **Presentation- Team 1**
10/07	Procedure Call	**Presentation- Team 2**
10/09	Example 'printf' procedure call	**Presentation- Team 3**
10/14	Review Session	
10/16	**Midterm I Exam (in class)**	
10/21	Boolean Algebra I	**Presentation- Team 4**
10/23	Boolean Algebra II	**Presentation- Team 5**
10/28	Logic gates	**Presentation- Team 6**
10/30	Presentation + Quiz 3, in class	**Presentation- Team 7**

11/4	Addition / Subtraction Logic	**Presentation Team 8**

11/06	Addition / Subtraction Logic	**Presentation - Team 9**
11/11	Multiplication Logic	Veterans Day Holiday - NO CLASS
11/13	Short Review	**Presentation - Team 10**
11/18	**Midterm II Exam (in class)**	
11/20	Division Logic	
11/25	Division Logic, Floating Point Number Representation	
11/27		Thanksgiving Holiday - NO CLASS
12/02	Exceptions & Interrupts	**Presentation - Team 11**
12/04	Review	**Last Day of Instruction**
12/16	**Final Exam** 3:15 PM – 5:15 PM	**Project Presentation Report Due**

1– subject to change by instructor without prior notice.