

California State University San Bernardino  
School of Computer Science and Engineering  
CSE 4010- Contemporary Computer Architecture  
(4 Units)  
Winter Intersession

**Meetings:** **Lecture:** MTWTh (Synchronous) 9:00 am – 12:00 pm, Virtual Meeting(Zoom)  
**Lab:** MTWTh (Hybrid) 1:00 pm – 2:40 pm

**Contact Information**

I welcome you to contact me outside of class and student hours. You may email me, call my office, or leave a message. If you find yourself not understanding the assigned reading, lectures, and assignments, please talk to me. We can find time and means that work for both of us.

**Instructor:** Dr. Fadi Muheidat      **Office:** ~~JB-311~~ ( online)      **Phone:** (909)537-5424

**Email:** [fadi.muheidat@csusb.edu](mailto:fadi.muheidat@csusb.edu) (preferred)

**Student Hours( Zoom):** Tuesday/Wednesday 12 pm - 1 pm or by appointment

**Course Description**

Instruction set architecture; design methodology; performance measurement; computer arithmetic; memory hierarchy; RISC architectures, including pipelining and parallel-processing; distributed system architectures. Three hours lecture and three hours laboratory. Materials fee required. Formerly CSE 401.

Semester Prerequisite: CSE 3100 and CSE 2130. Quarter Prerequisite: CSE 310 and CSE 313

**Course Website:** <http://blackboard.csusb.edu>

**Textbook and References:**

**Textbook:** *Computer Organization and Design MIPS Edition, Patterson and Henessy. 5th Edition. The Hardware/Software Interface.* ISBN:9780124077263

**Book companion web site (online resources):** <http://booksite.elsevier.com/9780124077263/>

**Course Objectives**

After completing the course, you should be able to

1. Performance metrics
2. MIPS instruction set
3. Arithmetic and ALU, design constraints on hardware
4. Hardware and Microprogrammed control
5. Pipelining, interaction with instruction set architecture
6. Memory hierarchy, caches and virtual memory

## 7. Use of a Hardware Description Language to design and simulate the CPU

### ABET Students Outcomes

CSE 4010 supports the following student outcomes defined by ABET EAC Criteria:

- a) (SO2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- b) (SO5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- c) (SO6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

### Learning Assessments

You will have many opportunities to demonstrate what you are learning and receive feedback in this course. I've designed the course to provide a variety of ways for you to show your learning. Each assessment method will have more details posted on Blackboard, including grading, references, and rubrics in some cases. There will be different types of assignments:

- **Readings and in-class worksheets:** Students will read a significant portion of the textbook.
- **Homework:** There will be several homework assignments designed to deepen and evaluate students' understanding. Students will perform homework assignments *individually*. Some of the homework questions will be graded.
- **Quizzes:** There will be multiple quizzes. The students will be asked to answer a quiz on the material already discussed in the class, and material/video they watched as pre-class reading.
- **Labs:** There will be several lab assignments. These Labs will provide you an opportunity to learn from each other and deepen student's understanding. ( Collaboratively in a team of two or three)
- **Exams:** a final (Comprehensive) exam. All Exams will be a closed book and notes unless otherwise specified.

### Grading

Grades may be curved at the instructor's discretion with typical (meaning somewhere around this region) grades ranges are:

"A" 92.5 and above "A-" 89.5 to 92.49

"B+" 87.5 to 89.49 "B" 82.5 to 87.49 "B-" 77.5 to 82.49

"C+" 73.5 to 77.49 "C" 69.5 to 73.49 "C-" 62.5 to 69.49

"D+" 55.5 to 63.49 , "D"  $\geq 50$

"F" Below 50

The final grade is calculated based on the following weightings:

**Homework:** 20%

**Quizzes:** 20%

**Laboratory:** 20%

**Final Exam** (Comprehensive): 40%

## Grades breakdown

1. **Exams (40%):** There will be one comprehensive final exam. The date for the exam is listed on the Course Calendar. The exam is meant to be more difficult than quizzes and Homework. It should thoroughly test your knowledge of the subject – not can you simply perform the necessary operations to complete the problem, but do you know what you are doing. Exams will be a closed book, closed notes unless otherwise specified.
2. **Homework (20%):** There will be several homework assignments designed to deepen and evaluate students' understanding. Students will perform homework assignments individually.
3. **Quizzes (20%):** There will be multiple quizzes. The students will be asked to answer a quiz on the material already discussed in the class and material/video they watched as pre-class reading.
4. **Labs (20%):** There will be several lab assignments throughout the semester. These Labs will provide you an opportunity to learn from each other and deepen student's understanding.

***In certain circumstances(such as cheating or plagiarism), I may be required to charge you with a violation of the University's Plagiarism and Cheating policy. CSUSB is every bit as committed to academic integrity as I am. You should familiarize yourself with that Policy. You can find it in the Bulletin of Courses under Academic Regulations. Be sure to notice that there's a procedural that's designed to protect your rights. (See Academic Integrity below).***

## Collection of Work for Assessment

Student work may be retained to assess how course learning objectives are being met and for accreditation purposes.

## Absences and Late work

Attendance is a good indication of your commitment to learning the material and, as such, provides the instructor with visual feedback as to your learning and comprehension. Attendance is required for all lectures. Prior permission in writing is required for an excused absence. But extenuating circumstances arise that can make this difficult.

Turning in work late makes it difficult for me to respond to students' work on time, and it may make you fall behind on other assignments. There will be a penalty of 20% per day to discourage late work, up to a maximum of 3 days late.

## Inclusivity & Class Participation

Your perspective is important to this course. Your classmates will rely on you to contribute your skills, knowledge, and pre-class preparation to the discussion and during class activities and worksheets. This class is your community; we will work together to create an enthronement of

respect, inclusion, and equity. Also, I want you to actively participate in the class to learn the material and make the class fun to attend. We all come to the table with differing experiences and viewpoints, which means that we have so much to learn from each other! To get the most out of this opportunity, it is important that we don't shy away from differences. Instead, we should show respect for differences by seeking to understand, asking questions, clarifying our understanding, and/or respectfully explaining our own perspective. This way, everybody comes away with new perspectives on the issue and respecting others with different values or beliefs. If someone says something that bothers you for any reason, assume that your peer did not mean to be offensive and ask your peer to clarify what he or she meant. Then explain the impact it had on you. If your classmates tell you that something you said or wrote bothered them, assume that they are not attacking you, but rather that they are sharing something that might be important for you to know.

### **Respect for Diversity<sup>1</sup>:**

It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the course's effectiveness for you personally or for other students or student groups. Also, if any of our class meetings conflict with your religious events, please let me know to make arrangements for you.

### **Online Materials**

The Blackboard system will be used to assist in instruction. You can access posted course materials via Blackboard at <http://blackboard.csusb.edu>. You are responsible for keeping up with homework assignments, announcements, etc. that may be posted on Blackboard or sent via email (at your email address posted on Blackboard). Should Blackboard be down and the assignment due is within one hour of the due date, please email the instructor the assignment. Otherwise, please recheck Blackboard after waiting for a short amount of time.

### **Collaboration Policy**

Students may collaborate on work but must turn in their individual work. Work should list all collaborators. Failure to list collaborators or identical assignments (even with collaboration statement) will be considered academic dishonesty. (see below)

### **Dropping and Adding**

You are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. found in the CSUSB Bulletin.

### **Academic integrity**

According to the CSUSB Catalog of Programs, plagiarism and cheating may result in penalties up to and including expulsion. Consult the Academic Regulations and Procedures for University Policies: <http://bulletin.csusb.edu/academicregulations/>.

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<sup>1</sup> <https://ctl.yale.edu/DiversityStatements>.

## Plagiarism and Cheating

Plagiarism and cheating are violations of the Student Conduct Code and may be dealt with by both the instructor and the Judicial Affairs Officer. Definition and procedures for addressing cheating and plagiarism are found below. Questions about academic dishonesty and the Policy should be addressed to the Office of the Vice President, Student Services.

Plagiarism is the act of presenting the ideas and writings of another as one's own. Cheating is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means. Cheating includes but is not limited to:

1. Copying, in part or in whole, from another's test, software, or other evaluation instrument.
2. Submitting work previously graded in another course unless this has been approved by the course instructor or by departmental Policy.
3. Submitting work simultaneously presented in two courses, unless this has been approved by both course instructors or by the department policies of both departments.
4. Using or consulting during an examination sources or materials not authorized by the instructor.
5. Altering or interfering with grading or grading instructions.
6. Sitting for an examination by a surrogate, or as a surrogate.
7. Any other act committed by a student in the course of his or her academic work, which defrauds or misrepresents, including aiding or abetting in any of the actions defined above.

**Plagiarism** is academically dishonest and makes the offending student liable to penalties up to and including expulsion. Students must make appropriate acknowledgments of the original source where material written or compiled by another is used.

### Procedure.

Allegations of academic dishonesty may be handled directly by the instructor or may be referred by the instructor to the Judicial Affairs Officer.

If handled by the instructor, the instructor has the following responsibilities:

1. To preserve the evidence in support of the allegation;
2. To notify the student of the allegation and of the evidence on which it is based;
3. To provide the student a reasonable opportunity to challenge or rebut the allegation;
4. To notify the student of the action being taken.

The instructor may employ any of the following sanctions:

1. Verbal or written reprimand;
2. Assignment or appropriate task or examination;
3. Change of grade, including assigning a punitive grade to work involving dishonesty, or for the course, project, thesis, or any other summary evaluation of the student's academic work.

If the student does not wish to accept the sanction proposed by the instructor, the student may request and require that the allegation be referred to the Judicial Affairs Officer. In that event, the procedures specified under Executive Order 970 (Student Disciplinary Procedures of the California State University) shall be observed. The instructor shall not impose any sanction other than the sanction(s) imposed through the disciplinary procedure.

## **Students with Disabilities**

If you have a documented disability, please read the below information to have your right to accommodation met. If you have an undocumented disability, please schedule a time to meet with me so we can discuss your needs.

## **Writing Center**

CSUSB Writing Center provides writing assistance to graduate and undergraduate students. The CSUSB Writing Centers are now fully online offering all appointments via Zoom and email. Our website has more information at <https://www.csusb.edu/writing-center> and the direct site address for our scheduling web app is [csusb.mywconline.com](https://csusb.mywconline.com).

## **Counseling Services**

[Counseling and Psychological Services](#) offers confidential counseling services by licensed psychologists, counselors, and social workers. More info can be found at their website or by calling (909) 537-5040.

## **Food Insecurity/Scarcity**

[The Obershaw Den](#) provides food and personal hygiene items for enrolled students in need. Services are confidential.

## **Academic Services**

A complete list of all [academic support services](#) is available on the [Academic Success](#) section of the [CSUSB Student Affairs](#) website.

## **Success in an Online Course**

This online course offers the advantage of learning anyplace and anytime. Despite this flexibility, to succeed in the online learning environment students should keep in mind the following requirements:

- A computer with a stable Internet connection. Higher speed Internet connections are strongly recommended.
- Basic computer skills - email, surf the Internet, and create basic word processor files.
- Microsoft Office 2010 or higher (Must include Word and PowerPoint).
- A reliable email address that will not change from the beginning until the end of the semester.
- A "technology back-up" plan. Students should plan out an alternative location to do assignments and quizzes in the event their computer or Internet connection is not working.

- Time. Distance learning courses require as much time as traditional (classroom) instruction. The primary difference is that online instruction allows flexibility.
- Self-motivation. Online students must be "self-starters" and can work with a minimum of supervision. Students who procrastinate are rarely successful in distance learning courses.

Students are also required to:

- Make use of the online course materials available via Blackboard. Access to these materials is available once you have registered to the course
- Participate in asynchronous online discussions
- Complete readings and assignments by the dates indicated on the syllabus
- Check email daily

## **Netiquette**

Netiquette is online etiquette. It is important that all participants in online courses be aware of proper online behavior and respect one another.

Use appropriate language for an educational environment:

- Use complete sentences
- Use proper spelling and grammar
- Avoid slang and uncommon abbreviations
- Do not use obscene or threatening language

Remember that the University values diversity and encourages discourse. Be respectful of differences while engaging in online discussions. For more information about Netiquette, see [The Core Rules for Netiquette](#) by Virginia Shea.

## **Student Privacy and Intellectual Property**

Students maintain intellectual property rights to work products they create as part of this course unless they are formally notified otherwise.

Blackboard Grade Center is used to assure privacy of student grades and feedback on individual assignments unless students have granted written waivers.

Students will be notified at the time of an assignment if copies of student work will be retained beyond the end of the semester or used as examples for future students or the wider public.

## **Copyright**

CSUSB respects the intellectual property of others and we ask our faculty & students to do the same.

It is best to assume that any material (e.g., graphic, html coding, text, video, or sound) on the Web is copyrighted unless specific permission is given to copy it under a [Creative Commons License](#). More information about the use of copy written material in education as part of the [TEACH Act](#) and [Copyright Fair Use Guidelines](#). Whenever possible, you should attribute the original author of any work used under these provisions