**Computer Science 11 – Computer Architecture and Organization: Assembly**

**0 Introduction:**

Course: CIS/CSC 11 - Computer Architecture and Organization: Assembly  
Professor: Paul J. Conrad

Website: <http://rccd.instructure.com>

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Lecture: Tuesday/Thursday 6:00PM-7:25PM in BE200

Lab: Thursday 7:40PM-8:30PM in BE200

Office Hrs: Mon/Wed 11:30AM-12:30PM in BE220-H (Must have Blue Pass from Cleared4)

Tue/Thrs 10:00AM-11:30AM via Zoom (link in Canvas – password protected)

Prerequisite: None, Advisory: CSC 5 / CIS 5

**1 Course Description**

An introduction to microprocessor architecture and assembly language programming. The relationship between hardware and software will be examined in order to understand the interaction between a program and the total system. Mapping of statements and constructs in a high-level language onto sequences of machine instructions is studied as well as the internal representation of simple data types and structures. Numerical computation is performed, noting the various data representation errors and potential procedural errors. 54 hours lecture and 18 hours laboratory.

**2 Reading**

Required Text: Raspberry Pi Assembly Language RASPBIAN Beginners

By: Bruce Smith

ISBN: 978-1-4921-3528-9

**2.1 Computer Hardware/Equipment**

Required:

Hardware: Raspberry PI 3 or 4 Ultimate Starter Kit – See Links on Canvas

You must have your Raspberry PI no later than week of March 14th, 2022!

**3 SLO - Student Learning Outcome**

Students should be able to:

* Analyze and interpret assembly language code and hexadecimal format. Demonstrate how fundamental high-level programming constructs are implemented at the machine-language level.
* Write and execute programs in assembly language (utilizing application programming interfaces) illustrating typical mathematic and business applications.

**4 Laboratory Assignments**

Course lab assignments are programming problems from course website. Lab assignments are to be turned in via Assignment Submission on Canvas with proper documentation of the lab assignment by the assigned due date. Lab assignments are worth 10 points each. Lab work turned in after the due date will be considered late and worth at most 50% credit.

**5 Discussion Board Participation**

As part of your course reading requirements, you will be required to participate in the Canvas Discussion Forum for the respective chapter. You are to answer the three questions posted in the discussion forum for the respective chapter. Discussion questions will be posted on Mondays and are due no later than 11:59PM on the Sunday **two weeks** (13 days after being assigned) after being assigned. To receive credit, the answers must be a minimum of three sentences. Copy/pasting of another student’s answers will result in an automatic zero for the chapter discussion grade. Answers that do not add any value to the discussion.

**6 Quizzes**

There may be occasional weekly quiz on Mondays in Canvas covering the discussed topics of the week. The quizzes will consist of twenty questions, worth 20 points total for the quiz. Quizzes are due no later than 11:59PM on the Sunday **two weeks** (13 days after being assigned) after being assigned.

**7 Exams**

There will be one comprehensive final examination. **The Final Exam will be held during the week of June 3rd, 2022 through June 10th, 2022 in Canvas**. The final exam will cover all the material that is introduced in the course and will include a Final Programming project. Final Exam is 100 points, and Final Project is 100 points.

**8 Reading and Exam Schedule**

The table below is the tentative reading and examination schedule for this semester.

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| --- | --- |
| **Week of** | **Reading / In Class Objectives** |
| 1 – Feb 14th | Introduction/Getting Started |
| 2 – Feb 21st | Architecture |
| 3 – Feb 28th | Number Systems |
| 4 – Mar 7th | Refresh on C/C++ |
| 5 – Mar 14th | Basic Assembly\*\* / Data Processing / Bits / Logical Operations |
| 6 – Mar 21st | Control Flow / Branching / Looping |
| 7 – Mar 28th | Shifts / Rotations |
| 8 – Apr 4th | Functions and Procedures |
| 9 – Apr 11th | Spring Break |
| 10 - Apr 18th | Arrays |
| 11 – Apr 25th | Software and Hardware |
| 12 – May 2nd | Software and Hardware (continuation) |  |
| 13 – May 9th | Floating Point Introduction |  |
| 14 – May 16th | Introduction to Super-Scalar Programming |  |
| 15 – May 23rd | Super-Scalar Programming (continuation) |  |
| 16 – May 30th | Final Exam (**June 3rd through June 10th in Canvas)** |  |
| 17 – Jun 6th | Final Project in BE200 on 06/07/22: Start 6:00PM - End 8:30PM |  |

**9 Make Ups**

There are no make ups of any kind, with the exceptions that can be made in the event of an unforeseen emergency with proper documentation.

**10 Grading Breakdown**

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| --- | --- | --- |
| **Task** | **Points** | **Grade Weight** |
| Discussion Board | 3 pts each | 10% |
| Assignments | 10 pts each | 30% |
| Quizzes | 20 pts each | 30% |
| Final Project/Exam | 100 pts each | 30% |

**11 Grading Scale**

|  |  |
| --- | --- |
| **Letter Grade** | **Percentage** |
| A | 90% to 100% |
| B | 80% to 89% |
| C | 70% to 79% |
| D | 60% to 69% |
| F | 0% to 59% |

**12 Classroom/Lab Policies**

Attendance is necessary for success in this course. **Anyone having a lapse in their log ins for the course exceeding 7 (seven) days WILL BE dropped from the course for non-participation (you are required to log in on a regular basis and participate regardless of academic standing in the course!).** **Since Canvas is an important tool used in this course, anyone who has not logged into Canvas by March 8th, 2022 will be dropped from the course (no exceptions!).** Computer and Network Use in department classrooms and labs are governed by district policies found in Board Policy 3720 and are subject to Standards of Student Conduct located in the Student Handbook. Violations of these policies are subject to Disciplinary Actions as outlined in Section VI of the Student Handbook.

**13 Academic Dishonesty**

RCC defines plagiarism as, “Presenting another person’s language (spoken or written), ideas, artistic works or thoughts as if they were one’s own.” This includes using someone else’s code as your own. Plagiarism is academically dishonest. Students must make appropriate acknowledgement of the original source where material written or compiled by another is used. Cheating or dishonest practices, such as turning in the writing of someone else and claiming it as your own, will result in your receiving a failing grade on the assignment and possibly for the course. **I take academic honesty very seriously, please adhere to honest academic work!**

**14 Student Accommodations:**

If you have a physical, psychiatric/emotional, medical, or learning disability that may impact your ability to carry out assigned course work, I urge you to contact the staff in the DRC Office at (951)222-8060. The office is located on the Riverside Campus, in the Administration Building. The DRC will review your concerns and determine with you what accommodations are necessary and appropriate. All information and documentation are confidential.

**15 Department Equity Statement:**

Riverside City College School of Business, Information Systems and Technology embraces a notion of an intellectual community enriched by diversity with multiple dimensions, including race, ethnicity and national origin, gender, gender identity, sexuality, class, and religion. We are particularly committed to populations that have historically been excluded from equitable participation in the classroom, higher education institutions, and our communities. Individually, we are devoted to addressing our unconscious bias to pave the way for a more inclusive curriculum and learning environment.