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

**0 Introduction:**

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

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Lecture: Monday/Wednesday: 11:10AM-12:35PM in BE-200

Lab: TBA: MLK 219 (see Section 4.1 on Lab Requirements)

Office Hours: Monday, Tuesday, Thursday: 2:00PM-3:00PM in BE-220J

Wednesday: 2:00PM-4:00PM in BE-220J

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 Starter Kit (Highly recommend Canakit’s Ultimate Starter Kit – See Link on Blackboard)

**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 websites. Lab assignments are to be turned in via Assignment Submission Tool on Open Campus with proper documentation of the lab assignment by the specified due date. Lab assignments are worth 10 points each. Lab work turned in after the due date will be considered late and worth 1/2 credit **until ONE WEEK after the due date**. Any later than that, it is worth zero credit.

**4.1 Laboratory Assignments:**

A required course component is completion of 18 hours of lab time. The objective of these lab hours is to provide students sufficient experience and practice with computer activities outside of lecture and homework assignments. A primary purpose of this time is to build computer programming skills studied in this course.

Completion of lab hours is required and you must attend weekly for at least 50 minutes per week in a regular, 16 week term. **You must have a minimum of one hour logged into the lab PRIOR to census day, which is September 12th, 2016. Failure to do so WILL result in being dropped from the course, NO EXCEPTIONS!**

Your lab time, which was scheduled in WebAdvisor when you registered, is tracked when you log in at the computer (or log in terminal). If the tracking software is offline you must manually log your hours on the Manual Log Sheet located with the Lab Instructor on duty.

**4.2 Homework Assignments:**

Occasionally throughout the term, there may be homework assignments that are assigned. These assignments will be more challenging than lab assignments and should be done outside of class and lab time. These assignments will be assigned after the end of class on Wednesday, and will be due by 11:10AM the following Wednesday. Homework assignments are worth 10 points each. Homework turned in after the due date will be considered late and worth 1/2 credit **until ONE WEEK after the due date**. Any later than that, it is worth zero credit.

**5 Discussion Board Participation:**

As part of your course reading requirements, you will be required to participate in the Open Campus Discussion Board for our class. As a graded participation, you are to answer the four discussion questions that your instructor has posted in the Discussion Board for the respective chapter we are covering in class. This Discussion Board Participation is worth 4 points.

**In order 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 forum will not be graded.

**6 Quizzes:**

There may be occasional weekly quiz on Wednesdays after **1:00PM and due no later than 11:10AM the next Monday**. The quizzes will be on Open Campus covering the discussed topics of the week. The quizzes will consist of twenty (20) multiple choice or true/false questions, worth 20 points total for the quiz. We will have approximately 10 quizzes throughout the semester. **These quizzes are timed with a maximum of 30 minutes to complete in one sitting.**

**7 Exams:**

There will be one comprehensive final examination. The Final Exam will be held on **December 12th, 2016 from 11:00AM to 1:30PM in room BE-200**. The final exam will cover all of 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.

|  |  |  |
| --- | --- | --- |
| **Week/Date** | **Reading / In Class Objectives** | **Exam** |
| 1 – Aug 29th | Introduction |  |
| 2 – Sep 7th | Architecture |  |
| 3 – Sep 12th | Number Systems / Basic Assembly and C++ | Quiz #1 |
| 4 – Sep 19th | Basic Assembly and C++**\*\*** | Quiz #2 |
| 5 – Sep 26th | Data Processing / Bits / Logical Operations | Quiz #3 |
| 6 – Oct 3rd | Control Flow / Branching / Looping |  |
| 7 – Oct 10th | Shifts / Rotations | Quiz #4 |
| 8 – Oct 17th | Functions and Procedures | Quiz #5 |
| 9 – Oct 24th | I/O | Quiz #6 |
| 10 - Oct 31st | Floating Point Introduction |  |
| 11 – Nov 7th | Floating Point (continuation) | Quiz #7 |
| 12 – Nov 14th | Software and Hardware | Quiz #8 |  |
| 13 – Nov 21st | Software and Hardware (continuation) | Quiz #9 |  |
| 14 – Nov 28th | Introduction to Super-Scalar Programming / TBD | Quiz #10 |  |
| 15 – Dec 5th | Wrapping Up / Review for Final |  |  |
| 16 – Dec 12th | Final Exam ( **Dec. 12th, 11:10AM to 1:30PM room BE-200)** | FINAL |  |

**\* Final Exam (Monday – Dec. 12th)**

**\*\* You must have your Raspberry PI 3 Ultimate Starter Kit by Sep 19th!**

**8.5 Make Ups:**

In general, there are no make ups of any kind. Exceptions can be made for unforeseen emergencies with proper documentation.

**9 Grading Breakdown:**

|  |  |  |
| --- | --- | --- |
| **Task** | **Points** | **Grade Weight** |
| Discussion Board | 4 pts per chapter | 10% |
| Lab Assignments/Homework | 10 pts each | 30% |
| Quizzes | 20 pts each | 10% |
| Final Exam\* | 200 pts\*\* | 50% |

**\* Failure to report for scheduled final examinations may result in a failing grade for the course. In case of illness or other emergency, the student must report to the instructor’s office or department prior to the beginning of the examination.**

**\*\* Final Exam is 100 points, Final Project is 100 points**

**10 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% |

**Note: I do not round up percentages, e.g., an 89.8% will be submitted as a grade of B!**

**10.5 Example of grade calculation:**

Student A scores 90% on Discussion Board, 95% on Lab/Homework Assignments, 85% on Quizzes, and 80% on Final Exam (Exam and Project score combined as 160 out of 200) would earn the grade of:

(.90)(.10) + (.95)(.30) + (.85)(.10) + (.80)(.50) = 86% which is a letter grade of B

**11 Classroom/Lab Policies**

You must participate on Blackboard for this course, **anyone who has not logged into Blackboard by Friday, September 2nd, 2016 will be dropped from the course. Per Lab Requirements in Section 4.1, anyone with less than one hour of TBA lab PRIOR to census day (Sept 12th) will be dropped.**

The reading and lab assignments should be completed as assigned. 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 located at: <http://www.rcc.edu/services/Documents/StudentHandbook.pdf>

**12 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, so do honest academic work! In the event one student allows another student to copy the work, BOTH students will receive a failing grade on the work, or for the course.**

**13 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 Office of Disabled Student Services at (951)222-8060. The office is located on the Riverside Campus, in the Administration Building. The DSP&S will review your concerns and determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.