Course Syllabus For CPTR 280 – Computer Organization and Assembly Language
Walla Walla University - Seventh-day Adventist Higher Education
Autumn Term 2017

Course Information
• Class: 10am MWF or 12pm MWF (KRH348)

Instructor Information
• Instructor: Dr. Curtis Nelson
• Office: 263 Chan Shun Pavilion
• Phone: 509-527-2076
• Email: curt.nelson@wallawalla.edu

The default communication method between the instructor and students is through email via mywwu at your standard WWU email address. Please monitor this email address daily for any class updates.

• Web page: http://people.wallawalla.edu/~curt.nelson/cptr280/index2017.html
• Office Hours: 9 – 10am MWF, Tu 1-2pm, other times by appointment

Course Description
Introduction to the internal organization of digital computer hardware. Students will be able to describe how data is represented and manipulated at the hardware level. Students will write assembly language programs to store and manipulate data on a modern CPU. Prerequisite: CPTR 141.

Objectives
• Understand basic processor architecture;
• Understand how high-level languages are translated to machine-level instructions;
• Learn to program and debug at the assembly level using the MIPS instruction set;
• Strengthen programming design and debugging skills.

Knowledge Areas
• Information representation using various number systems (binary, decimal, hexadecimal);
• Basic computer architecture;
• Assembly language syntax, instructions, and operations;
• Program design methodology;
• Assembler and debugger platforms;
• Interfacing to functions provided by an operating system (system calls).

Specifics
This class will learn the architecture of the MIPS processor. Programs will be written and debugged on the MARS and/or SPIM development platforms, which are free MIPS simulators downloadable from the web.

Program Submission
Programs will be written and debugged, and then submitted to the appropriate dropbox in D2L for testing by the course reader.

Required Materials
The course text is free and can be referenced here:
http://cupola.gettysburg.edu/cgi/viewcontent.cgi?article=1001&context=oer
A helpful tutorial can be referenced here:
http://chortle.ccsu.edu/AssemblyTutorial/index.html#part1

Course Schedule
A daily schedule of course topics are presented in a separate document that can be found on the course web page. The schedule may change based on the professional judgment of the instructor (with appropriate notice to the students.)

Course Grade
• Your final grade will be composed of the following three parts:
  Homework and attendance: 40%
  Project work: 20%
  Mid-term exams (2): 40%
• It is safe for you to assume that your minimum final grade, based on raw scores, will be computed as:
  ≥ 90%  A of some sort (A, A-)
  ≥ 80%  B of some sort (B+, B, B-)
  ≥ 70%  C of some sort (C+, C, C-)
  ≥ 60%  D of some sort (D+, D, D-)
  < 60%  F
• Your current scores can be found anytime in D2L.

Homework
The value of a solution to any problem is directly related to how well the solution is documented. To promote good problem-solving technique and assist those grading the assignments, I require that the guidelines presented by the Walla Walla University School of Engineering be followed. These guidelines are posted on the course web page here:
Additional homework requirements:
• Homework is due at the beginning of the class period (plus five minutes);
• Late homework will not be accepted unless prior arrangements have been made with the instructor.

Tests
There will be 2 mid-term tests. Tests will be closed book with the exception of your calculator, pencil and eraser, and minimal private reference.

Returned Materials
All materials submitted by a student will be evaluated in a timely manner, typically within 1 week.

Progress Reports
Progress reports will be submitted for students identified “at risk” or for those performing poorly.

Class Attendance
• Class 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 may be used to form a part of your grade;
• Assistance to students can only be guaranteed during class, lab, and office hours;
• Students are responsible for all material presented and handed out in class or in the laboratory, regardless if you are present or not.

Academic Integrity
• See the Walla Walla University Academic Integrity Policy here:  
  Official Walla Walla University statement
• All work done in this class (homework, lab work, quizzes, and tests) is to represent the understanding and work of the person submitting the work. While discussing the methods and principles relating to homework and lab work with your fellow students is strongly encouraged, it is unethical to copy another person’s work, to copy from a solutions manual, or to read another person’s work and follow it as an outline in completing your own. This constitutes cheating and is unfair to your career, profession, and most of all, your fellow students.  
  CHEATING IS REWARDED. With an F. For the quarter. At the teacher’s discretion.
• Remember – you are not just taking a class and earning a grade. You are training for a profession that holds the highest regard for the ethics of its members.

Accommodations for a Disability
•  Official Walla Walla University statement
• If you have a physical or learning disability and need accommodations please contact Sue Huett in the Teaching Learning Center, Village Hall, or call 2366. Accommodations for documented disabilities are arranged through the Disability Support Services (DSS) office. This syllabus and course materials are available in alternate format as appropriate to the disability. Accommodations are not retroactive. If you do not declare the disability to the DSS office, you may not receive appropriate accommodations.

Emergency Procedures
An emergency procedures flip chart and evacuation routes are posted in classrooms near the door. Additionally, emergency procedures can be found at:  
  https://wallawalla.edu/security

University Core Themes/Values

<table>
<thead>
<tr>
<th>University Core Theme</th>
<th>How the Core Theme is Actualized in this Course</th>
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</thead>
<tbody>
<tr>
<td>Excellence in Thought</td>
<td>Students learn basic principles of computer systems through thoughtful homework and programming experiments.</td>
</tr>
<tr>
<td>Generosity in Service</td>
<td>This course has no service learning component or course requirements for service other than passion about such topics expressed by the instructor.</td>
</tr>
<tr>
<td>Beauty in Expression</td>
<td>Students document their learning through homework and programming exercises.</td>
</tr>
<tr>
<td>Faith in God</td>
<td>This course has no faith component other than passion about such topics expressed by the instructor.</td>
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