# UCR EE/CS 120B Spring 2013

# Lab 0: Intro to C and RIMS (2 Days)

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## Introduction

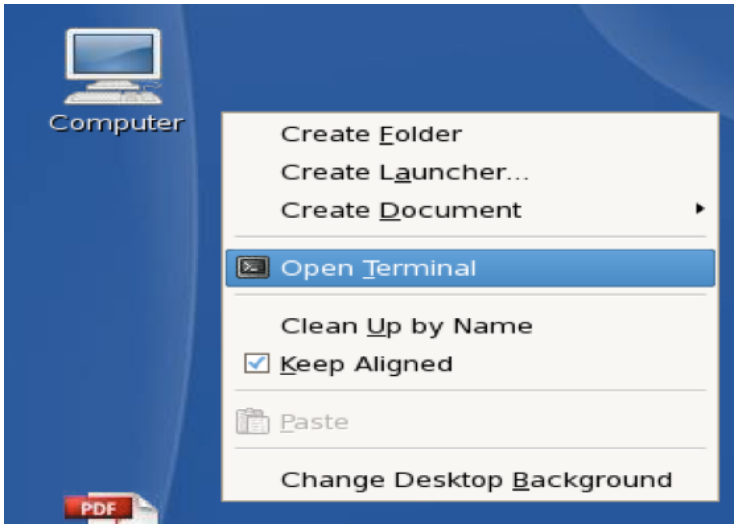
Welcome to EE/CS 120B! This lab is designed to ease you into the course material and get everyone on the same footing in regards to their C programing experience.

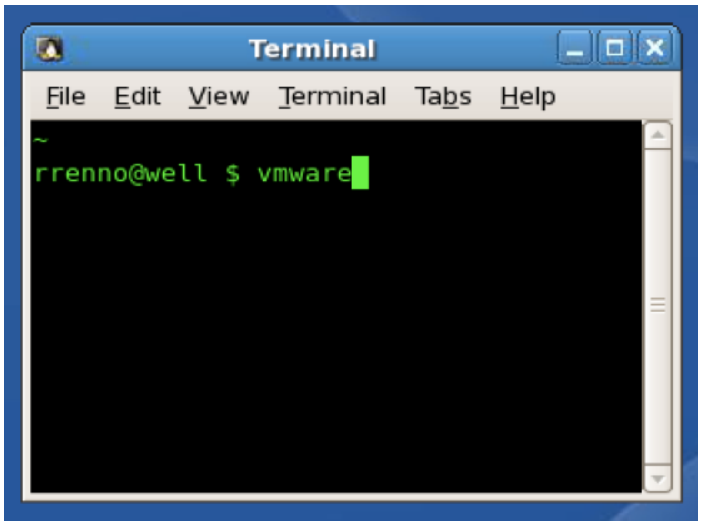
This lab reviews C programming and introduces the RIMS (Riverside-Irvine Microcontroller Simulator) tool for compiling/testing embedded C programs, which will be used extensively during the quarter. Additionally it will teach you the submission format for all future lab assignments -- not following these submission guidelines will result in a zero for any given assignment.

The course eBook, "Programming in C: A Simple Introduction" (required for this course) may be found here: http://www.programmingembeddedsystems.com/ Be sure to use the bundle option and discount code found in the syllabus.

The laboratory submission guidelines may be found here. *You will want to read these first before continuing.*

For this lab and all subsequent labs you will be working in Windows via VMWare. To access VMWare, log into to your CS account and open a terminal (right click anywhere on the Desktop) and execute the command 'vmware' (without the quotes).



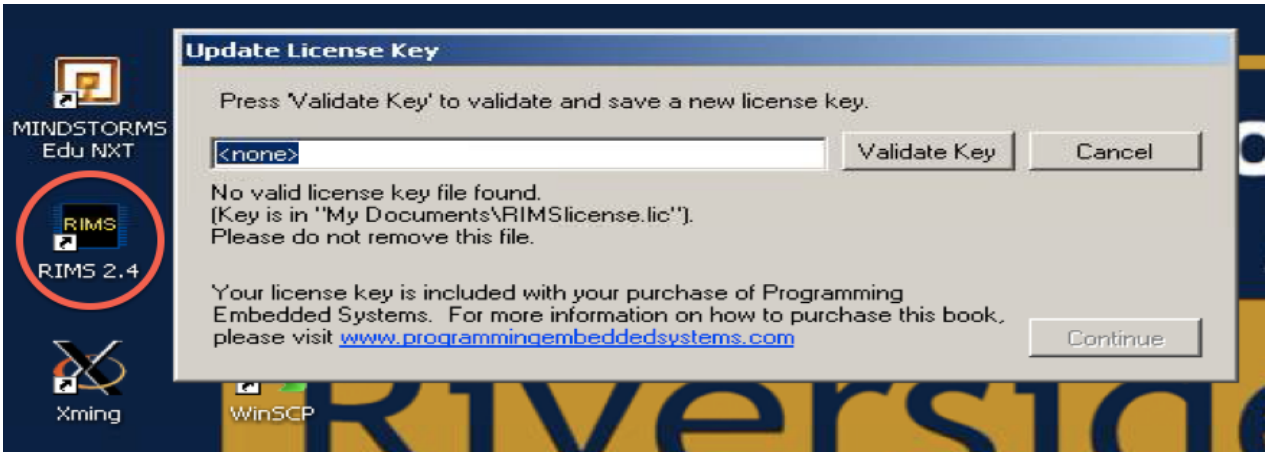




***Important: NEVER close VMWare by pressing the "X" in the top right corner of the window.*** Doing so leaves the process running in the background, preventing other users from starting a new virtual machine. **Instead**, shut down VMWare by going to Start > Shutdown from the start menu of Windows.

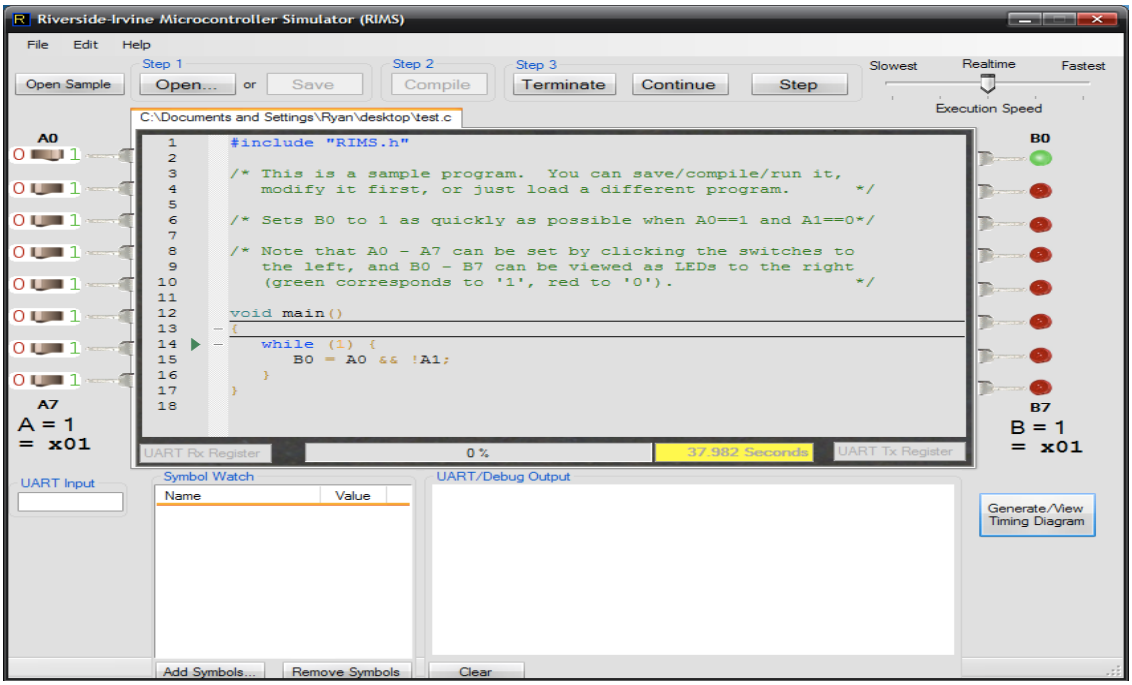
***Important:*** **VMWare is a static image and will not save local files when the virtual machine is rebooted, thus causing all of your work to be lost.** It is important to save your work elsewhere. Either to a mapped network drive (your CS home directory), a USB flash drive, or email your files to yourself. Instructions for how to map a network drive can be found in the Read Me!.txt file on the VMWare Windows Desktop. Additionally you can drag and drop files between the Linux desktop and the Windows virtual machine desktop.

**Note**: To exit full screen mode of VMWare at any time press ctrl+alt+enter on the keyboard.
**Note**: If you lose focus of your mouse to VMWare at any time press ctrl+alt on the keyboard.
**Note**: On occasion RIMS may refuse to compile with no error. Try saving your work and restarting RIMS.

To Access RIMS use either the link on the Windows Desktop or on the Start Menu. You will need to use the validation keys you purchased.




You should now be able to begin the lab.

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# Lab activities

## Day 1 objective

- Complete all “Try” activities in the “Programming in C: A Simple Introduction” book.
- Submit 5 “Try” activities on iLearn and a lab report.

For this lab, read through the “Learn C Programming” book, completing all "Try" activities in the book. To facilitate learning the lab submission guidelines, **select five of the activities for submission**. Be sure to create a unique .c file for each exercise following the naming conventions laid out in the submission guidelines. Don’t forget to place the file’s header comment at the top of each .c file.

Ensure that both you and your partner understand all the principles covered in the book as they will be assumed knowledge in this course. Partners should help one another and alternate for each activity -- partner 1 doing the first activity, partner 2 doing the second activity, partner 1 doing the third, etc. This will be the pattern for all future labs.

During the second half of each lab, the TA will check your progress and may ask for a demo of the latest activity you've completed.

### Day 2 objective

- Complete all “Try” activities and both “Exercise” activities in chapter 1 (starting from page 7) of the “Programming Embedded Systems” book.
- Complete all “Try” activities in chapter 2.
- Submit the two activities (one from chp1 and one from chp2) for which you devised the cleanest solution.
    - A clean solution is easy to read, and easy to modify if behavior requirements change.
    - Add these two activities to day 1’s activities and resubmit to iLearn.
    - No need for an additional lab report. Just use the previous report.

During the second half of each lab, the TA will check your progress and may ask for a demo of the latest activity you've completed.

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# Install RIMS

Consider installing RIMS on your own PC (Accessing & Installing RI Tools and AVR Studio 6). RIMS can also be accessed on the department's Windows server, and on the lab machines (CS Account Access FAQ). Post any questions or problems you encounter to the course wiki and discussion boards on iLearn.