

CS 4740 CS 5740
Real-Time Embedded Systems
Spring 2015
<http://www.cs.uni.edu/~mccormic/4740/>

Instructor

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← Check web page for schedule of office hours

Course Content

This course is intended to teach specification, design, and implementation principles and techniques for computer based real-time embedded systems. We'll look at hardware in enough detail to develop the software to interact with it.

Prerequisites

- a) CS 2530 Intermediate Computing
- b) CS 2720 Software Engineering
- c) Junior standing

Required Texts

Object-Oriented Modeling and Design with UML 2nd edition, by Michael Blaha and James Rumbaugh. Published by Prentice Hall, 2005. ISBN 0-13-015920-4.

Building Parallel, Embedded, and Real-Time Applications with Ada, by John McCormick, Frank Singhoff, and Jérôme Hugues, Published by Cambridge University Press, 2011. ISBN 978-0-52119716-8.

Supplies (Do not purchase until after first class meeting)

One package of 3" x 5" index cards (color to be assigned the first day of class).

One package of 4" x 6" index cards (color to be assigned the first day of class).

One bound notebook (see <http://writing.colostate.edu/guides/documents/notebook/>)

Three ring binder, 3". (One binder per team) I have some used binders in the lab.

Class Participation

The small size of this class allows us to conduct it in a seminar fashion. I expect you to be prepared for and to contribute to each class. At the beginning of each class you will turn in a 4" x 6" index card with the following information:

- a) Name and date.
- b) A brief description of something in the reading that you found particularly interesting.
- c) Three questions from material in the reading or previous class meeting you would like the class to discuss. I may choose some of these questions for the quizzes.

At the end of each class you will turn in a 3" x 5" index card with the following information:

- a) Name and date.
- b) A brief description of each of your specific contributions to that day's class.

Written Quizzes

For about the first ten weeks of the semester I will give a short quiz every Wednesday. You may use any handwritten notes to help you answer the quiz questions. You may not use any books, old quizzes, class handouts, photocopies, or printouts.

Team Project

Each student will be part of a team that specifies a software problem relevant to the course and designs and implements a solution to it. Students taking this course for graduate credit must undertake a more ambitious project than those taking the course for undergraduate credit. Deliverables that will be graded for the project include but are not limited to:

- a) Detailed user's manual
- b) Design documents (scenarios, use cases, class models, state models, interaction models, etc.)
- c) Unit specifications (compilation listings)
- d) Unit test plans
- e) Unit test code (compilation listings)
- f) Unit bodies (compilation listings)
- g) Engineer's notebook (one per team member)
- h) Evaluation of self and team members

I will select the members of each team. While I will consider requests regarding team membership, my decisions will be oriented to creating "equal" teams composed of members with differing skill levels. Each team will select a "project manager", a "test manager", and a "librarian". The project manager will be responsible for assigning tasks to other team members and coordinating all work. The test manager will be responsible for test plans created by the team and keeping track of test results. The librarian is responsible for managing all of the documents and electronic files produced by the team.

Each team will schedule a one hour meeting with me before the end of finals week to demonstrate their project. Each team member will schedule a one half hour meeting sometime after their team demonstration to discuss their project with me.

Grading

The final grade will be computed as follows:

Class Participation	10%
Quizzes	30%
Team Project	60%

"The Americans with Disabilities Act of 1990 (ADA) provides protection from illegal discrimination for qualified individuals with disabilities. Students requesting instructional accommodations due to disabilities must arrange for such accommodation through the office of Students Disability Services. SDS is located at 103 Student Health Center, the web site is at <http://www.uni.edu/sds/>, and the phone number is: 273-2676."