

# CSCE 317: Computer Systems Engineering

## 1 Catalog Description

System-level modeling and evaluation of computer systems: requirements elicitation and specification, architectural design, reliability and performance evaluation, Markov modeling, life-cycle cost analysis, project management.

Prerequisites: CSCE 212, MATH 242, STAT 509

## 2 Meeting Times and Locations

Meeting Type	Day and Time	Location	TA on Duty
Lecture (both sections)	M 2:20 to 3:35	300 Main B213	none
Lab (section 001)	W 2:20 to 3:35	Swearingen 3D22 combo = 5-1-2-4-3	Charles Daniels
Lab (section 002)	F 2:20 to 3:35	Swearingen 3D22 combo = 5-1-2-4-3	Philip Conrad

## 3 Webpage

<http://dropbox.cse.sc.edu>

(Handouts, reference material, announcements, lecture slides, project submission box, and grades)

Contact Ryan Austin ([rmaustin@cse.sc.edu](mailto:rmaustin@cse.sc.edu)) for login support.

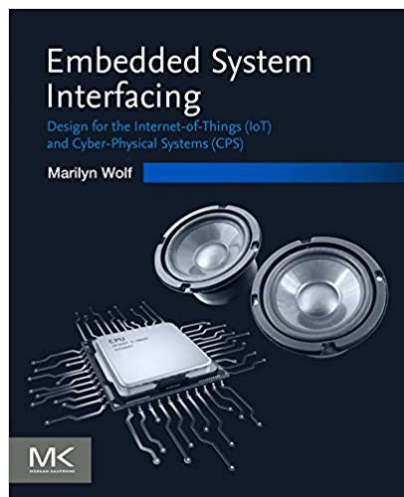
## 4 Textbook

Embedded System Interfacing

by Marilyn Wolf

Morgan Kaufmann (Elsevier) Publishers

ISBN: 978-0-12-817402-9



## 5 Course Learning Outcomes (unofficial, pending change)

1. Write software that directly interfaces with external peripherals and other processors utilizing facilities programming conventions including interrupts, general-purpose input/output, pulse-width modulation, and input/output controllers
2. Write software that uses peripheral protocols such as I2C, SPI, and UART to interface with wireless networks, displays, sensors, LEDs, and push buttons
3. Write software that satisfies performance constraints associated with specific features of a given target platform and satisfies design requirements
4. Use laboratory bench equipment to diagnose and resolve design problems
5. Design and physically build a digital system consisting of multiple microcontrollers and peripherals

## 6 Important Dates

First class:	Monday, Jan. 13
Lab canceled:	Wednesday/Friday Jan. 15/17
Class canceled:	Monday, Jan. 20 (Dr. Martin Luther King, Jr. Service Day)
Lab canceled:	Wednesday/Friday Jan. 22/24
Class canceled:	Mar. 9 to 13 (Spring Break)
Withdrawal date:	Saturday, March 28
Last lab:	Wednesday/Friday Apr. 22/24
Last class:	Monday, Apr. 27
Project cutoff:	Monday, Apr. 28 (Reading Day)
Final exam:	Monday, May 4 12:30 to 3:00 p.m.

## 7 Instructors and Teaching Assistants

Instructor:	Jason D. Bakos
E-mail:	jbakos@cse.sc.edu
Office:	M. Bert Storey Engineering and Innovation Center, Room 2213
Phone:	777-8627 (x7-8627)
Office hours:	by appointment

Teaching assistant:	Charles Daniels (Ph.D. student)
E-mail:	cad3@email.sc.edu
Office:	M. Bert Storey Engineering and Innovation Center, Room 2236
Office hours:	Mon/Wed 12:00 to 1:30

Teaching assistant:	Philip Conrad (Ph.D. student)
E-mail:	conradp@email.sc.edu
Office:	M. Bert Storey Engineering and Innovation Center, Room 2236
Office hours:	Tues/Thur 12:00 to 1:30

## 8 Grading Structure

Task	Weight
Lab 1: UART Lab	5%
Lab 2: Wireless networking	10%
Lab 3: External display interface	10%
Lab 4: Sensor interfacing	10%
Lab 5: Flash memory	15%
Lab 6: USB interfacing	15%
In class and online quizzes:	20%
Final exam	15%

## 9 Students with Disabilities

Any student with a documented disability should contact the Office of Student Disability Services at 777-6142 to arrange for appropriate accommodations.

## 10 Syllabus Change Policy

This syllabus is a guideline for the course and is subject to change with reasonable notice.

## 11 Electronic resources

1. Project submission, grade dissemination, up-to-date schedule, downloads, announcements, links to useful information, project descriptions, and recordings of all lectures are disseminated via the CSE Moodle “Dropbox” site, <http://dropbox.cse.sc.edu> (not Blackboard).
2. We will use electronic design software installed in the CSE departmental computer labs. The CSE labs are currently located in Swearingen 1D43 and 3D22. Be sure you can log into the lab computers in 3D22.
3. Urgent course announcements are broadcast on the website and to your university e-mail (@email.sc.edu). Please regularly check (or forward) this e-mail address.
4. Project teams are comprised of two members. Each team must find their own preferred method for collaborating (e.g. GitHub, Dropbox, etc.).

## 12 Grading scale

Grade	Criteria
A	$90 \leq score \leq 100\%$
B+	$85 \leq score < 90\%$
B	$80 \leq score < 85\%$
C+	$75 \leq score < 80\%$
C	$70 \leq score < 75\%$
D+	$65 \leq score < 70\%$
D	$60 \leq score < 65\%$
F	$score < 60\%$

## 13 Academic Honesty Policy

Students are encouraged to assist their colleagues for the purpose of overcoming technical challenges related to the use of the design tools (foreshadow: like many industrial CAD/EDA tools, they are non-intuitive, generate meaningless error messages, unstable, and poorly documented).

Also, the members of each group are expected to work cooperatively and make equal contributions toward each project. Any collaboration beyond these exceptions is prohibited and is subject to the university’s guidelines, regulations, and policies regarding academic dishonesty.

See the USC Honor Code at [bit.ly/USCHonorCode](http://bit.ly/USCHonorCode).

Any student caught committing an Honor Code violation will receive a grade of 0 for the corresponding assignment or exam and the instructor will report the violation to the Office of Academic Integrity.

Automated tools such as Moss and TurnItIn may be used on your submitted work.

## 14 Group Work Policy

Group sizes of two are preferred, but group sizes of one are allowed based on enrollment and hardware availability. Three-member groups are not allowed.

Choose your group partner wisely. Both members of each group will receive the same grade for all projects.

## 15 Project Submissions

- Submitted projects must compile to receive partial credit.
- Each group must submit each project on Dropbox by 11:59PM on the due date.
- Late projects are charged a 7.5% grade penalty for each school day after the due date, limited to a maximum of 30%. This way, projects submitted more than four days late are still subject to a 30% late penalty. This penalty is deducted from the raw score of the submission, so a one-day late submission earning a raw score of 80% will have a final score of  $80\% \times 92.5\% = 74\%$ .
- At most, each group may only submit one version of any project; no resubmissions are allowed.
- Any projects not submitted by 11:59pm on Apr. 28 (reading day) will receive a score 0 without a documented medical excuse.
- Any questions or disputes related to project, quiz, and exam grades must be resolved within one week of the grade being released.
- Some aspects of your grade may be somewhat subjective, such as "style". You will never be docked points for things that are matters of opinion, such as tabs vs spaces, curly brace placement, etc. However, you may lose points for formatting your code in an inconsistent fashion (such as using tabs in some of your code, and spaces in others). You may also lose points for needless obfuscation, or for practices that are highly likely to cause bugs (for example, failing to guarantee null termination of strings). This type of code review is intended to be similar to that which you might receive in an industry workplace.
- When phrases such as "do [some task] in a reasonable fashion" are used, this means you should use some reasonably established method of accomplishing the given task. For example if you are asked to compare strings, using `strncmp()` or `memcmp()` might both be reasonable approaches. Iterating over the strings manually with pointer arithmetic would not be.
- There will be some written (prose, not code) work in this course. You will be asked to use a "reasonable choice of style". Examples of "reasonable" would include the MS Word default settings, the L<sup>A</sup>T<sub>E</sub>X default settings, and so on. You are also expected to uphold a reasonable standard of writing quality - complete sentences, correct grammar and spelling, and so on. Minor errors or typos happen, but submitted works that include excessive and pervasive defects of this sort may be docked points.
- If you wish to appeal to some external source, you must cite it. No specific citation style is prescribed, but it must be clear what you are citing. It is not necessary to cite the course text, lab sheets, or other materials written by the instructor/TAs unless you are including a verbatim quote.