

Embedded Systems I (CSE 351)

Sections 801, Winter 2021

Overview

The first of a two course sequence on programming embedded architectures in devices such as smartphones, portable gaming devices, and robots. Topics covered include embedded architectures, interaction with devices (buses, memory architectures, memory management, device drivers) and concurrency (software and hardware interrupts, timers).

PREREQUISITE: CSC 374

Course Calendar

[subject to change]

- Week 1 01/04-08 Ch. 1: Embedded systems in cyber-physical systems
- Week 2 01/11-15 Ch. 7: Sensors and actuators
- Week 3 01/18-22 Ch 9: Memory architectures
- Week 4 01/25-29 Ch 10: Input and output
- Week 5 02/01-05 Ch 2: Model based design, modeling physical dynamics
- Week 6 02/08-12 Ch 3: Discrete dynamics
- Week 7 02/15-19 Ch 4: Extended and timed automata
- Week 8 02/22-26 Ch 5: Composition of state machines
- Week 9 03/01-05 Ch 11: Multitasking
- Week 10 03/08-12 Ch 13: Specification; temporal logic

Instructor

	Office	Office Hours	Email
Ljubomir Perkovic	CDM 713	Mon 7:30pm-9:00pm Tue 1:30pm-3:00pm	lperkovic@cs.depaul.edu

Office hours Zoom link posted on D2L. Please email me if you need an appointment at another time.

Class Hours

Section 501	TBD	TBD	Online
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Class meeting Zoom link posted on D2L.

Text

Edward A. Lee and Sanjit A. Seshia, [Introduction to Embedded Systems, A Cyber-Physical Systems Approach, Second Edition](#), MIT Press, ISBN 978-0-262-53381-2, 2017.

Course web page

This syllabus, as well as the class lecture notes, homework assignments, lab assignments, homework submission link and other links can be found on the course web page at <https://reed.cs.depaul.edu/lperkovic/courses/cse351>. Please check this site regularly.

Grading

The course grade will be apportioned as follows:

Homework	40%
Labs	40%
Exam	20%

To do well in this course, you should attend the Zoom meetings with the instructor regularly, read the chapters in the book each week as indicated in the course calendar, work on the homework and lab assignments as indicated in the course calendar, and talk to me promptly if you have any problems. The answers to the homework and lab writeup assignments, as well as your code, should be written in a way that is rigorous, clear and concise.

Policies

Deadlines for adds, drops, and withdraws

See the deadlines [here](#).

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in [CampusConnect](#).

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at <http://academicintegrity.depaul.edu/>. If you have any questions be sure to consult with your professor.

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the [University Academic Calendar](#). Information on enrollment, withdrawal, grading and

incompletes can be found at <http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>.

Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at:

Lewis Center 1420, 25 East Jackson Blvd.
Phone number: (312)362-8002
Fax: (312)362-6544
TTY: (773)325.7296