EECE 4280: Electrical/Computer Engineering Design (Syllabus)

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EECE 4280: Electrical/Computer Engr Design
Lectures: ES 218, Tuesday, Thursday, 1:00 pm to 2:25 pm
Instructor: Madhu Balasubramanian
Office: 208D Engineering Science Building
Office Telephone: (901) 678-1199
Email: mblsbrmn@memphis.edu (more reliable)
Office hours: By appointment (flexible; email for appointment)

Textbook and Other Required Materials:
  a. Lecture slides, and notes.
  • In our library reserve: https://sierra.memphis.edu/record=b3556324~S16
Website: https://memphis.instructure.com/
Prerequisites: EECE 3204, 4279, 4991; BSCPE degree: EECE 4081
Grades
  • Project results: 40%
  • Assignments: 10%
  • Participation: 10%
  • FE exam: 10%
  • Log / Lab / Notebook: 10%
  • Dossier: 20%
  • Letter grade assignment (may change to match class average)
    A+: 98 to 100; A: 92.5 to 97.9; A-: 90.0 to 92.4
    B+: 87.5 to 89.9; B: 82.5 to 87.4; B-: 80.0 to 82.4
    C+: 77.5 to 79.9; C: 72.5 to 77.4; C-: 70.0 to 72.4
    D+: 67.5 to 69.9; D: 62.5 to 67.4; D-: 60.0 to 62.4
    F: 0.0 to 59.5

University Guidelines for Covid-19: https://www.memphis.edu/coronavirusupdates/
Important Dates:
  https://www.memphis.edu/registrar/calendars/academic/ay2324.php
  • First Day of Classes: August 28, 2023 / Monday
  • Labor Day: September 4, 2023 / Monday
  • Fall Break: October 14-17, 2023/ Saturday-Tuesday
  • Thanksgiving Holidays: November 22-26, 2023 / Wednesday-Sunday
  • Last Day of Classes: December 6, 2023 / Wednesday
  • Study Day: December 7, 2023 / Thursday
  • Exams: December 8-14, 2023 / Friday-Thursday
**Catalog Title Abbreviation:** Electricl/Computer Engr Design

**Catalog Description:** Implementation of team design project as part of the culminating major design experience that requires application of electrical engineering and/or computer engineering concepts. Oral and written presentations required.

PREREQUISITE: EECE 3204, 4279, 4991; BSCPE degree: EECE 4081.

**Topics Covered:**
1. Testing
2. Functional decomposition
3. System design behavior models
4. System reliability
5. System simulation
6. System prototyping
7. Individual and group assignments

**Course Objectives:**
1. **Engineering Design Process** (EDP): Ability to develop engineering requirements specifications from project needs
2. EDP: Ability to generate engineering design of a process, system, or component from the engineering requirements specifications (functional engineering designs) conforming to all pertinent standards.
3. EDP: Ability to develop functional engineering designs in the presence of constraints in engineering specifications, public health, safety and welfare as well as constraints involving global, cultural, social, environmental and economic factors
4. EDP: Ability to determine and defend ethical compliance of the engineering design
5. **Engineering Design Evaluation** (EDE): Ability to derive a functional decomposition of the engineering design
6. EDE: Ability to formulate testing protocols for assessing reliability of individual sub-systems and components of the design as well as the reliability of the final integrated system
7. EDE: Ability to interpret experimental data and derive statistical inference or conclusion
8. EDE: Ability to build a simulation model of the project based on the engineering design
9. EDE: Ability to assemble a working prototype of the engineering design
10. Ability to effectively use modern project management concepts and tools
11. Ability to form teams and monitor team interaction / dynamics using modern concepts for team formation
12. Ability to produce and deliver effective oral communication
13. Ability to generate effective written communication
Class Participation:

a. I expect the students to fully engage in the learning activities, group activities and participate in class discussion.

b. Students should feel at ease to seek clarification at any stage in this course during lecture, and after lecture through individual appointment (seek appointment by email).

I encourage students to utilize the class discussion forum setup in Canvas to seek additional clarification regarding lectures and course materials, share your thoughts on questions from other students in class. While using the group discussion forum, please following the following etiquette:

- Please use the discussion tool to seek clarification.
- Feel free to participate in discussion, and answer questions.
- Be respectful to others during discussion.
- For each topical question, open a new thread
- Answer any questions by responding to the question within the thread.

Academic Integrity:

Plagiarism, cheating and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly, through participation or assistance, are immediately responsible to the instructor of the class in addition to other possible disciplinary sanctions which may be imposed through the regular institutional disciplinary procedures. Expectations for academic integrity and student conduct are described in detail on the website of the Office of Student Accountability. Please read in particular, the section about "Academic Misconduct". Also refer to https://www.memphis.edu/osa/pdfs/csrr.pdf

Resources:

a. Canvas (learning management system) will be used to distribute lecture materials (slides, videos, notes), quizzes, and homework problems; submit assignments, and exam solutions; and for offline discussion including for seeking clarification and sharing your thoughts: https://www.memphis.edu/um3d/canvas/index.php

b. Learning to use Canvas: https://www.memphis.edu/um3d/canvas/index.php

c. Citrix has a comprehensive collection of engineering software such as Matlab and commonly used software such as Photoshop. You can access Citrix online with the following URL: https://citrix.memphis.edu/vpn/index.html

d. Senior design lab: ES-229 with group key access

Syllabus Changes

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both in class and in eCourseware.
Students with Disabilities

Qualified students with disabilities will be provided reasonable and necessary academic accommodations if determined eligible by disability services staff at the University of Memphis. Prior to granting disability accommodations in this course, the instructor must receive written verification of a student’s eligibility for specific accommodations from the disability services staff. It is the student's responsibility to initiate contact with Disability Resources for Students (DRS) and to follow the established procedures for having the accommodation notice sent to the instructor.

Sexual Misconduct and Domestic Violence Policy

This policy specifically addresses sexual misconduct which includes dating violence, domestic violence, sexual assault, and stalking. The policy establishes procedures for responding to Title IX-related allegations of sexual misconduct. Complaints can be reported to the Office for Institutional Equity (OIE). You may contact OIE by phone at 901.678.2713 or by email at oie@memphis.edu. Complaints can be submitted online at File a Complaint. OIE’s office is located at 156 Administration Building.

Non-Discrimination and Anti-Harassment Policy

University policy prohibiting discrimination and harassment based on protected characteristics and classes. Complaints of discrimination and harassment can be reported to the Office for Institutional Equity (OIE). You may contact OIE by phone at 901.678.2713 or by email at oie@memphis.edu. The full text of the policy can be found at GE2030 - Non-Discrimination and Anti-harassment.