Computer Engineering Design I
CSCE 4910, Section 002
Fall 2022

Class Timings: Tuesday and Thursday, 4:00 PM – 5:20 PM, Discovery Park, F260

Instructor: Robin Pottathuparambil, Email: rpottath@unt.edu, Office Hours: F263**,** Tuesday and Thursday, 1:30 PM – 3:30 PM or by appointment.

Course Webpage: All the course related material will be posted on the course webpage which is available through Canvas (https://unt.instructure.com/)

Course Outcomes:

- Gather and refine user functional requirements and other functional and non-functional requirements and constraints for a large scale processor-based system and create a system requirements specification document.
- Perform system analysis and design tasks using recognized software and systems engineering methods to create a preliminary design specification for a system based on a requirements specification.
- Utilize project management principles, skills and tools in creating the requirements and preliminary design specifications.
- Create a project management plan, including a schedule and budget for a large-scale information systems project.
- Utilize configuration management, project management and design tools in the course of the project.

Program Outcome Mapping:

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- An ability to communicate effectively with a range of audiences
- An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Text: *System Engineering Analysis, Design, and Development: Concepts, Principles, and Practices,* by Charles S. Wasson, Second Edition, ISBN: 978-1-118-44226-5. **Reference Text:** *Design for Electrical and Computer Engineers: Theory, Concepts, and Practice,* by Ralph M. Ford and Chris S. Coulston, First Edition, ISBN: 978-0-07-338035-3.

Catalog Description: Prerequisite: CSCE 3612 and EENG 3510. First course in the senior capstone design sequence. The focus of this class is the application of techniques to the design of electronic systems that have digital hardware and software components. Students will apply the theory acquired from numerous engineering courses to solve real-world design problems. The

design will consider realistic constrains including economic, environmental, sustainability, manufacturability, ethical, social, safety.

Topics:

- Design Process and Requirements
- Specifications
- Project Management
- Use Cases
- Preliminary Design and Detailed Design

Grading:

Attendance	5%
Individual Project Deliverables	20%
Team Project Deliverables	25%
Team Presentation (12/15/2022)	10%
Demonstrations	40%

Deliverables: There will be few individual deliverables and few team deliverables. Every deliverable will have sample template document which is required to be used by the team and the members to turn in the deliverables.

Demonstration: It is expected that you complete 1/3rd of your project requirements towards the end of the semester. The team members will equally divide the project requirements and take responsibility to complete the requirements. Instructor would evaluate team member's self-assigned requirements and recommend possible changes. At the end of the semester, each team member will demonstrate 1/3rd of the self-assigned project requirements to earn 40% towards the demonstration. Not completing 1/3rd of the requirements or demonstration does not earn any points (zero credit) towards demonstration.

Team Presentation: There will be a 20-minute presentation by each team. Attendance is required for all team members.

- Team Presentation: Thursday, December 15th, 2022 1:30 PM – 3:30 PM.

Attendance and Missing Classes: Attendance is required for all class periods and meetings. Attendance will be based on the meetings, discussions on Canvas, and participation of each team member. Throughout the semester, a student may miss class periods and meetings due to many reasons. Most of the reasons will not be accepted as an "excused" absence. Late deliverables can be made-up only under extraordinary circumstances and only when notification is given to me before the due date. A no-show for a demonstration or presentation without prior notification and a verifiable excuse (appropriate official documentation) results in a grade of zero.

COVID-19 Impact on Attendance: Students are expected to attend class meetings regularly and to abide by the attendance policy established for the course. It is important that you communicate with the professor and the instructional team prior to being absent, so you, the professor, and the instructional team can discuss and mitigate the impact of the absence on your attainment of course learning goals. Please inform the professor and instructional team if you are unable to attend class meetings because you are ill, in mindfulness of the health and safety of everyone in our community.

If you are experiencing any symptoms of COVID-19 please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Team at COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure.

Statement on Face Covering: UNT encourages everyone to wear a face covering when indoors, regardless of vaccination status, to protect yourself and others from COVID infection, as recommended

by current CDC guidelines. Face covering guidelines could change based on community health conditions.

Disputing Grades: If you have a disagreement with how a deliverable is graded, you should first get the comments/feedback from the Canvas course page and examine it. If you really believe that your work is correct, contact the instructor and discuss it with him. Grades for deliverables are disputable for **one week** from the day the grades were assigned on Canvas.

Class Policies: Please note that portable phones, pagers, and late arrivals are disruptive to the instructor and to your peers. The use of cell phones, beepers, or communication devices is disruptive and is therefore absolutely prohibited during class and exams. Turn off your cell phone while in class and while taking exams. If I catch you using these devices in the class or during the exams, the penalty can range from a formal warning to an 'F' for the course and you will be asked to leave the class. Except in emergencies, students using such devices must leave the classroom for the remainder of the class period. I know that some of you may wish to take notes directly on your computer and I have no problem with that. If, however, you choose to access your email, search the web, play games, or instant messenger your friends during class, you will have 10% deducted from your final grade for each transgression. If I am late arriving to class, it will be because of circumstances beyond my control. You are expected to remain for 20 minutes past the scheduled class start time while I attempt to communicate my situation and relay instructions.

Course Policies: You are expected to spend at least 10 hours per week for this course. You should track your own progress on Canvas and be aware of current grades throughout the term. Final grading will be done as follows. **A**: >= 90%, **B**: >= 80% and < 90%, **C**: >= 70% and < 80%, **D**: >= 60% and < 70% and **F**: < 60%. Grades will be curved if necessary. Grades cannot be changed after they have been electronically entered into the university's system except for instructor error. Any extenuating circumstances that may adversely affect your grade must be brought to my attention before the final course grades are recorded. To be considered, such circumstances must be unusual, unavoidable, and verifiable.

Syllabus Revisions: This syllabus may be modified as the course progresses. Notice of such changes will be by email or announcement in class.

Disability Services/Special Needs: UNT complies with all federal and state laws and regulations regarding discrimination including the Americans with Disability Act of 1990 (ADA). If you have a disability and need a reasonable accommodation for equal access to education or services please contact the Office of Disability Accommodation. Please initiate this process and inform me during the first two weeks of class.

Academic Dishonesty: All the provisions of the University code of academic integrity apply to this course. In addition, it is my understanding and expectation that signing or turning in any deliverable means that you neither gave nor received unauthorized aid. For most deliverables, while discussion is allowed, direct copying is not and students must turn in individual submissions wherever individual deliverables are required. All students are required to know, observe and help enforce the UNT Code of Student Academic Integrity. Cheating will result in disciplinary action according to UNT Policy 06.003. The penalty for a first offense can range from a formal warning to an 'F' for the course. Regardless of the penalty imposed, a record of the offense will be kept in the Office of the Dean of Students.

Student Perceptions of Teaching (SPOT): Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The short SPOT survey will be made available **November 21 – December 8** to provide you with an opportunity to evaluate how this course is taught.

Tentative Course Schedule:

Week	Lecture	Deliverables
08/28 – 09/02	Course Overview/Recruitment/Pitch	Determine Teams and Team Names **(1%)**
09/05 – 09/09	Design Process/Teams	Determine Projects **(1%)**
09/12 – 09/16	Brainstorming ideas/Requirements	
09/19 – 09/23	Project Management	Requirements Draft Due/Status Report **(2%)**
09/26 – 9/30	RUP and Use Cases	Specifications Draft Due/Requirements Due **(5%)**
10/03 – 10/07	Preliminary Design Overview	Specifications Due **(5%)** **(2.5%)**
10/10 – 10/14	Detailed Design	Preliminary Design Due **(5%)** **(2.5%)**
10/17 – 10/21	Begin Prototype Development	Parts Orders due **(5%)** **(2.5%)**/Status Report **(2%)**
10/24 – 10/28	Continue Development	Detailed Design Due **(5%)** **(2.5%)**
10/31 – 11/04	Continue Development	
11/07 – 11/11	Continue Development	
11/14 – 11/18	Continue Development	Status Report **(2%)**
11/21 – 11/25	Continue Development	
11/28 – 12/02	Continue Development	
12/05 – 12/09	Demonstrations	Demonstrations **(40%)**
12/12 – 12/16	Finals Week	Team Presentation **(10%)**/Status Report **(2%)**