

# Computer Engineering Design II

## CSCE 4915, Section 001

### Spring 2022

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

**Instructor:** Robin Pottathuparambil, Email: [rpottath@unt.edu](mailto: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:**

- Create a detailed system design and implementation plan using standard engineering tools and methodology.
- Implement the design for a processor-based system.
- Create a test plan and series of test procedures for a project and execute the procedures against the components created.
- Create a delivery and maintenance plan for the system.
- Utilize configuration management, project management and design tools in the course of the project.
- Create a lifecycle plan for the system developed.

**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.

**Textbook:** *System Engineering Analysis, Design, and Development: Concepts, Principles, and Practices*, by Charles S. Wasson, Second Edition, ISBN: 978-1-118-44226-5.

**Reference Texts:** *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 and *Testing Across the Entire Software Development Life Cycle* by Gerald D. Everett and Raymond McLeod, Jr. John Wiley & Sons, Inc., Hoboken, New Jersey. 2007. ISBN 978-0-471-79371-7

**Catalog Description:** Prerequisite: CSCE 4910. Second course in the senior capstone design sequence. Focus is the application of techniques to the design of electronic systems that have digital hardware and software components. Students apply the theory acquired from numerous engineering courses to solve

real-world design problems. The design will consider realistic constraints including economic, environmental, sustainability, manufacturability, ethical, social, safety.

**Topics:**

- System Implementation
- Unit, Subsystem and System Testing
- Acceptance and Delivery
- Reliability
- Ethics and Social Responsibility

**Grading:**

|                                 |     |
|---------------------------------|-----|
| Attendance                      | 5%  |
| Individual Project Deliverables | 10% |
| Team Project Deliverables       | 35% |
| Team Presentation (05/12/2022)  | 10% |
| Demonstrations                  | 40% |

**Deliverables:** There will be individual deliverables and 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 all your project requirements towards the end of the semester. At the end of the semester, each team member will demonstrate their self-assigned project requirements. All self-assigned project requirements must be completed and demonstrated to earn the complete 40% towards the demonstration. A partial completion of the requirements or demonstration does not earn any points (zero credit) towards demonstration. It's your responsibility to discuss with the instructor to make sure that you have completed all the requirements before the final demonstration.

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

- Team Presentation: Thursday, May 12<sup>th</sup>, 2022 1:30 PM – 3:30 PM.

**Showcase:** Teams must showcase their project or product on the Senior Design Day held during the last week of April. Showcase includes the demonstration of their project or product to potential employers or visitors or guests. Showcase will also include a poster and a presentation that describes your project. Attendance is required for all team members. Failing to take part in the showcase will automatically result in a failing grade for the class.

**Attendance and Missing Classes:** Attendance is required for all class periods. Throughout the semester, a student may miss classes 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 or poster session without prior notification and a verifiable excuse (appropriate official documentation) results in a grade of zero (0).

**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](mailto: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](mailto: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.

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

**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 5% 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:** It is expected that each team member put in at least 10 hours per week towards the project. You should track your own progress using Canvas, and be aware of current grades throughout the term. Final grading will be done as follows. **A:**  $\geq 90\%$ , **B:**  $\geq 80\%$  and  $< 90\%$ , **C:**  $\geq 70\%$  and  $< 80\%$ , **D:**  $\geq 60\%$  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.

**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 work 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 18.1.16. 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 **April 18<sup>th</sup> – May 5<sup>th</sup>** to provide you with an opportunity to evaluate how this course is taught.

**Tentative Course Schedule:**

| Week          | Lecture                   | Deliverables                               |
|---------------|---------------------------|--|
| 01/17 – 01/21 | Course Overview           |  |
| 01/24 – 01/28 | Implementation Plan       | Implementation Plan (5%) (5%)              |
| 01/31 – 02/04 | Continue Development      | Final Parts and Service Orders due         |
| 02/07 – 02/11 | Continue Development      | Status Report (2%)                         |
| 02/14 – 02/18 | Continue Development      |  |
| 02/28 – 03/04 | Test Plan                 |  |
| 03/07 – 03/11 | Continue Development      | Test Plan (5%) (5%)/Status Report (2%)     |
| 03/14 – 03/18 | Spring Break – No Classes |  |
| 03/21 – 03/25 | Continue Development      |  |
| 03/28 – 04/01 | Maintenance Plan          |  |
| 04/04 – 04/08 | Continue Development      | Maintenance Plan (5%)                      |
| 04/11 – 04/15 | User Guide                | Status Report (2%)                         |
| 04/18 – 04/22 | Continue Development      | User Guide (5%)                            |
| 04/25 – 04/29 | Continue Development      | Showcase (7%)                              |
| 05/02 – 05/06 | Demonstrations            | Demonstrations (40%)                       |
| 05/09 – 05/13 | Finals Week               | Team Presentation (10%)/Status Report (2%) |