

# CSCE 4905 Capstone I

Instructor: David Keathly

Office: NTDP F202

Phone: 940-565-4801

Place: see Canvas course page

Time: see Canvas course page

Location: see Canvas course page

Office Hours: See Canvas course page and by appointment

Email: [david.keathly@unt.edu](mailto:david.keathly@unt.edu)

## **Course Catalog Description**

First of a two course sequence in which students develop a complex IT System starting from customer requirements and progressing through the entire analysis, design, implementation, testing and delivery lifecycle. Students work in teams to develop a project plan, complete the technical components of the project, prepare a variety of deliverable documents, and finally deliver the finished product to the customer. The first course will focus on the analysis and design of the system.

## **Course Outcomes**

1. Gather and refine user functional requirements and other functional and non-functional requirements and constraints for a large-scale information system, and create a system requirements specification document.
2. Perform system analysis and design tasks using recognized software engineering methods to create a preliminary design specification for a system based on a requirements specification.
3. Utilize software project management principles, skills and tools in creating the requirements and preliminary design specifications.
4. Create a project management plan, including a schedule and budget for a large-scale information systems project.
5. Create initial test and documentation plans for a project.
6. Utilize configuration management, project management and design tools in the course of the project.
7. Understand the classification and characteristics of large computing systems.
8. Demonstrate the ability to perform common systems installation, integration, maintenance, and administration tasks.

## **Expected Student Outcomes (ABET)**

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
5. Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems

**Textbook:**

*none*

**Prerequisites**

CSCE 3055

**Course Requirements:**

Attendance: Required

Exams: None

Project: The majority of the assignments in this course will relate to a large group project that will extend into the CSCE 4925 class in the spring semester

Assignments: There will be a few initial individual assignments and a number of group deliverables throughout the semester

**For More information**

Faculty Webpage: [www.cse.unt.edu/~dkeathly](http://www.cse.unt.edu/~dkeathly)

Class Web Page: Canvas

**Topics**

- The Nature of Design
- Project management
- Defining System Requirements
- Analysis Modeling
- Preliminary and Detailed design
- Implementation
- The project lifecycle
- Team Planning, Coordination and Survival
- System Testing
- Delivery

- Reliability
- Ethics and Social Responsibility

**Course Calendar** (subject to change)

Since we only meet once per week, a typical class period will start with a lecture (for about 45 minutes), question period, then there will be A short meeting with your faculty mentor (either Dr Buckles or myself). The remaining class time is used for team meetings and work groups. Please realize that you will also need more team time beyond this period in class.

| Week    | Topics   | Readings, Materials and Assignments |
|---------|--|-------------------------------------|
| Week 1  | Lecture: Course Overview<br>Setup Team Room<br>Personal Assessment<br>Lecture: Nature of Design                          | see lecture notes on class web page |
| Week 2  | Lecture: Team and Project Management<br>Determine Teams and Team Names<br>IA -1 presentations<br>Bi-weekly status report | see lecture notes on class web page |
| Week 3  | Lecture: Project Lifecycle<br>brainstorm project ideas<br>meet with client   | see lecture notes on class web page |
| Week 4  | Project ID and Need<br>Lecture: Development Methodologies<br>Lecture: Requirements<br>Bi-weekly status report            | see lecture notes on class web page |
| Week 5  | RUP and Use Cases  | see lecture notes on class web page |
| Week 6  | Lecture: Preliminary Design Overview<br>Bi-weekly status report  | see lecture notes on class web page |
| Week 7  | Work Week  | see lecture notes on class web page |
| Week 8  | Review Preliminary Design details<br>Bi-weekly status report   | see lecture notes on class web page |
| Week 9  | Work Week  | see lecture notes on class web page |
| Week 10 | Bi-weekly status report  | see lecture notes on class web page |
| Week 11 | Lecture/Discussion Detailed Design   | see lecture notes on class web page |

|            |  |                                     |
|------------|--|-------------------------------------|
| Week<br>12 | Lecture: Testing<br>Work Week<br>Bi-weekly status report | see lecture notes on class web page |
| Week<br>13 | Lecture: Reliability and Delivery                        | see lecture notes on class web page |
| Week<br>14 | Work Week<br>Bi-weekly status report                     | see lecture notes on class web page |
| Week<br>15 | Crunch Week!   |                                     |
| Week<br>16 | Final Presentations                                      |                                     |

### **Grading Policy**

**The various components of your grade are weighted as follows:**

|  |     |
|--|-----|
| Team Project Deliverables                              | 40% |
| Individual Reports, Presentations and Editorships      | 15% |
| Team Presentations                                     | 15% |
| Peer and Instructor Performance Reviews and Attendance | 30% |

### **Course Policies:**

- ABSOLUTELY, NO LATE project assignments will be graded, unless specific arrangements are made with the instructor in advance.
- All assignments will be turned in by midnight on the date due. Assignments may be submitted on Canvas in the appropriate drop box unless otherwise indicated.
- ALL requests for extensions on assignments must be made prior to the due date, in person, and must be for a valid “emergency” reason. In extreme circumstances, contact after the due date may be accepted if there is a COMPELLING reason.
- Attendance is required, is part of your grade, and will be monitored in order to ensure that all groups operate at peak efficiency. You are responsible for all discussion, lecture and other information disseminated during the lecture period, regardless of whether you attend or not. You are also responsible for all team assignments made by your team lead and deliverable leads regardless of your attendance. You must provide documentation for excused absences for emergencies etc.
- Lectures and Project assignments are included in this syllabus. However, you should regularly check the class website, as well as take note of in-class announcements for changes in the schedule or assignments.

- You should plan to spend, on average, about 10-15 hours per week outside of the normal class meetings working on the various aspects of your project. As deadlines draw near, the time commitment may increase.

### **Collaboration and Cheating:**

Collaboration among students in class is most certainly encouraged, as it is my belief that it provides a better learning environment, and required for team assignments. For further details and clarifications regarding collaboration and cheating, view the university [Student Rights and Responsibilities web page](#).

### **Notes on the use of AI Tools and work performed by Others**

In all academic work, the ideas and contributions of others must be appropriately acknowledged and work that is presented as original must be, in fact, original. Using an AI-content generator (such as ChatGPT, GitHub CoPilot, Cody, Ghostwrite and others) to complete coursework without proper attribution or authorization is a form of academic dishonesty. If you are unsure about whether something may be plagiarism or academic dishonesty, please contact your instructor to discuss the issue. Faculty, students, and administrative staff all share the responsibility of ensuring the honesty and fairness of the intellectual environment.

### **Student Evaluation of Teaching Effectiveness (SETE)**

The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SETE to be an important part of your participation in this class

### **ADA:**

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.