

Senior Design / Capstone

Fall 2023 (CENG 4115 & CMGT 4195)

Course Objectives:

Capstone 1 - This course is the 1st of 2 courses that make up the CE and CM capstone series. CAPSTONE provides the teams with the challenge of designing and planning for a DESIGN BUILD project to include project definition, project planning, scheduling, and results in a presentation and a 100% plan for implementation of the project scope at the end of Capstone II.

Capstone 1 will also require the teams to develop a complete WBS (Work Breakdown Structure –to be explained) driven Project plan to include contract documents for bid support and follow- on and control execution controls and reporting techniques up to the 35% level

Capstones 1 will require each team to communicate the results of their teams work in formal presentation and written PDF plan for senior capstone design project to the actual real world end clients.

Multidisciplinary teams (combined CE and CM team) with 4 or 6 total people to each team will work on a design project defined in cooperation with representatives from engineering firms, industry, or government organizations when possible. ***You have already been assigned to a team and will be given a set of 3 project you will be required to bid on already.***

When does CAPSTONE 1 meet? EVERY Tuesday from 11 to 1:45 in RBS 1031
What Textbook is required: None

Capstone Instructor Leads: Joe Boylan and Project Control – Rob Lamberson

Syllabus Semester 1

Aug 22 Class 1:

Welcome, Introduction, General Course Organization, Major Deliverables
Teams

Aug 29 Class 2 **Task Sheet assigned to what team member DUE**

Introduce 12 Projects for BID

What is required for a Qualifications Base Bid

3 Project Bid assignments will be shown at end of class

Lecture: WBS

Sept 5 Class 3:

Deliverable: **Submit BID packages for your 3 CAPSTONE project selection (10% of grade)**

Lecture: Discuss Who/What/Where/Why/How for 10% design product

Assignment: Prepare Questions that you will ask Clients about your project scope and requirements.

You will be notified of what project your bid won by email from client during the week! Be prepared for client meeting in class #4

Sept 12 Class 4: CLIENT Meeting

1. **Meet Clients, Ask Questions** - Finish investigation of project needs and requirements from owner.

Assignment prep: **Complete requirements investigation for the Project SOW** = Needs, Wants and Desires/Needs Analysis, Tabular and Narrative

2. This is a Prime GC to Engineering, Design, Planning Sub-contractor SOW and contract conference.

Sept 19 Class 5: Mentor Meeting & Professional Class: Clayton Carroll Terracon

1. **Assignment Due: Turn in team Project SOW (10%)**
2. Meet Project Mentors – set up 2 or more visits with them
3. **Lecture: Foundations Design and Build Class**
4. GO over Site Plan expectations DUE NEXT CLASS

(Resources SmithCountywebsite, SmithCAD)

Sept 26 Class 6: Cardboard Canoe Design Plan due!

1. **Mentor Visitation Plan DUE**
2. **Lecture: Draft Site and Plan Package (Can be handwritten NGT 89%, CAD up to 100%)**
3. Go over what is a *full drawing package*. Title Sheet, General Notes, Index, Site Civil/Site Plan, M, E, P, A, S. Column lines,

Oct 3 Class 7: Draft Site Plan Due (30%)

1. **Lecture: Who are/What do Architecture bring to the design and planning team**
2. **Explain the 10% Rubric and what is to be provided on 17th Due Date**
3. **SOIL testing plan (if required)**

Oct 10 Class 8:

No lecture or Class – Team time to be Working on project 10% Submittal

Oct 17 Class 9 – Cardboard Canoe Final Report Due & Team Complete 10% Design and Plan Due (25%)

Oct 24 Class 10: 10% Package Submittal Debrief

**Oct 31 Class 11: WHAT IS A 35% DB Design?
Hand Out 35% Rubric
Soil Reports**

Lecture: Contrast 35% with 10%, What does Design Evolution Look Like. How do projects proceed?

What does a *Contours and Site Layout/Development Report and Briefing* look like

Nov 7 Class 12:

**Assignment DUE: Contours and Site Layout/Development Report and Briefings
Deskside team updates this week!**

Nov 14 Class 13

No lecture – time to do 35% Design and Plan Work

Nov 28 Class 14: Assignment Due: 35% Due with Briefs (25%)