

Course Syllabus

Course Name: Senior Design 1

Course Number: CE 4188,1 credit

Instructors: Professor Marshall
Engineering Room A214
915.747.5765
asmarshall@utep.edu

Professor Raheem
Engineering Room A213
915.747.6348
aaraheem@utep.edu

Location/time: Fridays at 8 AM, check Goldmine for location.

Course Description: Selection and site development of a senior design project

Textbook: Colley, Barbara, Practical Manual of Land Development. McGraw-Hill Publishing, ISBN 978-0-07-144866-6, any edition – at least one copy per team

Class Structure: This course will require students to select a senior design project to be worked on as a team and to perform various site related engineering design analyses. Teams shall be organized in the first class session. Individual assignments within each team will be determined by each team and due weekly in hard copy form at the start of the following class. If these assignments are not delivered prior to the start of the following class, they will not be graded at all. Even if a student does not complete a weekly assignment, that assignment work still must be completed to pass the course even though that assignment will not be graded.

If any part of the project work is not completed by the end of the class term, the responsible student and that team will lose one full letter grade for each missing component.

If, at any time, you are confused and do not know what to do on an assignment, contact one of the Professors early in the assignment week. Seek assistance from Dr. Raheem on estimating costs, schedules; and LEED/Green Globe activity; Dr. Marshall on all other matters.

Final grades will be based on each assignment having a maximum of ten points plus 50 points for the team final report and 100 points available for the final exam. The final grade will be determined by the percentage of the summation of the grades divided by the total available points for the course with 90% and above yielding an A, 80% -90% yielding a B, 70%-80% yielding a C, 60%-70% yielding a D, and anything below 60%

resulting in an F. If all work is completed up to the final exam, the Professor may waive the exam.

No excuses will be allowed regarding the submission of any assignment. If excuses are attempted, they will result in a full letter grade reduction per excuse.

This is not really a class, it is a project. Projects do not get done with excuses. Three principles that will help you in this class and in your career:

- Prepare to succeed, or prepare to fail
- Never believe what you think.
- Never ass/u/me (assume) anything, it will make asses out of u and me.

Assignments

Assignments are to be completed and completed by each student weekly, submitted by email to both professors Each team shall submit a final report. Please see below for reading and deliverable assignments.

Deliverable and Reading Schedule

Week Textbook Reading

1 Chapters 1-3 before
first class session

Team Deliverables

Finish by end of first class as a Team, no need to submit anything to professors for this class

1. Form teams/assign work to team members– teams

shall be formed in the first class session, each tem should have one construction degree student on the team if there are enough of those students. The construction students shall write their name on the blackboard for other students to sign up fore their teams, the construction students should outline the tasks and organize to have individual students take on individual tasks at least fore the first three weeks of activities.

2. Discuss how to select a site – you can select any site in the city of El Paso. It can be a vacant property or a property already built on. Your assignment here is to select a site and determine the highest and best use of that property given existing zoning requirements. The idea is how to improve the City by developing the property in the manner in which you choose. You can select a site using various approaches. You can walk or drive around and look for them, you can look on Google Earth, you can look at aerial photos available at the city and online, or you can use your phone app or computer to look for aerial maps to see such properties.

3. Decide on project type – This is discussed above but here you also need to develop project parameters – size, number of stories, square footage special features.

TEAMS SHALL BE FORMED WITH A MINIMUM OF ONE BSCHEM STUDENT PER TEAM WHO WILL BE RESPONSIBLE FOR ESTIMATING AND SCHEDULING WORK WHERE APPLICABLE.

2 Chapters 4-5

Submit documentation each week of individual student work for all information obtained and conclusions reached by start of Week 2 class:

1. Locate site and/or nearby soil/groundwater data and geologic information. **This step is sometimes difficult but you can find some information online and you can also go to the City Building Department and ask to review files on adjacent or nearby properties to find soil reports, or you can ask at soil engineering consulting companies for such information.**
2. Locate county file data regarding property boundaries, legal description, acreage and whether there are any liens or easements on the property. – **This will likely require you to go to the City clerk's office to seek such information in their files.**
3. Compile site topography data. – **You might find this information online at the City's website and or use topographic information you can extract from Google Earth.**
4. Compile adjacent property use information and if there are any physical obstructions to use of the site By visiting and observing site conditions, including wetlands, **this can be done by a site visit and/or through Google Earth.**
5. Determine site zoning information, setbacks, height limitations, and signage requirements. **This needs to be done by visiting the City Building or Planning Office or online through the City website.**

Also, begin and continue to complete work on the following checklists:

<https://www.prospertx.gov/wp-content/uploads/Pg-38-CIVIL-ENGINEERING-PLAN-CHECKLIST.pdf>

https://msa.maryland.gov/msa/intromsa/budget/pdf/site_development_checklist.pdf

If your team has more students than there are assignments for the week, you may double up on an assignment and list both names on the submission.

3 Chapter 6 and Appendix D

- 1. Determine clearing and grubbing, and any demolition needed and estimate cost of this work and time required to complete the work. – this really needs to be done by site visit because you need current day information. Cost and scheduling efforts should be done by the construction students.**
- 2. Determine grading required after making preliminary decisions on the project structure sizes and locations, estimate costs and time required for this work – items 2-5 will require a thorough review of the City zoning and building code requirements. Grading decisions should be finalized on a hand drawn drawing showing final construction site ground elevations needed for surface water to drain, collection areasd, etc.**
- 3. Determine access road and parking requirements and estimate cost and construction time – this requires you to find parking requirements in the City’s planning department or building department codes and regulation.**
- 4. Determine storm drain requirements and estimate cost and time for this work –Here you will have to ask the building department for data on nearly storm, water and sewer lines. You will also need to get dumpster/ waste disposal requirements.**
- 5. Estimate water and sewer requirements, costs, and time – same method as in item 4 above.**

4 Chapter 7

- 1. Determine soil erosion work requirements, cost and Time**
- 2. Determine landscaping needed, cost and time**
- 3. Develop grading plan**
- 4. Develop road and parking plans**
- 5. Develop storm drain plan**

The week 4 assignments listed above will be discussed in Week 3’s class. Week 4’s class will consist of discussion by Dr. Raheem on estimating and scheduling procedures.

5 Chapter 8-11

- 1. Develop sanitary sewer plan**

Appendix E

- 2. Develop water system plan**
 - 3. Determine preliminary estimated foundation requirements and costs and time**
 - 4. Develop erosion control plan and determine costs and time for the work, and determine/apply LEED or Green Globe sustainability criteria**
 - 5. Determine project permitting time and costs**
- 6. Chapters 12 – 14.**
- 1. Prepare Powerpoint (PP) title slide**
 - 2. Prepare PP slide about Project Description**
 - 3. Prepare PP slide on Site Grading**
 - 4. Prepare PP on site access roads and parking**
 - 5. Prepare PP slide on water, sewer, storm drain systems**
- 7**
- 1. Prepare landscaping PP slide**
 - 2. Prepare foundation design/ soil issue PP slide**
 - 3. Prepare overall site plan PP slide**
 - 4. Prepare Cost Estimate summary PP slide**
 - 5. Prepare schedule summary bar char PP slide**
 - 6. Prepare building floor plan. Flow demand layout**
- 8 - 14**
- Preliminary presentations by teams**
- 14**
- Submit Summary Report and take Final Exam. The Summary Report shall contain a Summary of the results of all of the weekly assignments together with completed checklists. Due by email to both professors by Friday at 5 PM on the Friday at 6 PM during the last week of class before exam week.**