NJIT New Jersey's Science & Technology University

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

CE 101 Civil Engineering Computer Aided Design Spring 2017

Course Description:

CE-CAD is a one-credit course that will introduce students to the basics of Computer Aided Design utilizing software to produce engineering designs. The course will also provide an overview of the different disciplines in Civil Engineering including structural, geotechnical, water resources, environmental, transportation, etc.

CE-CAD will require students to work in teams to develop engineering drawings, reports, and presentations required to address course project requirements. Students will develop skills in CAD software and team interaction to enhance the Civil Engineering experience.

Students will engage in a variety of in class assignments, homework, group projects, and presentations throughout the semester.

Co-requisite FED 101, HUM 101, and MATH 108/110/111

Moodle:

Students must use their UCID to sign in at (http://www.moodle.njit.edu). Some course material may be posted on Moodle. The instructor will advise when important information is uploaded.

Instructor: **Stephanie R. Santos, P.E., P.P., CME, CM-BIM**

Office: Colton Hall 215

Office Hours: Monday 2:30-3:30 PM, Wednesday 11:30 AM-12:30 PM, Fridays 3:30-4:30 PM or by Appointment

Email: srr3@njit.edu

Required Text:

Introduction to AutoCAD 2016 Civil Engineering Applications - ISBN: 978-1-58503-951-7

Course Sections:

Section 002 – Fridays @ 9:15 – 11:25 AM (PC Mall 37)

Section 004 – Fridays @ 1:00 – 3:10 PM (PC Mall 36)

Section 006 – Mondays @ 12:15 PM – 2:25 PM (GITC 2315B)

Meeting	Section Dates			Topic/*Assignment*	Book Reference
	002	**004**	**006**		
1	1/20	1/20	1/23	Course Introduction • Student Introduction • Course Requirements • Introduction to AutoCAD ➢ MBTI (In Class)	Ch. 2 – Getting Started with AutoCAD 2016
2	1/27	1/27	1/30	Career Development Services • MBTI Discussion • Form Groups Titleblock Printing Engineering Scales	Ch. 2 – Getting Started with AutoCAD 2016 Sections 1.6-1.8 Pages 4-9
3	2/3	2/3	2/6	Engineering Plan Reading Engineering Scales ➢ Project #1 Assigned	Sections 1.6-1.8 Pages 4-9
4	2/10	2/10	2/13	Transportation Engineering • Roadway Design	Ch. 14 – Road Design
5	2/17	2/17	2/20	Roadway Design / MUTCD / NJRSIS Project Group Meetings	Ch. 14 – Road Design
6	2/24	2/24	2/27	➢ Quiz #1 ➢ Project #1 Due	
7	3/3	3/3	3/6	AutoCAD Maps and Images • Importing and Scaling ➢ Project #2 Assigned	
8	3/10	3/10		Structural & Geotechnical Engineering • Bridge Elevation Project Group Meetings	
	3/17	3/17	3/13	Spring Break – No Class	
8			3/20	Structural & Geotechnical Engineering • Bridge Elevation Project Group Meetings	
9	3/24	3/24	3/27	➢ Project #2 Due - Presentations	
10	3/31	3/31	4/3	Surveying and Site Plans • Layouts • Terminology ➢ Project #3 Assigned (006)	Ch. 10 – Land Survey Ch. 18 – Site Plan
11	4/7	4/7	4/10	Water Resources & Environmental Engineering • Drainage Design ➢ Project #3 Assigned (002/004)	Ch. 12 – Drainage Basin Ch. 13 – Floodplain
	4/14	4/14		Good Friday – No Class	
12	4/21	4/21	4/17	AutoCAD Review Group Project Meetings	
13	4/28	4/28	4/24	➢ Project #3 Due - Presentations	
14	5/2	5/2	5/1	Quiz #2	

GENERAL COURSE INFORMATION

Grading Policy:

Homework Assignments	15%
Quiz #1	15%
Quiz #2	15%
Project #1	15%
Project #2	20%
Project #3	20%

Grading Scale:

A:	**100-90**
B+:	**89-85**
B:	**84-80**
C+:	**79-75**
C:	**74-70**
D:	**69-60**
F:	**Below 60**

Attendance Policy:

Students are expected to attend every class and sign in. In the event that you cannot attend class, you may request to attend one of the other sections as a make-up, however this is limited to availability and permission from the instructor. Students are responsible for submitting all homework, projects, assignments, etc. on the due date (during class time). Students who miss assignments due to attendance must contact the Dean of Students to be excused for absences. Students who miss class with no valid excuse (as determined by the Dean of Students) will not be given any accommodations to complete work.

Withdrawals:

In order to insure consistency and fairness in application of the NJIT policy on withdrawals, student requests for withdrawals after the deadline will not be permitted unless extenuating circumstances (e.g., major family emergency or substantial medical difficulty) are documented. The course Professors and the Dean of Students are the principal points of contact for students considering withdrawals.

NJIT Honor Code:

The NJIT Honor Code will be upheld; any violations will be brought to the immediate attention of the Dean of Students. The Honor Code can be found at (http://www5.njit.edu/doss/policies/honorcode/index.php).

Assignment Policy:

Late assignments will NOT be accepted. Homework received after the due date will NOT be graded and a ZERO will be counted for that assignment.

******ANY ASSIGNMENT THAT IS COPIED WILL RECEIVE A ZERO AND THOSE STUDENTS INVOLVED WILL BE SUBJECT TO DISCIPLINARY ACTION IN ACCORDANCE WITH THE NJIT HONOR CODE******

All assignments are to be submitted in class on paper, unless otherwise requested, on the due date, or via email to srr3@njit.edu ON OR BEFORE the beginning of class on the due date. Email is only to be used if you will be absent from class and shall not be the primary form of submission.

Syllabus Information:

The dates and topics of the syllabus are subject to change; however, students will be consulted with and must agree to any modifications or deviations from the syllabus throughout the course of the semester.

Email Policy:

When emailing the instructor, you must provide your course and section number in the subject line. Also, although most email addresses will display your name, you must sign off with your full name at the bottom of each email. If you do not provide these two critical piece of information, your email will not be responded to.

Items Required for this Course:

1. Textbook
2. Engineering Scale
3. Flash drive
4. Notebook

Dress Policy:

Students are required to dress professionally for all oral presentations.

Course Objectives Matrix – CE 101 – Civil Engineering Computer Aided Design

Strategies and Actions	Student Learning Objectives	Student Outcomes (a-k)	Prog. Educational Object.	Assessment Methods/Metrics
Course Objective 1: Enable students to learn a team approach to problem solving				
Students will work in teams to develop engineering designs and solve problems	Students will develop their team building skills and learn to work in interdisciplinary environments.	b, c, d, e, g, i, j, k	1, 2	Class Projects
Course Objective 2: Develop the ability to perform basic functions in CAD software to communicate design concepts				
Introduce CAD concepts and develop engineering drawings	Students will be able to use basic CAD functions to produce engineering drawings and communicate design concepts	b, c, d, e, g, i, j, k	1, 2	Lab Exercises, Homework Assignments, and Class Projects
Course Objective 3: Develop oral and presentation skills				
Discuss various aspects of communication and its importance in the life of the Civil Engineer	Students will develop their written and oral presentation skills	b, c, d, e, g, i, j, k	1, 2	Discussions, Class Projects, Homework Assignments

CEE Mission, Program Objectives and Student Outcomes

The mission of the Department of Civil and Environmental Engineering is:

- to educate a diverse student body to be employed in the engineering profession
- to encourage research and scholarship among our faculty and students
- to promote service to the engineering profession and society

Our program objectives are reflected in the achievements of our recent alumni.

1 – Engineering Practice: Recent alumni will successfully engage in the practice of civil engineering within industry, government, and private practice, working toward sustainable solutions in a wide array of technical specialties including construction, environmental, geotechnical, structural, transportation, and water resources.

2 – Professional Growth: Recent alumni will advance their skills through professional growth and development activities such as graduate study in engineering, professional registration, and continuing education; some graduates will transition into other professional fields such as business and law through further education.

3 – Service: Recent alumni will perform service to society and the engineering profession through membership and participation in professional societies, government, educational institutions, civic organizations, and humanitarian endeavors.

Our student outcomes are what students are expected to know and be able to do by the time of their graduation:

(a) an ability to apply knowledge of math, science, and engineering

(b) an ability to design and conduct experiments, as well as interpret data

(c) an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) an ability to function on multi-disciplinary teams

(e) an ability to identify, formulate, and solve engineering problems

(f) an understanding of ethical and professional responsibility

(g) an ability to communicate effectively

(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(i) a recognition of need for, and an ability to engage in life-long learning

(j) a knowledge of contemporary issues

(k) an ability to use techniques, skills and modern engineering tools necessary for engineering practice