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Fall 2020

CE 101-L56: Civil Engineering Computer Aided Design

Stephanie Santos

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JOHN A. REIF, JR. DEPARTMENT OF
CIVIL AND ENVIRONMENTAL ENGINEERING

NJIT New Jersey Institute of Technology

CE 101 - Civil Engineering Computer Aided Design - FALL 2020

This course will be held online at the date and time listed for each section with the following access code:

njit.webex.com/njit
Meeting Number: 923 864 629

NJIT Honor Code:

"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. ***Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.*** *If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu"*

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 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 class assignments, homework, group projects, and presentations throughout the semester.
Co-requisite FED 101, HUM 101, and MATH 108/110/111

AutoCAD Download Website:

Students have access to a free education version of AutoCAD and must register with the site to verify your student credentials. Students may download a free version of the AutoCAD Civil 3D program at:

https://www.autodesk.com/education/home

Remote Access to NJIT Computers:

https://remoteaccess.labstats.com/new-jersey-institute-of-technology-general-use

https://ist.njit.edu/vpn/

A separate instruction guide will be uploaded to Canvas for your use.

Canvas:

Students must use their UCID to sign in at (canvas.njit.edu). All course material will be posted on Canvas. All assignments, quizzes, and projects must be uploaded through Canvas and should not be submitted via email.

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

Office Hours: By Appointment

Email: srr3@njit.edu

Course Sections:

Section L55 – Mondays 1:10 PM – 3:15 PM

Section L67 – Tuesdays 11:40 AM – 1:45 PM

Section L54 – Friday 3:10 PM – 5:15 PM

Suggested Text:

Introduction to AutoCAD 2021 Civil Engineering Applications - ISBN: 978-1-63057-338-6

Meeting	Section Dates			Topic/*Assignment*
	L67 (T)	L54 (F)	L55 (M)	
1	9/1	9/4	9/8	Course Introduction ● Student Introduction ● Course Requirements ● Introduction to AutoCAD AutoCAD Titleblock Setup
2	9/15	9/11	9/14	AutoCAD - Lines, Polylines, Circles, Trim/Extend, Copy, Rotate
3	9/22	9/18	9/21	AutoCAD - Text & Dimensions
4	9/29	9/25	9/28	**Quiz #1** **Project # 1 - Assigned**
5	10/6	10/2	10/5	AutoCAD - Layers / Viewports - Linetypes
6	10/13	10/9	10/12	AutoCAD - Importing Images / Scaling - Hatches
7	10/20	10/16	10/19	Land Use Ordinance / Master Plan Discussion
8	10/27	10/23	10/26	**Project #1 Due (UPLOADED TO CANVAS)** **Project #2 - Assigned**
9	11/3	10/30	11/2	**Quiz #1**
10	11/10	11/6	11/9	Drainage Calculations – Q = cIA
11	11/17	11/13	11/16	Engineering Scales and Plans
12	11/24	11/20	11/23	AutoCAD Review Group Project Meetings
13	12/1	11/25	11/30	**Project #2 Due – Presentations**

14	12/8	12/4	12/7	**Quiz #3**

9/8 (Tuesday) – Monday Schedule
11/25 (Wednesday) – Friday Schedule
12/10 (Thursday) – Last Day of Classes

GENERAL COURSE INFORMATION

Grading Policy:

Homework Assignment	15 %
Quiz #1	15 %
Quiz #2	15 %
Quiz #3	20 %
Project #1	15 %
Project #2	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 on Webex. Attendance will be taken during each meeting. Students are responsible for submitting all homework, projects, quizzes, etc. on the due date. Students who miss assignments due to an emergency or unforeseen circumstance must contact the Dean of Students to be excused for absences. Students who miss class without a 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.

Assignment Policy:

******ANY ASSIGNMENT THAT IS COPIED WILL BE SUBJECT TO DISCIPLINARY ACTION IN ACCORDANCE WITH THE NJIT HONOR CODE******

Assignments will be required to be submitted on Canvas by the date and time given. Late assignments will be accepted, but will be accessed a 50% reduction on the grade received. This only applies to homework.

Projects and quizzes MUST BE SUBMITTED ON TIME through Canvas.

ALL assignments for this course must be submitted through Canvas. Email attachments are not acceptable.

Quizzes will be timed and must be completed during the time provided. This includes the time required to print to a PDF and submit on Canvas. All students will be required to be signed in on Webex during the quiz time.

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 pieces of information, your email will not be responded to.

Items Required for this Course:

1. AutoCAD Civil3D

2. Textbook (Optional)
3. Engineering Scale

Outcomes Course Matrix – CE 101 Civil Engineering Computer Aided Design

Strategies, Actions and Assignments	ABET Student Outcomes (1-7)	Program Educational Objectives	Assessment Measures
Student Learning Outcome 1: Use a team approach to problem solving			
Students will work in teams to develop engineering designs and solve problems	5	1, 2	Class Projects
Student Learning Outcome 2: Develop and practice basic functions in CAD software to communicate design concepts			
Introduce CAD concepts and develop engineering drawings	1, 3, 7	1, 2	Lab Exercises, Homework Assignments, and Class Projects
Student Learning Outcome 3: Develop and practice oral presentation skills			
Discuss various aspects of communication and its importance in the life of the Civil Engineer	3	1, 2	Discussions, Class Projects, Homework Assignments

CEE Mission, Program Educational 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 educational objectives are reflected in the achievements of our recent alumni:

1 – Engineering Practice: 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: Alumni will advance their skills through professional growth and development activities such as graduate study in engineering, research and development, professional registration and continuing education; some graduates will transition into other professional fields such as business and law through further education.

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

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

1. an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
2. 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
3. an ability to communicate effectively with a range of audiences

4. 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
5. 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
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Revised: 2/13/18