

Fall 2020

## **CE 260-005: Civil Engineering Methods**

Stephanie Santos

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



**CE 260 - Civil Engineering Methods – 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](http://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](mailto:dos@njit.edu)”*

**Course Description:**

CE 260 provides students with hands-on experience in computer applications in Civil Engineering. Students will learn to use AutoCAD Civil 3D and Revit through a variety of assignments and group projects.

Prerequisite – FED 101, CE 101, CE 200/200A

**Canvas:**

Students must use their UCID to sign in at ([canvas.njit.edu](https://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.

**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.*

**Instructor:**        **Stephanie R. Santos, P.E., P.P., CME, CM-BIM**  
Office Hours: By Appointment  
Email: [srr3@njit.edu](mailto:srr3@njit.edu)

**Required Text:**

**1. Autodesk Civil 3D 2021 Fundamentals**

ISBN: 978-1-63057-343-0

**2. Autodesk Revit 2021 Structure Fundamentals**

ISBN: 978-1-63057-358-4

**Book Files Website:**

These files should be downloaded in order to complete assignments from the book. Please note this download is NOT the book, only the files that accompany the exercise.

<https://www.sdcpublications.com/Textbooks/Autodesk-Civil-3D-2021-Fundamentals/ISBN/978-1-63057-343-0/>

<https://www.sdcpublications.com/Textbooks/Autodesk-Revit-2021-Structure-Fundamentals/ISBN/978-1-63057-358-4/>

**Course Sections:**

**Section 001 – Mondays – 9:00 AM – 11:50 AM**

**Section 003 – Tuesdays – 2:30 PM – 5:20 PM**

**Section 101 – Fridays – 6:00 PM – 8:50 PM**

Week	Section Dates			Topic/Assignment
	003 (T)	101 (F)	001 (M)	
1	9/1	9/4	9/8	Course Introduction / Course Req. Discussion of CE Disciplines Discussion of FE/PE Requirements Introduction to BIM/Civil 3D/Revit
2	9/15	9/11	9/14	BIM – Homework Discussion  Civil 3D – Interface Review Titleblock Setup – Review Engineering Scale – Review
3	9/22	9/18	9/21	<b><u>Civil 3D</u></b> Creating Parcels Importing Points Creating Surfaces Styles and Labels
4	9/29	9/25	9/28	<b><u>CONT. Civil 3D</u></b> Creating Parcels Importing Points Creating Surfaces Styles and Labels
5	10/6	10/2	10/5	<b><u>QUIZ #1</u></b>  <b><u>GROUP PRESENTATION ASSIGNED</u></b>
6	10/13	10/9	10/12	<b><u>GROUP PRESENTATION DUE</u></b>  <b><u>Civil 3D</u></b> Creating Alignments Creating Profiles Styles and Labels
7	10/20	10/16	10/19	<b><u>CONT. Civil 3D</u></b> Creating Alignments Creating Profiles Styles and Labels Creating Profiles Creating Pipe Networks

8	10/27	10/23	10/26	<b>CONT. Civil 3D</b> Creating Pipe Networks Creating Quantity Take Offs  <b>Revit</b> Interface Intro
<b>Week</b>	<b>Section Dates</b>			<b>Topic/Assignment</b>
	<b>003 (T)</b>	<b>101 (F)</b>	<b>001 (M)</b>	
9	11/3	10/30	11/2	<u><b>QUIZ #2</b></u>  <u><b>PIPE NETWORK PROJECT ASSIGNED</b></u>
10	11/10	11/6	11/9	<u><b>PIPE NETWORK PROJECT DUE</b></u>  <u><b>FINAL PROJECTS ASSIGNED</b></u>  <b>Revit</b> Levels and Grids Structural Columns Creating Walls
11	11/17	11/13	11/16	<b>Revit</b> Structural Columns Creating Walls Windows/Doors Site Plan Design Importing CAD into Revit
12	11/24	11/20	11/23	<b>Revit</b> Site Plan Design Roof/Floor Footings and Foundations
13	12/1	11/25	11/30	<b>Revit</b> Quantity Take Off Section Views Reinforcement
14	12/8	12/4	12/7	<u><b>FINAL PROJECTS DUE</b></u>  <u><b>QUIZ #3</b></u>

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

**GENERAL COURSE INFORMATION**

### **Grading Policy:**

Homework Assignments	15%
Quiz #1	15%
Quiz #2	15%
Quiz #3	15%
Civil 3D Project	15%
Group Presentation	10%
Final Project	15%

### **Grading Scale:**

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

### **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.

**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.

**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.

**Items Required for this Course:**

1. AutoCAD Civil3D and Revit
2. Textbooks
3. Engineering Scale

**Outcomes Course Matrix – CE 260 - Civil Engineering Methods**

Strategies, Actions and Assignments	ABET Student Outcomes (1-7)	Program Educational Objectives	Assessment Measures
<b>Student Learning Outcome 1: Develop communication skills to function as civil engineers including written, oral, and computer based techniques.</b>			
Indicate importance of communication skills in the life and functions of the civil engineer.	<b>3</b>	<b>1, 2, 3</b>	Discussions and Group Presentation
Develop knowledge in AutoCAD/Revit to create civil engineering drawings	<b>3</b>	<b>1, 2, 3</b>	Homework assignments, quizzes, and projects
<b>Student Learning Outcome 2: Use CAD as a tool for selected civil engineering problems.</b>			



Introduce CAD concepts.	7	1	Homework Assignments
Apply CAD/Revit to projects	7	1	Project
<b>Student Learning Outcome 3: Develop an understanding of the importance of effective communications in all phases of the life of the civil engineer.</b>			
Discuss various aspects of communication and its importance in the life of the civil engineer.	3	1, 2, 3	Discussions, individual comments and written papers

### 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