

Summer 2019

CE 614-850: Underground Construction

Alan Slaughter

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Recommended Citation

Slaughter, Alan, "CE 614-850: Underground Construction" (2019). *Civil and Environmental Engineering Syllabi*. 169.
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New Jersey Institute of Technology

Department of Civil and Environmental Engineering

CE 614 Underground Construction Section: 850

E-Learning

Summer 2019

Prof. Alan Slaughter, P.E., P.P.

Email: slaughte@njit.edu note which course you are inquiring about.

Text: Introduction to Tunnel Construction; Second Edition, Authors:

David Chapman, Nicole Metje and Alfred Stark; Publisher: CRC Press;
Paperback

ISBN13: 978-1-4987-6624-1 paperback or ISBN13: 978-1-4987-6639-5
hardback

Prerequisites: Undergraduate course in soil mechanics.

Course Description: The course covers the various aspects of underground construction including rock and soft ground tunnel construction, shaft construction, inspection and rehabilitation of existing structures, open cut construction, blasting, and immersed tube tunnel construction.

Course Outline

<u>Week No. /Date</u>	<u>Topics</u>	<u>Chapter Reading</u>
1/ May 20	Introduction – History	Chapt. 1
2/ May 28	Geotechnical & Shafts	Chapt. 2
3/ June 3	Groundwater Control and Open Cut	Chapt. 4.1, 4.2

4/ June 10	Safety	Chapt. 6
5/ June 17	Inspection of Tunnels Safety	Chapt. 6
6/ June 23	<i>Midterm Exam</i>	
7/ July 1	Rock Excavation – Blasting Tunnel Boring Machine	Chapt. 5.6 Chapt. 5.5
8/ July 8	Immersed Tube Tunnels Microtunneling	Chapt. 5.9, 5.10, 5.11, 5.12
9/ July 15	Earth Tunneling Shield Tunneling Methods	Chapt. 5.1, 5.2, 5.3, 5.4
10/ July 22	Tunnel Linings Projects Due	
11/ July 29		
12/ August 5	<i>Final Exam</i>	

Homework

Homework will be assigned during the semester on moodle. Each assignment will be due the following week.

Term Projects

A list of potential project subjects will be provided. Students must select a project either from a list provided or some other source. On Week 4 or before, students will submit a one paragraph topic description on moodle.

The project report will be **8** pages, including text, photos, drawings and the like. The report will be prepared in an organized and professional manner.
(Neatness counts)

Grading

1. Homework	15%
2. Midterm	25%
3. Term Project	30%
4. Final	<u>30%</u>
Total	100%

Grades

90-100	A
85-90	B+
80-84	B
75-79	C+
70-74	C
<60	F

Important Note:

1. The NJIT Honor Code will be upheld in this course. Any violations will be brought to the immediate attention of the Dean of Students.