

Fall 2018

CE 307-101: Geometric Design for Highways

Maaz Choudhry

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Text: Garber, Nicholas, and Hoel, Lester, Traffic and Highway Engineering, 5th Edition, Cengage Learning, 2015, 2009, ISBN-13: 978-1-133-60515-7

Reference Texts: American Association of State Highway Officials A Policy on Geometric Design of Highways and Streets, 4th Edition, (AASHTO) 2001
ISBN# 1-56051-156-7
NJDOT Design Manual-Roadway,
<http://www.state.nj.us/transportation/eng/documents/RDM/>

Instructor: Professor Maaz Choudhry, P.E., mxc2746@njit.edu
Office Hours: by appointment (Colton 261)

Prerequisite: CE 200, CE 200A.

| Date | Topic | Chapter | Reading | Pages |
|--------------|--|------------|---------------------------|--------------|
| 9/5 | Introduction | 1 | | All |
| | | 2 | | 37-49 |
| 9/12 | Traffic Engineering Studies, Highway Surveys and Locations | 4, 14 | 93-106, 116-133, 729-745, | 765-766 |
| 9/19 | Transportation Planning, Traffic Characteristics | 11, 3 | | All, All |
| 9/26 | Traffic Characteristics (cont), Design of the Alignment-Vertical Alignment | 3, 15 | | All, 788-802 |
| 10/3 | Design of the Alignment – Vertical Alignment (cont) | 15 | | 788-802 |
| 10/10 | Horizontal Alignment | 15 | | 802-820 |
| 10/17 | Horizontal Alignment (cont) | 15 | | 802-820 |
| 10/24 | Review | - | | - |
| 10/31 | Exam #1 | - | | - |
| 11/7 | Intersection Design, Interchange Design | 7, Handout | | All |

| | | | |
|-------|--|----|-----|
| 11/14 | Highway Safety | 5 | All |
| 11/28 | Pavement Management | 21 | All |
| 12/5 | Wrap Up, Review, Discussion on Class Project | - | - |
| 12/12 | Exam #2 | - | - |
| 12/19 | Project Presentations | - | - |

Course Objectives: To develop an understanding of the principles of geometric design in the context of transportation planning and traffic design. To understand the design criteria for geometric design of highways. To develop the capability to design highways.

Grading:

| | |
|----------------------------------|-----|
| HW | 20% |
| Attendance & Class Participation | 10% |
| Exam #1 | 20% |
| Exam #2 | 20% |
| Class Project | 30% |

The final grade will be based upon the following percentages:

- A = 90 to 100%
- B+ = 85 to 89%
- B = 80 to 84%
- C+ = 75 to 79%
- C = 71 to 74%
- D = 68 to 70%
- F = below 68%

Important Notes:

- * The NJIT Honor Code will be upheld and any violations will be brought to the immediate attention of the Dean of Students.
- * Students will be consulted on any substantial changes to the course syllabus. Changes will be discussed and announced in advance.
- * There will be no make-up exams.