

Course Outline for ENGR 436: Transportation Engineering

Required

Civil Engineering

Bulletin Description

ENGR 436: Transportation Engineering (3 units)

Prerequisites: ENGR 235 and ENGR 430 (may be taken concurrently)

Principles, theories, and practice of transportation planning and design.

Textbooks

- Banks, J. H.. Introduction to Transportation Engineering. 2nd ed. McGraw Hill, New York, 2002.
- Narasimha, A. S. and Mohle, R. H.. *Transportation Engineering Basics*. 2nd ed. ASCE Press, Reston, VA, 2001.

References

1. Paquette, R. J., Ashford, and Wright, P. H. *Transportation Engineering–Planning and Design*. Latest Edition.
2. Wright, P. H., and Paquette, R. J. *Highway Engineering*. Latest Edition.
3. McShane, W. R. and Roess, R. P. *Traffic Engineering*. Prentice Hall.
4. *Policy on the Geometric Design of Streets and Highways*. American Association of State Highway and Transportation Officials, 1999.
5. Schoon, J. G. *Geometric Design Projects for Highways*. 2nd ed. American Society of Civil Engineers, 2000.

Coordinator

Ghassan Tarakji, Professor of Engineering

Prerequisites by Topic

1. Basic knowledge of surveying
2. Basic understanding of soil properties and strength
3. Basic experience in computer use

Course Objectives¹

1. Provide students with an understanding of the transportation system in the U.S. [B.1]
2. Provide students with experience in planning, designing, and evaluating transportation facilities. [B.1, B.4]

¹ Numbers in brackets refer to the educational objectives and outcomes of the School of Engineering.

3. Provide a basic experience in studying, evaluating, and formulating solutions for transportation deficiencies, and to present the findings in a professional format. [A.5, B.1]

Topics

1. Introduction and background
2. Introduction to the U.S. transportation system
3. Airport planning and design
4. Rail, pipeline, water, and urban mass transit transportation
5. Transportation planning
6. Geometric Design of Highways
7. Earthwork
8. Traffic analysis techniques
9. Capacity and level of service
10. Traffic control
11. Transit operations
12. Highway safety

Professional Component

Engineering Science 50%
Engineering Design 50%

Evaluation

- | | | |
|---|-------------|-----|
| 1. Two mid-term exam | (30% + 30%) | 60% |
| 2. One final exam | | 30% |
| 3. Home work and/or unannounced quizzes | | 10% |

Performance Criteria²

Not available

Spring Semester, 2005

Instructor: D. Bogdanic
Office: SCI 126
Phone: (415) 338-1851

Class/Laboratory Schedule

Two 75-minute lecture sessions/week

Prepared by

Ghassan Tarakji, Spring, 2005

² Numbers in brackets refer to the evaluation methods used to assess student performance.