

COURSE CATALOG

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|---------------------------------|-----------|---------|--|--|---------------------------|---------------------|-----------------|
| Course Code: CE 388 | | | | Course Name: Urban Transportation Planning | | | |
| Semester | T + P + L | Credits | ECTS | Language of Instruction | Course Type | Instruction Methods | Prerequisite(s) |
| 6-7-8 | 3 + 0 + 0 | 3 | 6 | English | Departmental Elective(D2) | Lecture | - |
| Course Objectives | | | Traffic demand analysis and predictions. Trip generation, trip distribution. Modal split and trip assignment techniques. Economic analysis of transportation projects. Cost-benefit analysis. Terminals. Transport costs. | | | | |
| Topics Covered | | | Urban transportation planning: Definition and context. Transportation planning and decision making. Urban travel and transportation system characteristics. A systems perspective. Data management and use in decision making. Demand analysis. Urban activity analysis. Supply analysis. Transportation system and project evaluation. Program and project implementation. Decision making for transportation projects, long term transportation planning. | | | | |
| Learning Outcomes of the Course | | | After successfully completing this course students should be able: 1- learn the planning, evaluation, selection, financing, and implementation aspects of alternative urban transportation systems; [1,2,3,4,5,9] 2 - learn the factors underlying traveler choices of mode of travel, route choice and destination choice and how these processes can be represented mathematically [2,6,10] 3- learn the steps that are necessary to complete a long-range transportation plan [10,12,15] 4- learn the current transportation policies and conditions in Turkey [7,8] <i>[Note that the numbers in between the brackets address the bullet numbers in the program outcomes list.]</i> | | | | |
| ISCED Category of the Course | | | 52 Engineering | | | | |
| Textbook | | | 1- C.A. O'Flaherty, Transport Planning and Traffic Engineering, Arnold Publications, 1997. 2- Michael Meyer, Eric Miller, Urban Transportation Planning, 2/E, Mc Graw Hill. | | | | |
| Recommended Sources | | | 1- C.S. Papacostas , and P.D. Prevedouros, Transportation Engineering and Planning, 3/E, Pearson. 2- M. Kutz, Handbook of Transportation Engineering, McGraw Hill, 2003. 3- F.L. Mannering, S.S. Wasburn, W.P. Klareski, Principles of Highway Engineering and Traffic Analysis, John Wiley& Sons Inc., 2009. | | | | |

WEEKLY SCHEDULE

| Week | Theoretical Topic | Applied / Laboratory Topics |
|------|--|-----------------------------|
| 1 | Definition. Fundamental principles. Oscillatory motion, Free vibration: Vibration model, Equation of motion, natural frequencies, | |
| 2 | Energy method, Principles of virtual work, damping. | |
| 3 | Harmonically excited vibration: Forced harmonic motion, structural damping. | |
| 4 | Multi-degree of freedom systems: normal mode vibration, forced harmonic motion, vibration damper. Properties of vibrating systems. | |
| 5 | Flexibility matrix, stiffness matrix, stiffness of beams. Eigenvalues, eigenvectors. | |
| 6 | Lagrange equations. | |
| 7 | Continuous Systems. Vibrating String. | |
| 8 | Longitudinal vibration of rods. | |
| 9 | Torsional vibration of rods. | |
| 10 | Euler equation for beams. | |
| 11 | Approximate numerical methods. | |
| 12 | Random vibrations. Nonlinear vibrations. | |
| 13 | Vibrations of plates. | |
| 14 | Measurements and frequency analysis. | |

COURSE ASSESSMENT POLICY

| | Activities | Number | Contribution (%) |
|---------|------------|--------|------------------|
| Studies | Quiz | 3 | 10 |

| | | | |
|---------------------|----------------------------|-----|----|
| throughout the term | Term Homework/ Project | | |
| | Reports | - | - |
| | Graduation Thesis/ Project | - | - |
| | Seminar | - | - |
| | Homework | 5 | 10 |
| | Presentations | - | - |
| | Midterm Exams | 2 | 40 |
| | Project | | |
| | Laboratory | - | - |
| | Other (attendance) | - | - |
| FINAL EXAM | 1 | 40 | |
| Total | | 100 | |

CONTRIBUTION OF THE COURSE TO CIVIL ENGINEERING PROGRAM OUTCOMES

| | Program Outcomes | 1 | 2 | 3 |
|----|--|---|---|---|
| 1 | The ability to apply knowledge of mathematics, science, and engineering | | X | |
| 2 | The ability to identify, formulate, and solve engineering problems | | | X |
| 3 | The ability to design a system or component to meet desired needs with realistic constraints such as economic, environmental, social, ethical, health and safety, manufacturability and sustainability | | | X |
| 4 | The ability to analyze and interpret data | | | X |
| 5 | The ability to design and conduct experiments and apply experimental results to improve processes | | | X |
| 6 | The ability to convey technical material through oral presentations and written papers/reports | | | X |
| 7 | The ability to function within multidisciplinary teams | | | X |
| 8 | The understanding of professional and ethical responsibilities | | | X |
| 9 | The understanding of the impact of engineering on society | | X | |
| 10 | The understanding of the necessity to engage in life-long learning | | X | |
| 11 | The understanding of management and leadership principles and techniques | | X | |
| 12 | The appreciation of the role of research in civil engineering problems | | | X |
| 13 | A knowledge of contemporary issues in civil engineering | | | X |
| 14 | The ability to use modern engineering techniques, skills, and tools | | X | |
| 15 | The ability to understand and explain basic concepts in management, business, and leadership | | X | |
| 16 | A commitment to quality, punctuality and continuous improvement | | X | |

Contribution Level: 1 low, 2 medium, 3 high

ECTS-WORKLOAD TABLE

| ACTIVITIES | Number | Duration (Hour) | Workload(Hour) |
|--|--------|-----------------|----------------|
| Lecture Time | 14 | 3 | 42 |
| Final Exam (Including Preparation Time) | 1 | 14 | 14 |
| Quiz | 3 | 4 | 12 |
| Term Homework / Project | - | - | - |
| Reports | | | |
| Graduation Thesis/Project | - | - | - |
| Seminar | | | |
| Study Time Outside the Class | 14 | 3 | 42 |
| Homework | 5 | 4 | 20 |
| Presentations | - | - | - |
| Midterm Exams (Including Preparation Time) | 2 | 10 | 20 |
| Project | - | - | - |
| Laboratory | - | - | - |
| Total Workload | | | 150 |
| ECTS Credits of the Course (Total Workload / 25) | | | 6 |

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| Last update on 19.01.2014 | Coordinator / PREPARED BY Esin Inan | APPROVED BY Esin Inan |
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