

University of Jordan
Faculty of Engineering and Technology
Civil Engineering Department

Course number and name: (0931582) Transportation Engineering

a. Class schedule: 3 credits

- a. Time and place: Monday and Wednesday 12:30-14:00 at Small Auditorium
- b. Office hours: Monday and Wednesday 8:00 – 9:30

b. Instructor: Dr. Rana Imam (r.imam@ju.edu.jo)

c. Text book: Khisty, Jotin C. and B. Kent Lall, Transportation Engineering An Introduction, Second Edition, Prentice Hall, New York, 1998.

d. References:

- Vuchic, Urban Transit: Operations, Planning and Economics, Wiley, 2005.
- Meyer and Miller, Urban Transportation Planning, McGraw Hill, 2nd edition, 2002

e. Course information:

- a. 2005-2006 Catalog description: Transportation Engineering (0931582), 3 credits, this course covers Air Transportation: airport planning, aircraft characteristics, airport configuration, landing area, airport capacity, and terminal area planning); Rail Transportation: cross sections, horizontal and vertical alignments, super-elevation, trains speed, rail sections, joints and crossings; Water Transportation: harbor types, harbor components, and harbor site selection; Urban Transportation Planning: demand forecast, evaluation techniques, transportation system management, and mass transit.
- b. Prerequisite: Pavement Design (0901482)
- c. Department elective.

f. Specific goals of the course:

Expected outcomes: Students will be expected to develop the following skills/understanding upon the successful completion of this course:

- a. Understand the principles of air transportation; focusing on both the airline management and planning component, as well as the airport planning and design component.
- b. Understand the function of public transit (bus and rail) and the role of government units.
- c. Understand how transit contributes to a sustainable future.
- d. Learn about transit planning, design, operations, and tradeoffs.
- e. Understand the fundamentals of the railroad infrastructure and rolling stock
- f. Know the principle components and terminologies used in different aspects of rail transportation, and understand the uniqueness of rail transportation, when compared with other transportation modes.
- g. Learn about freight operation; especially in harbors.
- h. Link between transportation planning, urban land use, and regional economic development.

g. Topics covered: Syllabus includes 42, 50-minute class periods, a one-hour midterm exam, and two-hour final exam. The topics are:

- a. Introduction to Airline Planning and Operations
- b. Airline Economics: Airline Operating Costs and Measures of Productivity
- c. Airline Schedule Optimization
- d. Airport planning: airport configuration and components
- e. Airport Design: runway, taxiway, and apron design
- f. Transit Operations and Planning
- g. Rail Transportation: cross sections, horizontal and vertical alignments, super-elevation, trains speed, rail sections, joints and crossings

- h. Water Freight Transportation: harbor types, harbor components, and harbor site selection
- i. Urban Transportation Planning: demand forecast, evaluation techniques, transportation system management, and mass transit.

h. Minimum student materials: Text book, class handouts, engineering calculator.

i. Instructional methods:

- a. Lecture/Problem solving sessions.
- b. Case studies.
- c. Homework.
- d. Reading assignments.

j. Assessment & Grading:

Quizzes	:	20%
Midterm Exam	:	30%
Final exam	:	50%
Total	:	100%

k. Notes:

- a. All cases of academic dishonesty will be handled in accordance with university policies and regulations.
- b. There will be two announced quizzes during the semester. There will be no make-up quizzes.
- c. Students are expected to attend EVERY CLASS SESSION and they are responsible for all material, announcements, schedule changes, etc., discussed in class.
- d. The university policy regarding the attendance will be strictly adhered to.
- e. Any students with disabilities who need accommodations in this course are encouraged to speak with the instructor as soon as possible to make appropriate arrangements for these accommodations.