



Jordan University of Science and Technology
Faculty of Engineering
Civil Engineering Department

CE 345 Transportation Engineering

2007 Course Catalog

3 Credit hours (3 h lectures). The field of transportation engineering; role of transportation in society economics; social; political; and environmental. Operation and vehicular characteristics for all modes of transportation. Traffic control devices; pavement markings; object marking; delineators; studs; signs; and channelization; introduction to traffic signal timings. Rail transportation; Urban rail transit; railway cross section; Urban rail transit. Air transport demand, selection of airport site and runway orientation; airport passenger terminal area. Water transportation including marine structures, classes of harbors and planning and design of port facilities.

Textbooks

Jason C. Yu "Transportation Engineering, Introduction to Planning, Design, and Operation" Elsevier.

References

Books

- 1) W. W. Hay "An Introductoin to Transportation Engineering" New York, John Wiely & Sons.
- 2) R. Paquette, N. Ashford, and P. Wright, " Transportation Engineering" , Planning, and Design New York, John Wiley and Sons.

Prerequisites

Prerequisites by topic:- The students must have a basic knowledge in most modern analytical skills and technical subjects (such as probability, statistics, simulation and mathematical programming).

Prerequisites by course:- CE 341

Co-requisites by course:-

Prerequisite for:-

Topics Covered

Topics	Lectures
Introduction to course outlines, objectives and grading	1
Introduction to Transportation Engineering	1
TRANSPORTATION SYSTEMS PLANNING	
Urban Transportation Planning	1
Statewide Transportation Planning	1
Transportation Demand Forecasts	2
Transportation System Evaluation	1
Transportation Planning Issues	1
HIGHWAY TRANSPORTATION	
Highway Planning	1
Traffic Flow Characteristics	1
Highway capacity and Level of Service	1
Uniform Traffic Laws and Controls Devices	1
Traffic System Control	1
Design of Highway Facilities	3

Traffic Safety	1
URBAN MASS TRANSIT	
Transit System Classification	2
Mass Transit Planning	1
Mass Transit Design and Operation	1
Innovations in Transit Technology	2
AIR TRANSPORTATION	
Components of Air Transportation	2
Airport Planning	1
Airspace Traffic Control	1
Design of Air Side Area	2
Design and Operation of Land Side Area	2
Development of Heliports	1
RAIL TRANSPORTATION	
Railroad Services	1
Railroad Planning	1
Roadway Design	2
Rail Design	1
Locomotive and Control	1
WATER TRANSPORTATION	
Water Transportation Planning	1
Inland Waterways	1
Design of Harbors	2
Design of Ports	2
Cargo Handling and Carriers	1
Midterm Examinations	
Final Examination	

Evaluation

Assessment Tool	Expected Due Date	Weight
First Exam	According to the department schedule	30 %
Second Exam	According to the department schedule	30 %
Final Exam	According to the University final examination schedule	40 %

Objectives and PIs

Course Objectives	Performance Indicators
CO-1: Understanding the planning and operation of transportation systems.	(e)PI_1: Students are able to identify engineering problems. (f)PI_1: Students are able to recognize professional responsibility.
CO-2: Design of the transportation engineering facilities.	(c)PI_1: Students are able to design a component to meet certain constraints.
CO-3: Understanding the economical of movement of persons and goods.	(k)PI_2: Students are able to use modern engineering tools for engineering practice. (h)PI_3: Students are able to recognize the impact of engineering solutions in an environmental context.
CO-4: Develop engineering judgment to design safe and efficient transportation engineering facilities.	(d)PI_2: Students are able to formulate a collective solution to a Problem.

Contribution of Course to Meeting the Professional Component

The course contributes with the basic understanding of planning, design, and operation principles and their application of various transportation systems and their components, to achieve a safe, efficient, convenient, and economical movement of persons and goods.

Relationship to Program Outcomes (%)

A	B	C	D	E	F	G	H	I	J	K	L
		40	15	10	10		15			10	

Relationship to Civil Engineering Program Objectives

PEO1	PEO2	PEO3	PEO 4
√	√	√	√