University of Management and Technology
School of Architecture & Planning
Department of Architecture

Course Outline

Course code: 137 Course title: Transportation Engineering

Program	BS CRP	
Credit Hours	1+2	
Duration	18 weeks	
Prerequisites	None	
Resource Person		
Counseling Timing		

Chairman/Director signature……..

Dean's signature…… **Date……..**

Learning Objective:

The course expects to introduce the basic concepts of transportation engineering. The course will introduce urban planning students to the importance of road characteristics, human behavior, and

traffic flow. Moreover, the students will learn to conceptualize the planning, designing and configuration of railways, and airports.

Learning Methodology:

- Lecturing
- Written Assignments
- Guest Speaker
- Field surveys
- Report Writing

Grade Evaluation Criteria

Following is the criteria for the distribution of marks to evaluate final grade in a semester.

Theory	
Mid-Term (40%)	Final Term (60%)
• Written (Long Questions) • Presentation • Assignments	• Written (Long Questions) • Presentation • Assignments • Viva Voice

Recommended Text Books:

1. *Chakroborty, P. & , Das, (2003), A Principles of Transportation Engineering, New Delhi, Prentice–Hall.*
2. *Yu, C. Jason Transportation Engineering, Introduction to Planning, Design and Operations, New York, Elsvier North Holland Inc. (Latest Edition).*
3. *Vuchic, Vukan, R., Urban Public Transportation System and Technology, New Jersey Prentice Inc., Englewood Cliffs, (Latest Edition).*
4. *Normanken, Fundamentals of Traffic Engineering, I. T. T. E (Latest Edition) 20.*
5. *(2008), Government of Punjab, Punjab Traffic and Transport Manual, Volume-1, Signs, Signal and Pavement Markings.*

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

Five years after graduating, the graduates of the program should be characterized by the following three features:

PEO-1: The graduates will apply learnt knowledge and skills of spatial, temporal, and physical planning.

PEO- 2: The graduates will propose and execuate appropriate solutions to complex planning and urban issues and adapt recent developments in planning focusing on research, creativity, and innovation.

PEO-3: The graduates will reflect core ethics values in their professional conduct and become responsible members of society.

PROGRAM LEARNING OUTCOMES (PLOS) / GRADUATE ATTRIBUTES

Graduates of the BS CRP program at UMT are expected to have acquired and developed the following set of knowledge, skills, and personality traits (these are also referred to as graduate attributes)

PLO 1: Planning Knowledge

An ability to demonstrate knowledge of contemporary planning theories and conceptual ideologies and models.

PLO 2: Design Analysis

An ability to identify and investigate problems, construct theoretical framework through literature review and case studies and synthesize information

PLO 3: Professional Skills

Apply planning knowledge in design/planning process to synthesize and articulate multi-faceted variables to generate an integrated solution based on societal and environmental considerations.

PLO 4: Usage of IT

An ability to select and apply appropriate techniques and resources, including prediction and modelling, to complex planning activities.

PLO 5: Communication

Convey ideas and solutions of planning/urban problems in verbal, written and graphical modes, effectively.

PLO 6: Leadership

Ability to opt a role for affective coordination within the team & collaboration with the community.

PLO 7: Professional Ethics

An ability to apply ethical principles and professional codes following the social norms to the best interest of the society.

PLO 8: Lifelong Learning

Capable of acquiring knowledge, skill, and information self-reliantly from diverse sources and to appreciated new ideas and concepts.

Course Learning Outcomes (CLOs)

After studying this course, the learners will be able to:

- Define basic concepts of Transportation Engineering
- Classify road based on its characteristics
- Prepare road inventory
- Investigate road performance
- Understand geometric design of highways
- Understand basics of designing transport terminals such as railway, airport etc.
- Perform several surveys of Transportation Engineering

Tittle	Course Learning Outcomes	PLO 1: Planning Knowledge	PLO 2: Design Analysis	PLO 3: Professional Skills	PLO 4: Usage of IT	PLO 5: Communication	PLO 6: Leadership	PLO 7: Professional Ethics	PLO 8: Lifelong Learning
Transportation Engineering	Define basic concepts of transportation engineering	✓							
	Classify roads based on its characteristics		✓						
	Prepare Road Inventory			✓					
	Investigate road performance			✓					
	Understand geometric design of highways		✓						
	Understand basics of designing transport terminals such as railway, airport etc.	✓							

	Perform several surveys of Transportation Engineering			✓					

CODE	NAME	CLO	CLO Type
137.1	137.C1	Define basic concepts of transportation engineering	C1
137.2	137.C2	Classify roads based on its characteristics	A4
137.3	137.C3	Prepare Road Inventory	C6
137.4	137.C4	Investigate road performance	C4
137.5	137.C5	Understand geometric design of highways	C2
137.6	137.C6	Understand basics of designing transport terminals such as railway, airport etc.	C2
137.7	137.C7	Perform several surveys of Transportation Engineering	A5

Calendar of Course contents to be covered during semester

Course code: 137 Course title: Transportation Egnineering

Course Contents	Weeks	CLO
Introduction to transportation engineering and basic concepts Practical: Analysis of National Transport Policy of Pakistan	1	1
Physical Design of Transportation Facilities Practical: Discuss major transportation projects and their design processes	2	1,6
Classification of Roads Practical: Classification of several roads of Lahore	3	1,2
Road Inventory Practical: Site Visit for making Road Inventory [28th March, 2024]	4	1,3
Level of Service Practical: Preparation of Road Inventory & LOS Assignment	5	3,4
Introduction to Highway Design Practical: Preparation of Road Inventory	6	3,5
Types of Intersections and Conflict points Practical: Preparation of Road Inventory	7	1,3,5
Guest Lecture by Prof. Dr. Amer Aziz UET, Lahore (Tentative date: Thursday 18th April or Monday, 22nd April, 2024) Practical: Presentation and Submission of Road Inventory	8	1
Mid Exam	9	-
Highway Capacity Practical: TTT Survey [9th May, 2024]	10	1,5,7
Highway Earthwork Practical: Data Analysis of TTT survey	11	1,5
Sight Distance Practical: Data Analysis of TTT survey	12	1,5
Introduction to Railway Engineering Practical: Data Analysis of TTT Survey and Poster making	13	1,6
Rail structure Practical: Presentation and display of poster	14	1,6

Airport Planning Practical: Parking Survey [13th June, 2024]	15	1,6,7
Water Port and Harbour Practical: Data Analysis of Parking Survey	16	1,6
Bridge Heights and Clearances Practical: Presentation and Submission of Parking Survey Assignment	17	
Final Exam	18	-