

Transportation Engineering – I

Course Code CE-241	Credit Hours 3-0
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Course Description

Transportation Engineering–I is designed to be truly interdisciplinary, which covers features of railways, coastal and airports with emphasis on computation of runway length, geometric and obstruction clearance standards

Text Book:

Course Pack/Lecture Slides has been prepared based upon the reference materia

Reference Book:

1. Airport Engineering by Norman Ashford and Paul H Wright.
2. Planning and Design of Airports by Robert Horonjeff.and Francis X Mckelvey.
3. A Course on Docks and Harbour Engineering by S. P. Binra.
4. Principles of Railway Engineering by S. C. Rangwala.
5. Railway Engineering by S. M. Yameen.
6. Railway Bridges and Tunnels by V. N. Vazirani and S. P. Chandola.
7. Numerous reference books are available in library.

Prerequisites :

Nil.

ASSESSMENT SYSTEM FOR THEORY

	Without Project (%)	With Project/Complex Engineering Problems (%)
Quizzes	15	10-15
Assignments	10	5-10
Mid Terms	25	25
Project	-	5-10
End Semester Exam	50	45-50

ASSESSMENT SYSTEM FOR LAB

Lab Work/ Psychomotor Assessment/ Lab Reports	70%
Lab Project/ Open Ended Lab Report/ Assignment/ Quiz	10%
Final Assesment/ Viva	20%

Teaching Plan

Week No	Topics/Learning Outcomes
1	Introduction to Transportation Systems, modes, emerging technologies and related organizations Introduction-Chapter 1 of Course pack/ Lecture slides
2	Pakistan Railways, Permanent Way, Rails, Gauges, Types, Corrugation, Wear etc Railways-Chapter 1 of Course pack/ Lecture slides
3	Failure of Rails, Rail Creep, Joints and Fastenings Railways-Chapter 2 of Course pack/ Lecture slides Quiz 1
4	Sleepers, Ballast and Formation Railways-Chapter 2 of Course pack/ Lecture slides Assignment 1
5	Railway Station and Yards, Construction and Maintenance Railways-Chapter 3,4 of Course pack/ Lecture slides Quiz 2
6	Ports and Harbour Costal-Chapter 1 of Course pack/ Lecture slides Assignment 2
7	Natural Phenomena, Ports and Harbour Structures Costal-Chapter 2 of Course pack/ Lecture slides PBL Activity 1
8	Ports and Harbour Structures, Protection, Maintenance and Modernization Costal-Chapter 3,4,5 of Course pack/ Lecture slides
9	Mid Semester Exam (MSE)
10	Introduction, Aircraft Characteristics Airport-Chapter 1 of Course pack/ Lecture slides
11	Computation of Runway Length Airport-Chapter 2 of Course pack/ Lecture slides Quiz 3 Assignment 3
12	Computation of Runway Length Airport-Chapter 3 of Course pack/ Lecture slides
13	Computation of Runway Length Airport-Chapter 3 of Course pack/ Lecture slides Quiz 4
14	Airport Configurations

	Airport-Chapter 4 of Course pack/ Lecture slides
15	Geometric Standards and Obstruction Clearance Airport-Chapter 5 of Course pack/ Lecture slides Qui 5
16	Geometric Standards and Obstruction Clearance Airport-Chapter 5 of Course pack/ Lecture slides PBL Activity 2
17	<ul style="list-style-type: none"> • Geometric Standards and Obstruction Clearance • Introduction to Transportation Systems, modes, emerging technologies, and related organizations. Application of Artificial Intelligence (AI) in transportation engineering • Inspections of Railway Track and its Components using AI Applications Airport-Chapter 5 of Course pack/ Lecture slides
18.	End Semester Exam

Practical: Nil