



<b>COURSE TITLE:</b> Railways and Waterways Engineering	<b>COURSE CODE:</b> CE207	<b>CREDIT HOURS:</b> 03	<b>MINIMUM CONTACT HOURS:</b> 48
---	---------------------------	-------------------------	----------------------------------

**COURSE INSTRUCTOR:** Prof. Dr. Agha Faisal Habib (C+D) / Engr. Abdul Raqeeb Memon (A+B)

<b>Batch:</b> 23CE	<b>Semester:</b> 3rd	<b>Semester Starting Date:</b> 15/07/2024	<b>Semester Suspension Date:</b> 06/11/2024
--------------------	----------------------	---	---

**Course Learning Outcomes (CLOs):**  
Upon successful completion of the course, the student will be able to:

CLO No.	Description	Taxonomy Level	Associated PLOs
1	DISCUSS concepts of transportation systems and its planning in solving urban transportation problems.	C2	1
2	APPLY the principles of transportation engineering to solve the problems that are most likely to be encountered in the planning and design of railways and coastal structures based on best practices and guidelines.	C3	3

**LESSON CONTENTS AND ASSOCIATED CLO(s)**

Contents	CLO No.	Marks Assigned	Delivery Methods	Assessment Methods (Marks)
<p>★ <b>Introduction to Transportation Systems and Planning</b></p> <ul style="list-style-type: none"> <li>◆ Different Modes of Transport</li> <li>◆ Comparison of Different Modes of Transport</li> <li>◆ Nature of Transportation Engineering</li> <li>◆ Different Policies of Transportation Management</li> <li>◆ Planning process and mode choice decisions</li> <li>◆ Transportation Models</li> <li>◆ Overview of Mass Transit Planning</li> </ul> <p>★ <b>No. of lectures required: 14</b></p>	1	30	<ul style="list-style-type: none"> <li>◆Lecture</li> <li>◆Discussion</li> <li>◆Design practice</li> <li>◆Presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Mid semester Exam (20)</li> <li>• Quiz/Assignment No.1 (05)</li> <li>• Final Exam (05)</li> </ul>
<p>★ <b>Railway Engineering</b></p> <ul style="list-style-type: none"> <li>◆ Elements of Railway Track</li> <li>◆ Types of Gauges in Railway Track</li> <li>◆ Railway Track Cross-section</li> <li>◆ Coning of Wheels</li> <li>◆ Introduction of Rails</li> <li>◆ Requirements of Rails</li> <li>◆ Different types of Rails with their merits and</li> <li>◆ Damaged Rails</li> <li>◆ Rail Failures</li> <li>◆ Wear on Rails</li> <li>◆ Creep of Rails</li> <li>◆ Rail Joints and Welding of Rails</li> <li>◆ Sleepers and their functions</li> <li>◆ Different types of Sleepers</li> <li>◆ Spacing of Sleepers and Sleeper density</li> <li>◆ Track Fittings and Fastenings</li> <li>◆ Ballast, types, requirements and renewal of ballast</li> <li>◆ Formation of single and double track</li> <li>◆ Points and Crossings</li> <li>◆ Stations and Yards</li> <li>◆ Signalization, navigation and interlocking</li> <li>◆ Track Maintenance</li> <li>◆ Modernization of Railway Track and Future Trends</li> </ul> <p>★ <b>No. of lectures required: 24</b></p>	2	50	<ul style="list-style-type: none"> <li>◆Lecture</li> <li>◆Discussion</li> <li>◆Design practice</li> <li>◆Presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Mid semester Exam (10)</li> <li>• Quiz/Assignment No.2 (10)</li> <li>• Final Exam (30)</li> </ul>

★ **Coastal Engineering**

- ◆ Classification of Harbors
- ◆ Design principles and requirements of Harbor
- ◆ Wharves, jetties and Breakwaters
- ◆ Channel regulation and demarcation
- ◆ Classification of docks and their construction

2

20

- ◆Lecture
- ◆Discussion
- ◆Design practice
- ◆Presentation

- Quiz/Assignment No.1 (05)
- Final Exam (15)

★ **No. of lectures required: 10**

**ASSESSMENT DETAILS**

Sr. No.	Contents	Marks	Activities	CLO(s) to be assessed	
1	Class Test/Assignment	20	Assignment/ Class Test	3	1, 2
2	Mid Semester Exam	30	1		1,2
3	Final Semester Exam	50	1		2

Prepared by: **Prof. Dr. Agha Faisal Habib**

Reviewed by: **Curriculum Review Committee**

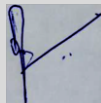
Approved by: **Chairman CED**

Signature:



Dated: 29/05/2024

Signature:



Dated:30/05/2024



Signature:

Dated:29/05/2024

