

IV B.Tech I Semester

15ACE58-TRANSPORTATION ENGINEERING  
(CBCC (DEPARTMENTSPECIFIC))

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**Course Objective:**

*The course deals with different components of Transportation Engineering like Railway , airport Engineering & harbours. This course also imparts a sound knowledge on design and planning components of railways, airports, docks and harbours.*

**UNIT – I**

**Railway Engineering:**

Introduction – Permanent Way Components – Cross Section Of Permanent Way – Functions And Requirements Of Rails, Sleepers And Ballast – Types Of Gauges – Creep Of Rails – Theories Related To Creep – Coning Of Wheels – Adzing Of Sleepers – Rail Fastenings.

**UNIT – II**

**Geometric Design Of Railway Track:**

Gradients – Grade Compensation – Cant And Negative Super Elevation – Cant Deficiency – Degree Of Curves – Safe Speed On Railway Track – Points And Crossings – Layout And Functioning Of Left Hand Turn Out And Right Hand Turn Outs – Station Yards – Signaling And Interlocking.

**UNIT –III**

**Airport Engineering:**

Airport Site Selection – Factors Affecting Site Selection And Surveys- Runway Orientation – Wind Rose Diagram – Basic Runway Length – Correction For Runway Length – Terminal Area – Layout And Functions – Concepts Of Terminal Building – Simple Building , Linear Concept, Pier Concept And Satellite Concept – Typical Layouts .

**UNIT- IV**

**Geometric Design Of Runways And Taxiways:**

Aircraft Characteristics – Influence Of Characteristics On Airport Planning And Design – Geometric Design Elements Of Runway – Standards And Specifications As Per - Functions Of Taxiways – Taxiway Geometric Design – Geometric Elements And Standard Specifications – Runway And Taxiway Lighting.

**UNIT – V**

**Ports,Docks And Harbours:**

Requirements Of Ports And Harbours – Types Of Ports – Classification Of Harbours – Docks And Types Of Docks – Dry Docks, Wharves And Jetties – Breakwaters: Layouts Of Different Types Of Harbours And Docks – Dredging Operations – Navigation Aids.



**Course Outcomes:**

- Can be able to get different modes of Transportation like Roadways, Railways, Airways and Water ways.
- An idea on Railway Engineering, its functions, requirements and geometric design of Railways.
- Airports, air traffic, runway lengths and its geometric design will be known
- Classification on Ports, Harbours , Dock yards and their types .

**Text Books:**

1. A Text Book Of Railway Engineering-S.C.Saxena And S.Arora, Dhanpatrai And Sons, New Delhi.
2. Transportation Engineering, Volume – II (Railways,Airports,Docks and Harbours,Bridges and Tunnels) by C.Venkataramaiah, Universities Press, Hyderabad.
3. Airport Planning And Design- S.K. Khanna And M.G Arora, Nemchand Bros.

**References:**

1. SatishChandraAndAgarwal, M.M. (2007) “Railway Engineering” Oxford Higher Education, University Press New Delhi.
2. Highway, Railway, Airport AndHarbour Engineering – K.P. Subramanian, ScitechPubilishers.

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