

**III Year-I Semester
(20CE5759) Harbour Engineering & Airports**

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
30	70	100	3	-	-	3

Pre- Requisites: Fundamentals of Surveying

Course Objectives:

The objective of this course is:

- To know various components and their functions in a Runway
- To acquire design principles of geometrics in a runway.
- To acquire design principles of airport geometrics and pavements.
- To know the planning of Docks and Harbours.
- To know the construction and maintenance of Docks and Harbours.

A. AIRPORT ENGINEERING

UNIT-I:

Airport Planning & Design: Airport Master plan – Airport site selection – Air craft characteristics – Zoning laws – Airport classification.

UNIT-II:

Runway orientation – Wind rose diagram – Runway length – Taxiway design – Terminal area and Airport layout – Visual aids and Air traffic control.

UNIT-III:

Runway Design: Various Design factors – Design methods for Flexible pavements – Design methods for Rigid pavements – LCN system of Pavement Design – Airfield Pavement Failures – Maintenance and Rehabilitation of Airfield pavements – Evaluation & Strengthening of Airfield pavements – Airport Drainage – Design of surface and subsurface drainage.

B. DOCKS & HARBOURS

UNIT-IV:

Planning, Layout, Construction & Maintenance Of Docks & Harbours: Classification of ports – Requirement of a good port – classification of Harbors – Docks – Dry & wet docks – Transition sheds and workhouses – Layouts;

UNIT-V:

Quays – construction of Quay walls – Wharves – Jetties – Tides – Tidal data and Analysis – Break waters – Dredging – Maintenance of Ports and Harbours – Navigational aids.

Course Outcomes:

S.No	Course Outcomes	BTL
1	Design geometrics in a runway.	L4
2	Provide good transportation network	L2
3	Design airport geometrics and airfield pavements.	L4
4	Plan Docks and Harbours.	L5
5	construct and maintain Docks and Harbours	L3

Text Books:

1. Airport Engineering by Khanna & Arora – Nemchand Bros, New Delhi.
2. Docks and Harbour Engineering by Bindra S.P. – Dhanpathi Rai & Sons, New Delhi.

Reference Books:

1. 'Transportation Engineering Planning Design' by Wright P.H. & Ashfort N.J. – John Wiley & Sons.
2. 'Airport Engineering' by Virendra Kumar, Dhanpat Rai Publishers, New Delhi.
3. 'Transportation Engineering' by Srinivasa Kumar R, University Press, Hyderabad
4. 'Highway, Railway, Airport and Harbour Engineering' by Subramanian KP, Scitech Publications (India) Pvt. Limited, Chennai.