**17CE3103 - TRANSPORTATION ENGINEERING – II**

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| **Course Category** | Professional Core | **Credits** | 3 |
| **Course Type** | Theory | **Lecture - Tutorial - Practical** | 2 - 2 - 0 |
| **Prerequisite** | Transportation Engineering – I | **Sessional Evaluation** | 40 |
| **Semester End Exam Evaluation** | 60 |
| **Total Marks** | 100 |

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| **Course Objectives** | 1. To explain different types of traffic studies. 2. To discuss various traffic control devices. 3. To understand the concepts of permanent way and ballast. 4. To discuss different types of stations and yards. 5. To discuss the various concepts in airport engineering. 6. To understand the basic of harbour engineering. | |
| **Course Outcomes** | CO1 | Conduct traffic studies. |
| CO2 | Understand the different types of signs and signals |
| CO3 | Explain requirements and functions of permanent way and ballast. |
| CO4 | Understand functions, requirements and types of stations, yards, crossing and turnouts. |
| CO5 | Explain aircraft characteristics, master plan, airport site selection and terminal area. |
| CO6 | Explain types of harbour, breakwater, docks and dredging. |
| **Course Content** | **UNIT - I**  **TRAFFIC ENGINEERING:** Road user and vehicular characteristics, traffic studies (uses, field methods and presentation of data only) – Volume, speed, origin and destination, parking studies – Highway capacity, PCU values and level of service.  **UNIT – II**  **TRAFFIC CONTROL DEVICES:** Signs – Types – Traffic signals – Advantages and disadvantages – Signal indications – Signal face and types of traffic signal systems – Warrants for traffic control, signal installation.  **UNIT – III**  **RAILWAY ENGINEERING I:** Comparison of railway and highway transportation – Classification of Indian railways – Permanent way – Components, gauges, coning of wheels, ballast types and functions, renewal of ballast.  **UNIT - IV**  **RAILWAY ENGINEERING II:** Classification and layout of different types of stations, station yards, types of crossings and type of switches – Turnouts – Factors affecting speed at turnouts.  **UNIT - V**  **AIRPORT ENGINEERING:** Air craft characteristics - Airport planning – Master plan, regional plan, data for site selection.  **AIRPORT LAYOUT AND TERMINAL AREA:** Terminal area – Building area – Parking area – Blast considerations – Typical airport layouts and their features.  **UNIT - VI**  **DOCKS AND HARBOUR ENGINEERING:** Tides – Winds – Waves – Currents –Classification of harbour – Site selection - Classification of ports – Docks – Types of docks –Breakwaters – Types of break waters – Quays- jetties – Wharves – Dolphins – Fenders - Aprons – Transit sheds and ware houses – Dredging. | |
| **Textbooks**  **and References** | **TEXTBOOKS:**   1. Traffic Engineering and Transport Planning by L.R. Kadiyali. 2. A text book of Railway Engineering by Saxena S.C. and Arora S.P. 3. Airport Planning and Design by Khanna S.K., Arora M.G. and Jain S.S.   4. Docks and Harbour Engineering by R. Srinivasan.  **REFERENCE BOOKS:**   1. Traffic Engineering Vol. I & II by Hobbs F.D. and Richardson P.R. 2. A text book of Railway Engineering by Rangwala. 3. Airport Engineering by Norman J, Ashford, Saleh A. Mumayiz and Paul H Wright. 4. A Course in Docks and Harbour Engineering by S.P.Bindra. | |