**Name of Course: Transport Infrastructure Design** (MTIP215)

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| Programme & Sem: | Masters in Transport Planning, Semester two |
| Course Duration: | July 4, 2023 to Nov 22, 2023 |
| Course Coordinator: | Dr. Solanki Ghosh, Assistant Professor, Dept. of Planning, (solankiarchi@spav.edu.in) |
| Number of Credits: | 03 |
| Subject Category: | Theory |
| Total Periods/Week: | 03 (See Time Table for details) |
| Internal Assessment | 50 (minimum pass marks 50%) |
| End Evaluation | 50 (minimum pass marks 50%) – Written Exam. |
| Total Marks | 100 (to be converted to CGPA credit pattern as per regulations) |

**Subject Objective:** To introduce planning strategies, design considerations and standards for transportation infrastructure.

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| **Week** | **Lecture / Session Topic (Teaching-Learning Objective aimed)** | **Unit and Assignment** |
| Week 1  (18 July) | Design of roundabouts; Design of grade separated intersection and interchange | Unit 1: Road Infrastructure  Assignment 1:  Evaluation of road infrastructural provisions for ITI road, Vijayawada. |
| Week 2  (25 July) | Design of tunnel roads; Design of bus stops and shelters, bus bays |
| Week 3  (1 Aug) | Parking facilities (surface and multi – level) layout design; design of pedestrian facilities (subways, foot over bridges); cycle tracks; NMT facilities |
| Week 4  (8 Aug) | Rail alignment surveys; Permanent way- rails, sleepers, ballast, sleepers; Curvature of track types of  curves, degree of curvature, super -elevation, transition curves | Unit 2: Rail Infrastructure  Assignment 2:  Evaluation of rail infrastructural provisions for Vijayawada Junction Railway Station. |
| Week 6-7  (19 Aug - 2 Sep) | Field Trip |  |
| Week 8  (5 Sep) | Railway points, crossings and junctions;  station yards | Unit 2: Rail Infrastructure  Assignment 2:  Evaluation of rail infrastructural provisions for Vijayawada Junction Railway Station. |
| Week 9  (11-15 Sep) | Mid- Semester Assessment week |  |
| Week 11  (26 Sep) | Terminals- size, parking, circulation, platforms, passenger service and amenities area; metro  rail alignment and stations design elements | Unit 2: Rail Infrastructure  Assignment 2:  Evaluation of rail infrastructural provisions for Vijayawada Junction Railway Station. |
| Week 12  (3 Oct) | Airport location planning; Components of airport design; Air side development – runways, taxiways,  aprons, air and ground navigation and traffic control aids; | Unit 3: Airports  Assignment 3:  Evaluation of infrastructural provisions for Vijayawada domestic airport. |
| Week 13  (10 Oct) | Land side development – passenger building, cargo facilities, internal airport circulation and parking; Design of ground access facilities and airport  support facilities etc.; land side airport connectivity planning |
| Week 14  (17 Oct) | Harbours - Types, layout, components of harbour- entrance, approach channel, turning basin, sheltered  basin, breakwaters, wharves and quays, dry docks, Jetties and piers | Unit 4: Ports, Docks and Harbours  Special Lectures from industry experts. |
| Week 16  (31 Oct) | Appurtenances to Harbour- Aprons,  Transit Sheds, Warehouses, Moorings; Ports- types, components, Seaport location planning and land side  connectivity. |
| Week 17  (7 Nov) | Types of modal interchange, facility requirements for interchanges | Unit 5: Multimodal Interchange  Assignment 4:  Appreciation of Vijayawada railway complex for multimodal exchange |
| Week 18  (14 Nov) | Components of modal interchange design, space standards, movement  control, parking; design standards, access control design, mobility assistance. |
| Week 19  (21 Nov) | International case studies and best  practices for modal interchanges; |

Reference books:

1. Blow, C. J. (2005), Transport terminals and modal interchanges: planning and design, Elsevier, United Kingdom.
2. Kadiyali L. R (2016), Transportation Engineering, Khanna Publishers, New Delhi.

Note:

1. Any other closed holidays as declared by SPAV shall supersede the above lecture plan. Holidays shown above may alter as per Notice from time to time.
2. Assessment Sessions may be re-scheduled, with prior intimation.
3. Reading lists provided is not exhaustive and is subject to addition – students are advised to follow progression of class to keep abreast of the new reading lists, if any.