

Certificate Course in Intersection Planning and Design

Course Details:

Duration: 3 Months Live Online and Recorded Sessions, 3-4 hours of lecture sessions every week (flexible timing in consultation with faculty and students)

Target Audience: Students currently enrolled in a Civil Engineering Course in a recognized university (3rd year and above), Civil Engineering diploma holders, Students pursuing/completed M.Tech/M.E. and Ph.D. in Transportation Engineering, Master/ Ph.D. in Transport Planning, Government or Private Working professionals with a diploma or degree in Civil Engineering, M.Tech, and Ph.D. in Transportation Engineering from a recognized institute or university.

Eligibility/Pre-requisite: B.E. / B.Tech in Civil Engineering, students who are pursuing are also allowed to register for the course.

Exclusive Features:

- All classes are delivered via LIVE ONLINE format by VNIT faculty. Recorded lectures will also be provided.
- PEER-TO-PEER learning through weekly interactions with other participants
- Best-in-class curriculum curated for Civil Engineers and Transport Planners.
- Learn from one of India's Leading Engineering Institute (an Institute of National Importance)
- Hands-on training

Course objectives:

1. To define and explain the necessity of different types of intersection planning and their design.
2. To provide detailed knowledge of controlled and uncontrolled signal design with a focus on vehicle and pedestrian movement.
3. To develop an in-depth understanding of the placement of traffic control devices, and alteration of existing intersection geometry.
4. To expose the concept of pedestrian safety at intersections and the provision of necessary infrastructures.

Course outcomes:

At the end of this course, students should be able to:

1. Gain hands-on experience in controlled and uncontrolled signal design and pedestrian facility design.
2. Use applied knowledge to develop a coordinated signalized corridor, and enhance the safety of intersections by placing traffic control devices and necessary changes in the

existing geometric features.

3. Appreciate various safe intersection planning and design methods to handle real-time Traffic Related problems.

Syllabus:

Module-1

Type of intersections, conflict points, introduction to traffic congestion, causes of congestion, short-term and long-term measures for mitigating traffic congestion, safety, and traffic control devices.

Module-2

Traffic movement at signalized intersections, factors affecting the design of intersections, delay, saturation flow and level of service of the signal-controlled intersections, reduction of conflict points at intersections, signal co-ordination, development of a coordinated signalized corridor and signal design.

Module-3

Traffic movement and driver's behaviour at unsignalized intersections, capacity and LOS of unsignalized intersections, surrogate safety measures of unsignalized intersections, and modification of existing geometric features at unsignalized intersections.

Module-4

Types of roundabouts, elements of a roundabout, capacity estimation methods of a roundabout, level of service of a roundabout.

Module-5

Design concepts and safety of pedestrian infrastructure at intersections, pedestrian warrants, pedestrian speed prediction model at signalized and unsignalized crossings, walkability index and LOS.

References

1. IRC-SP-41 - Design of at Grade Intersection.
2. IRC-65 - Recommended Practice for Traffic Rotaries.
3. IRC-103 – Guidelines for Pedestrian Facilities.
4. Indo Highway Capacity Manual (HCM), 2017.
5. US Highway Capacity Manual (US HCM), 2010.
6. IRC: 67-2020- Code of Practice for Road Signs.
7. IRC: 35-2015 - Code of Practice for Road Markings.
8. IRC: 79-2019- Recommended Practice for Road Delineators.

Prerequisite:

Basic Transportation Engineering offered in the Second year and/or the Third year of UG Civil Engineering, Understanding of various basic Traffic related problems and the movement of traffic at intersections. (3rd year and above of an undergraduate Civil Engineering program/diploma holder)

Course Coordinator:

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