INSTITUTE	**DIPLOMA STUDIES**
PROGRAM	**DIPLOMA ENGINEERING (CIVIL ENGINEERING)**
SEMESTER	**6**
COURSE TITLE	**TRAFFIC ENGINEERING**
COURSE CODE	**09CI0615**
COURSE CREDITS	**3**

Objective:

1 To understand the significance of traffic engineering and create awareness about efficient traffic congestion solutions and road safety-related aspects.

2 To acquire knowledge regarding the need for better geometric design, highway capacity, intersections, traffic regulations, signals, traffic signs, roadway markings, parking facilities, ITS and street lightings, etc.

Course Outcomes: After completion of this course, student will be able to:

1 To Understand Highway capacity and Level of service concept to solve traffic problems.

2 To Explain the general principle and functions of road and traffic signs, traffic signals, and their maintenance aspects.

3 To Describe street lighting and maintenance of it in an urban area.

4 To Analyze traffic problems in cities and their environmental impact.

5 To Use of intelligent transportation systems to improve transport services.

Pre-requisite of course: Basic Transportation Engineering

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
2	0	2	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	**Highway capacity** Highway Capacity, Level of Service concept, factors affecting Level of Service, Components of signalized intersection as per IRC, Merging – Diverging and Weaving of traffic flow	6
2	**Traffic control and regulation** Standardization of road signs: Functions and types of road marking, Longitudinal objects, Transverse markings, Word messages, Parking, Hazardous location, Location, Height, and maintenance of traffic Sign, Traffic calming devices, Streetlight: Mounting height, spacing, arrangements, and maintenance of streetlights	8

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Contents : Unit	Topics	Contact Hours
3	**Traffic Problems and Environmental Impact** Growth of town and traffic problem Situation in India, Present difficulties in urban transportation and its remedial measures, Detrimental effects of traffic on the environment: Air and Noise Pollution, Vibration, Visual intrusion, and degrading the aesthetics, Environment Impact Assessment (EIA) of various transportation projects	8
4	**Intelligent Transportation System (ITS)** ITS in transport and economic development in India, Use of ITS in the Asian, Western, and European Countries, Recent trends in the field of traffic engineering with respect to ITS	6
Total Hours		**28**

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Experiment 1** Sketches of Signalized Intersections along with their components in an urban area	4
2	**Experiment 2** Sketches of Merging – Diverging and Weaving of traffic flow	4
3	**Experiment 3** Sketches different types of parking	4
4	**Experiment 4** Sketches on the arrangement of streetlights in urban areas	4
5	**Experiment 5** Report on Traffic Calming Devices in India	4
6	**Experiment 6** Case study on EIA & SIA reports of transportation projects such as Metro rail projects and BRTS projects across Bharat (India)	4
7	**Experiment 7** The topic of the Seminar shall be given to a group of students or on an individual basis. The students are required to submit and present/defend the Seminar in the presence of students and teachers and the report including a PowerPoint presentation to be attached with the submission. Each individual student's contribution to group work needs to be made explicit	4
Total Hours		**28**

Textbook :

1 Traffic Engineering and Transportation Planning, Kadiyali, L. R., Khanna Publishers, New Delhi, 2016

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References:

1 Traffic planning and design, Traffic planning and design, S. C. Saxena, Dhanpat Rai, New Delhi, 2017

2 Traffic Engineering and Transportation Planning, Traffic Engineering and Transportation Planning, Kadiyali, L. R., Khanna Publishers, New Delhi, 1989

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
40.00	40.00	20.00	0.00	0.00	0.00

Instructional Method:

1 The course delivery method will depend upon the requirement of content and the need of students. The teacher in addition to the conventional teaching method by the black board may also use any of the tools such as demonstration, role play, Quiz, brainstorming, MOOCs, etc.

2 The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and classroom.

3 Practical examination will be conducted at the end of the semester for evaluation of the performance of students in the laboratory.

4 Students will use supplementary resources such as online videos, videos, e-courses, Virtual Laboratory.

Supplementary Resources:

1 https://niua.in/events

2 http://www.gudm.org/projects.aspx

3 https://sdgs.un.org/goals.

4 https://www.delhimetrorail.com/pages/en/corporate/environmental-impact-assessment-eia-reports

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