NIRMA UNIVERSITY
Institute of Technology
School of Engineering
Bachelor of Technology - Civil Engineering
Open Electives (all branches except Civil Eng.)

L	T	P	C
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Course Code	2CLOE28
Course Name	Road Safety and Management

Course Outcomes:
At the end of the course, students will be able to –
1. appraise the design parameters of road geometrics
2. analyse traffic characteristics of roadway
3. evaluate the causes of road accidents and take part in road safety audit
4. infer traffic regulations and apply traffic management systems.

Syllabus: Teaching hours: 45

Unit 1: Introduction to Road Safety and Geometrics **Hours: 07**
Introduction to road safety, importance and scope, road characteristics and cross section elements, sight distance, concept of horizontal and vertical alignment, road intersections and types.

Unit 2: Traffic Characteristics **Hours: 08**
Importance and scope of traffic engineering, traffic characteristics, human factors governing road user characteristics, vehicular characteristics, overview of traffic surveys, traffic stream flow characteristics, concept of passenger car unit and level of service.

Unit 3: Road Accidents **Hours: 08**
Causes and prevention, scientific investigations and data collection, analysis of individual accidents to arrive at real causes, cost of road accidents, statistical methods of analysis of accident data, use of accident data in planning reconstruction of roads.

Unit 4: Road Safety Audit **Hours: 06**
Principles and procedure, code of good practice and checklists, road safety issues, engineering, education and enforcement measures for improving road safety, safety of pedestrians, cycle paths, location of rest areas and bus stops.

Unit 5: Traffic Regulation and Control **Hours: 10**
Regulations and controls on driver, vehicle and flow, parking regulations, enforcement of regulations, traffic signs and types, road markings, signal systems, parking studies, channelizing islands, one way streets.

Unit 6: Traffic Management Techniques **Hours: 06**

Integrated safety improvement and traffic calming measures, speed and load limit, traffic lighting, use of intelligent transportation systems (ITS) for traffic management, economic evaluation of road improvements.

Self-Study:

The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

Suggested Readings:

1. Kadiyali L. R., *Traffic Engineering and Transport Planning*, Khanna Publishers.
2. Chakraborty P., Das A., *Principles of Transportation Engineering*, Prentice Hall India Learning Private Limited.
3. Kumar S. R., *Introduction to Traffic Engineering*, The Orient Black Swan South Asian edition
4. Papacoastas C. S., Prevedourous P. D., *Transportation Engineering and Planning*, Pearson Education India.
5. Khanna S. K., Justo C. E. J., Veeraraghavan A., *Highway Engineering*, Nem Chand and Brothers.
6. Kadiyali L. R., *Highway Engineering*, Khanna Publishers.
7. Garber N. J., Hoel L. A., *Traffic and Highway Engineering*, Cengage Learning India Private Limited.
8. Khisty J. B., Lall K. B., *Transportation Engineering: An Introduction*, PHI Learning, Eastern Economy Edition.

L= Lecture, T= Tutorial, P= Practical, C= Credit

w.e.f. academic year 2020-21 and onwards