



**INSTRUCTION DIVISION
FIRST SEMESTER 2015-2016
Course Handout (Part-II)**

In addition to part I (General handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No : CE G536
Course Title : Traffic Engineering and Safety
Instructor-in-charge : **Dr. AMIT GOEL**

1. Scope and Objective of the Course:

Over past few decades, a sustained increase in the per capita ownership of vehicles, has given rise to several traffic related issues including parking, accidents, delays, congestion, environmental degradation, etc. There is a consistent need to find solution to these problems, through scientific and mathematical techniques and logic. Traffic engineering draws its origin from this need. The scope of the present course is to develop a comprehensive understanding of the problems related to traffic management and safety, and to gain knowledge of the possible solutions and techniques to tackle them.

2. Text Book:

T.1 Kadiyali L.R., Traffic Engineering and Transport Planning Khanna Publishers, Sixth Edition, New Delhi 2000

3. Reference Books:

- R.1** May, AD, Traffic Flow Fundamentals, Prentice Hall, 1990.
- R.2** Pignataro, Traffic Engineering – Theory and Practice, John Wiley Co.
- R.3** Papacoastas, C. S. and Prevedouros, Transportation Engineering and Planning, Third Edition; Pearson Education, 2008.
- R.4** Khisty C J and Lall B Kent, Transportation Engineering: An Introduction, Third Edition; Prentice Hall of India Private Limited, New Delhi, 2002.
- R.5** Transportation Research Board. The Highway Capacity Manual Special Report No. 209, 4th Ed., National Research Council, Washington, D.C., 2000.
- R.6** Relevant IRC codes
- R.7** Institute of Transportation Engineers, Traffic Engineering Handbook, 4Ed, Prentice Hall, 1992.
- R.8** Drew BR, Traffic Flow Theory and Control, McGraw Hill Co.,
- R.9** Wohl and Martin, Traffic System Analysis, McGraw Hill Co.





4. Tentative Course Plan:

Lecture No.	Topic	Learning Objective	Reference
1-6	Road, Road User and Vehicle Characteristics	Driver, Vehicle and Environment Characteristics, Criteria for Classification of Highways both in Rural and Urban Areas, Types and Functions of Highways, Road User Characteristics - Reaction Time Psychological and Physiological characteristics, Vehicle kinematics, Roadway Characteristics-surface conditions, slopes, curves.	T1 Chapter-2
7-10	Traffic Flow Characteristics	Heterogeneous traffic, Differences- heterogeneous and homogeneous traffic flows, Volume, Density and Speed Relationships, Fundamental relation of traffic flow, Travel time and delay, Spot Speeds, Computation of AADT, Design Hourly Volume from Short and Long Term Counts, Spacing and Headway Characteristics in heterogeneous traffic flow, Vehicle arrival patterns, Headway distributions	T1 Chapter-22 and 26
11-18	Traffic Studies	Traffic Volume Studies, Spot Speed Studies-Travel Time and Delay Studies - Intersection Delay Studies, Origin and destination studies, Analysis and interpretations of traffic studies; Introduction to Traffic Forecasting	T1 Chapter-3,4, 5 and 10
19-22	Capacity and Level-of-Service	Capacity and Level of Service - Factors Affecting Capacity, Traffic characteristics at unsignalized and signalized intersections; capacity and LOS of signalized intersections, actuated signal control, signal coordination	T1 Chapter -21
23-30	Traffic Controls	Traffic regulations- Motor Vehicle Act, Traffic Signs and Markings, street furniture; traffic regulations	T1, Chapter-13,14,15,16 and 17
31-34	Traffic Safety	Accidents- data collection and analysis causes and prevention, Black Spots	T1 Chapter-18
35-38	Parking Studies	Need for Parking Studies, Off-Street and On-Street Parking; Types of Parking Surveys, Parking Space Inventory, Parking demand, Parking: Design and control, Advances in parking.	T1 Chapter-12
39-41	Advances in Traffic Engg.	Emerging Technologies and innovative concepts and techniques	Material will be given in class

5. Evaluation Scheme:



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Component	Duration	Weightage	Schedule	Remarks
Mid Semester Test	90 minutes	30%	8/10 4:00 - 5:30 PM	Open/Closed Book
Assignments/ Term Paper/ Project/ Quiz/ Attendance	As announced	30-35%	Continuous	Open/Closed Book Project* to be started immediately after approval of outline which is to be submitted on or before 15.08.2015
Comprehensive	180 minutes	35-40%	9/12 AN	Open/Closed Book

*During the semester each student will work on a project dealing with various aspects of Traffic engineering. Each student will make two oral presentations (one in mid-semester and other at the end of the course work) of their results to the class and also submit a final report.

The purposes of the term project are:

1. To enable you to explore in-depth knowledge of the subject.
2. To provide experience in the formulation, execution and presentation of an engineering investigation in the area.
3. To provide experience dealing with the interdisciplinary nature of the subject.

Steps in Carrying out the Project

The steps in carrying out the project are:

1. Prepare a proposal in MS Word and email it to the instructor-in-charge at amit.goel@pilani.bitspilani.ac.in specifying the objective of your project and outlining how you plan to go about executing it.
2. Present an oral report in class on the date posted on the class web page/communicated to you at the website.
3. Send a written report (in MS Word) to the instructor on or before the last date/time announced in the class to the instructor-in-charge at amit.goel@pilani.bitspilani.ac.in.

Before beginning your project, you need to prepare a project proposal and submit it to the instructor-in-charge for approval and feedback. This proposal should be about one page in length. The instructor-in-charge will review the proposals and provide comments for the student to revise the proposal for final submittal and approval. ***The proposal should contain:***

- ☐ Definition of the problem including relevant background.
- ☐ Discussion (preliminary) of the proposed methods of solution of the problem.
- ☐ Anticipated data needs.
- ☐ Anticipated problems in carrying out the project.
- ☐ Team members (approval needed).



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- ☐ Assignment of tasks to team members.
- ☐ A minimum of 8 bibliographic citations relevant to your proposed project.
- ☐ The registered student must submit duly filled above outline after verification from undersigned latest by 15.08.2015.

6. Chamber Consultation Hour: To be announced in the class

7. Make Up Policy:

1. Make-up will be granted only on verified genuine reasons. However, **prior permission is a must.**
2. For medical cases, a certificate from the concerned physician of the Medical Centre must be produced.
3. Please also refer item no. 6 on page 2 of Part I of course handout mentioned in the Timetable for First Semester 2015-16 for more details.

8. Pull-ups: Based on participation in the class and attendance only, on case to case basis.

9. Notices: Notices, if any, concerning the course will be displayed on NALANDA (intranet website), or the notice board of Civil Engineering Department.

10. Academic honesty and academic integrity Policy:

Academic honesty and academic integrity are to be maintained by all of the students throughout the Semester and no type of academic dishonesty is acceptable.

**Instructor-in-charge
CE G536**



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Pilani Campus

FIRST SEMESTER 2015-2016

(Outline of the course: To be filled in consultation with the I/C)

Course No.: CE G518

Course Title: Pavement Analysis and Design

Date of Submission of Outline:

Name of the student(s):

ID No:

Topic of the study:

Aim and Scope of the Study:

Background of the Study:

Plan of Work:

References:

(attach more sheets if required)

Student's Signature

Approved/Disapproved

Date: Signature of the instructor

*The registered student must submit duly filled above outline after verification from the instructor-in-charge of the course, Dr. AMIT GOEL latest by 15.08.2015.



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