INSTITUTE	**FACULTY OF TECHNOLOGY**
PROGRAM	**BACHELOR OF TECHNOLOGY (CIVIL ENGINEERING)**
SEMESTER	**5**
COURSE TITLE	**DESIGN & MAINTENANCE SKILLS FOR PAVEMENTS**
COURSE CODE	**01CI1518**
COURSE CREDITS	**1**

Objective:

1. To develop a fundamental understanding of the design principles and practices of highway engineering
2. To learn the procedures and methods for analyzing traffic flow, designing highway geometry, and designing pavement structures
3. To understand the role of highway engineering in ensuring the safety and efficiency of transportation networks
4. To gain knowledge of best practices in highway maintenance and rehabilitation

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

1. Design highways and associated infrastructure, including geometric design, pavement design, drainage systems, and traffic control devices
2. Analyze traffic flow, evaluate transportation alternatives, and develop transportation plans that meet the needs of the community
3. Manage the construction of highways, ensuring that the work is completed safely, within budget, and according to the design specifications
4. Assess the condition of existing highways, develop maintenance plans, and recommend rehabilitation or replacement of deteriorating infrastructure

Pre-requisite of course: Basics of Highway Engineering

Teaching and Examination Scheme

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

Contents : Unit	Topics	Contact Hours
Total Hours		

DR. ANKUR CHANDRAKANT BHOGAYATA
Digitally signed by (Name of HOD)

DR. RAJENDRASINH BAHADURSINH JADEJA
Digitally signed by (Name of Dean/ Principal)

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Site Investigation** A thorough investigation of the site to determine the geotechnical and environmental conditions that may affect the design and construction of the highway	4
2	**Traffic Analysis** Collection and analysis of traffic data, including traffic volume, speed, and classification, to determine the traffic flow characteristics of the site	8
3	**Pavement Design** Design factors such as soil type, climate, traffic volume, and expected life span of the pavement with reference to IRC 37, IRC – 58 and MoRTH specifications	12
4	**Maintenance and Rehabilitation** Regular inspection and maintenance of pavement as well as the timely repair or replacement of any damaged or worn components	6
5	**Field Visit** Field Visit	4
Total Hours		**34**

Textbook :

1 Traffic Engineering and Transport planning, Dr. L.R. Kadiyali, Khanna Publishers, 2009

References:

1 Highway Engineering, Highway Engineering, S.K. Khanna and C.E.G. Gusto, A.Veeraragavan, Nem Chand and Bros, Roorkee, 2011

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**
5.00	10.00	30.00	30.00	15.00	10.00

Instructional Method:

1 At the start of course, the course delivery pattern, prerequisite of the subject will be discussed

2 Laboratories will be taken in the dual mode: within lab as well as on the field

3 Oral examination will be conducted at the end of the semester as a part of overall evaluation

DR. ANKUR CHANDRAKANT BHOGAYATA
Digitally signed by (Name of HOD)

DR. RAJENDRASINH BAHADURSINH JADEJA
Digitally signed by (Name of Dean/ Principal)

Instructional Method:

4 The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures

DR. ANKUR CHANDRAKANT BHOGAYATA
Digitally signed by (Name of HOD)

DR. RAJENDRASINH BAHADURSINH JADEJA
Digitally signed by (Name of Dean/ Principal)