

## Computer Aided Design in Transportation Engineering

**01TR0108**

**(LC)**

**Objective of the Course:**

- To be acquired with traffic analysis software.
- To learn the highway alignment software.
- To get a knowledge on transportation planning software.
- To get a knowledge on pavement analysis and design software.

**Credit Earned: 2**

**Students learning outcomes:**

After successful completion of the course it is expected that student will be able to,

1. Employ various traffic analysis software.
2. Use various highway alignment and transportation planning software.
3. Develop programs for various numerical techniques.
4. Design the flexible and rigid pavements using different approaches.

**Teaching and Examination Scheme**

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA (M)	CSE (I)	Viva (V)	Term Work (TW)	
00	00	04	02	00	00	00	25	25	50

**Detailed Syllabus**

Sr No.	Title of the unit	Number of hours
<b>1</b>	<b>VISSIM</b>	<b>12</b>
	Traffic signal design, alterations of attributes, analysis of queue length, analysis of vehicle delay.	
<b>2</b>	<b>HDM4</b>	<b>12</b>
	Analysis of pavement, planning, management and appraisal of road maintenance, improvements and investment decisions.	
<b>3</b>	<b>Spreadsheet Concepts</b>	<b>4</b>
	Worksheet calculations in Civil Engineering - Regression & Transportation Planning.	
<b>Total</b>		<b>28</b>

**Suggested Theory Distribution**

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

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
05%	05%	20%	25%	25%	20%

**Instructional Method and Pedagogy:**

1. Use of Learning Management system like canvas
2. Demonstration through presentations on power point and videos and lectures
3. Brainstorming and group discussion sessions
4. Collaborative learning

**Recommended Study Material:****Reference Book:**

1. Rajaraman, V., Computer Oriented Numerical Methods, Prentice – Hall of India, 1995.
2. Chapra S.C., and Canale R.P., Numerical Methods for Engineers, McGraw – Hill, 2004.
3. Software Manuals.