



SYLLABUS I SEM CIVIL ENGINEERING

Course Title	HIGHWAY CONSTRUCTION AND MAINTENANCE	
Course Code	CT105	
Course Credit	Lecture	: 03
	Practical	: 00
	Tutorial	: 02
	Total	: 04
Detailed Syllabus		
SECTION –I		
Sr. No.	Name of chapter & Details	Hours Allotted
	UNIT -1	08
	Components of road and pavement structure including subgrade, drainage system, functions, requirements and sequence of construction operations. Drainage – Assessment of drainage requirements for the road and design of various components, drainage materials, Construction of surface and subsurface drainage system and design of filter materials for roads. drainage of urban roads, problems.	
	UNIT -2	10
	Plants and equipment for production of materials - crushers, mixers, bituminous mixing plants, cement concrete mixers – various types, advantages and choice. Road construction equipment – different types of excavators, graders, soil compactors / rollers, pavers and other equipment for construction of different pavement layers – their uses and choice Problem on equipment usage charges.	
	UNIT -3	
	General Aspects: Quality assurance, statistical approach, quality system for road construction. Safety aspects during road construction and maintenance works. Installation of various traffic safety devices and information system Principle of construction planning, application of CPM and PERT(Problems not included)	08
	SECTION- II	
	UNIT -4	

	<p>Road maintenance works – day to day and periodic maintenance works of various components of road works and road furniture. Preventive maintenance of road drainage system, pavements and other components of road. Preparation of existing pavement – patching, profile correction, Special measures to deal with reflection cracks in pavement layers, slipperiness of surface, etc. Requirements for rehabilitation, recycling and re-construction.</p>	10
	<p>UNIT -5</p>	
	<p>Special problems in construction & maintenance of hill roads, land slide, causes, investigation, and preventive and remedial measures, protection of embankment and cut slopes.</p>	08
	<p style="text-align: right;">TOTAL HOURS</p>	44
<p>Text book:</p>		
<p>Reference Books:</p>		
<ol style="list-style-type: none"> 1. Peurifoy, R.L., and Clifford, JS “Construction Planning Equipment and Method”- McGraw Hill Book Co. Inc. 2. Sharma S.C., “Construction Equipment and its Management”- Khanna Publishers 3. Freddy L Roberts, Prithvi S Kandhal et al, “Hot Mix Asphalt Materials, mixture design and construction”- (2nd Edition), National Asphalt Pavement Association Research and Education Foundation, Maryland, USA 4. National Asphalt Pavement Association “Hot Mix Asphalt Paving Hand book”- 5100 Forbes Boulevard, Lanhm, Mary Land, USA 5. “Hand Book on Cement Concrete Roads”- Cement Manufacturers Association, New Delhi 6. MoRTH “Specifications for Roads and Bridge Works”- 2001, fourth revision, Indian Roads Congress 7. MoRTH “Manual for Construction and Supervision of Bituminous Works”- 2001, Indian Roads Congress 8. MoRTH “Manual for Maintenance of Roads”- 1989, Indian Roads Congress 9. IRC: 42-1994, IRC:15-2002, IRC SP :11-1988, , 55-2001, 57-2001,58-2001, IRC 19-1977, 27-1967, 29-1988, 34-1970, 36-1970,48-1972,61-1976, 63-1976, 68-1976, 81-1997,82-1982, 84-1983,93-1985, 94-1986, 95-1987, 98-1997, 105-1988. 		