

Course No	CE 5012
Course Title	Pavement Management System (PMS)
Credits :	L T P C 3 0 0 0
Prerequisites	
Instructor(s):	Dr. Yogesh U. Shah
<b>Course Content</b>	
<b>PART 1: THE PAVEMENT MANAGEMENT PROCESS</b>	
<ol style="list-style-type: none"> <li>1. <b>Introduction to Pavement Management:</b> Role of pavements in today's transport system, types of pavements, concepts of pavement management and essential features of pavement management.</li> <li>2. <b>Pavement Management Levels and Functions:</b> The ideal Pavement Management System (PMS), the network and project levels of pavement management, influence levels of PMS components, pavement management at three levels, PMS function, key consideration in application of a total pavement management system concept, the function of pavement evaluation.</li> </ol>	
<b>PART 2: DATA REQUIREMENTS</b>	
<ol style="list-style-type: none"> <li>3. <b>Pavement Performance:</b> The serviceability-performance concept, characterization of pavement roughness, equipment for evaluating roughness, a universal roughness to standard, relating roughness to serviceability, applications of roughness data.</li> <li>4. <b>Evaluation of Pavement Structural Capacity:</b> Basic considerations, non-destructive measurement and analysis, deflection devices, destructive structural evaluation, structural capacity index concepts, network versus project level applications of structural capacity evaluation.</li> <li>5. <b>Evaluation of Pavement Distress: Condition Surveys:</b> Principles of surface distress surveys, survey methodology, types of distress, examples of distress survey procedures, equipment for distress evaluation, pavement distress indexes, applications of distress data.</li> </ol>	
<b>PART 3: PRIORITY PROGRAMMING OF REHABILITATION AND MAINTENANCE</b>	
<ol style="list-style-type: none"> <li>6. <b>Rehabilitation and Maintenance Strategies:</b> Identification of alternatives, decision process and expert systems approaches to identifying feasible alternatives, costs, benefits and cost-effectiveness calculations.</li> <li>7. <b>Priority Programming of Rehabilitation and Maintenance:</b> Basic approaches to establishing alternatives and policies, selecting a length of program period, basic functions of priority programming, priority programming methods, mathematical programming (optimization method), examples and comparisons, budget level evaluation, funding level requirements for specified standards, final program selection.</li> </ol>	
<b>PART4: PROJECT LEVEL DESIGN: ECONOMIC ANALYSIS</b>	
<ol style="list-style-type: none"> <li>8. <b>Economic Evaluation of Alternative Pavement Design Strategies:</b> Introduction, basic principles, pavement costs and benefit factors, methods of economic evaluation, economic analysis example, limitations of economic analysis.</li> <li>9. <b>Selection of an Optimal Design Strategy:</b> Role of the decision maker, basic for optimal strategy selection, communicating results.</li> </ol>	
<b>References Books/Manuals:</b>	
<ol style="list-style-type: none"> <li>1. Modern Pavement Management, Haas, Hudson and Zaniewski, Krieger Publishing Company.</li> <li>2. Pavement Management System, Haas and Hudson, McGraw- Hill Book Company.</li> </ol>	