

Lesson Plan

Course - Pavement Design and Maintenance (Th-3)

Semester- 5th

Program- Civil Engineering

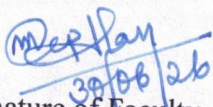
Institute - Govt. Polytechnic, Sonpur

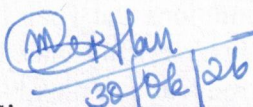
Session - 2026-2027

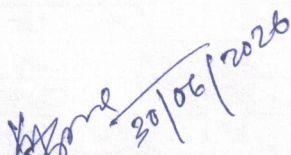
Total Load-45(3 /week)

Sl. No.	Week No.	Class No.	Topic to be Covered
1	1	Class 1	Unit I: Introduction to Pavement, Types of Pavement – Flexible, Rigid and Semi-Rigid
2	1	Class 2	Comparison between Flexible and Rigid Pavement – Design Precision, Service Life, Initial Cost and Maintenance
3	1	Class 3	Comparison based on Stages of Construction, Availability of Materials, Surface Characteristics, Water Penetration, Utility Location, Glare and Night Visibility
4	2	Class 1	Functions of Pavement
5	2	Class 2	Characteristics of Good Pavement
6	2	Class 3	Factors Affecting Selection of Pavement Type
7	3	Class 1	Unit II: Factors Affecting Pavement Design – Design Wheel Load
8	3	Class 2	Traffic Factors and Environmental Factors
9	3	Class 3	Road Geometry and Pavement Materials
10	4	Class 1	Characteristics of Subgrade Soil
11	4	Class 2	Drainage Conditions and Their Effect on Pavement Design
12	4	Class 3	Revision and Numerical Concepts on Pavement Design Factors
13	5	Class 1	Unit III: Introduction to Flexible Pavement Design
14	5	Class 2	Methods of Flexible Pavement Design – Theoretical Method
15	5	Class 3	Empirical Method with and without Soil Strength Test
16	6	Class 1	IRC:37 Guidelines for Flexible Pavement Design (Overview)
17	6	Class 2	Factors Affecting Concrete Pavement Design
18	6	Class 3	IRC:58 Guidelines for Concrete Pavement Design (Overview)
19	7	Class 1	Joints in Concrete Pavement – Need and Types
20	7	Class 2	Requirements and Spacing of Joints
21	7	Class 3	Revision and Numerical Discussion on Pavement Design
22	8	Class 1	Unit IV: Introduction, Definition and Purpose of Pavement Evaluation
23	8	Class 2	Visual Rating Method of Pavement Evaluation
24	8	Class 3	Pavement Serviceability Index (PSI)
25	9	Class 1	Roughness Measurement of Pavements
26	9	Class 2	Benkelman Beam Deflection Method
27	9	Class 3	Comparison of Pavement Evaluation Methods
28	10	Class 1	Interpretation of Pavement Evaluation Results

29	10	Class 2	Applications of Pavement Evaluation in Maintenance Planning
30	10	Class 3	Revision of Pavement Evaluation Techniques
31	11	Class 1	Unit V: Types of Pavement Maintenance – Routine, Periodic and Special Maintenance
32	11	Class 2	Need for Inspection and Maintenance Schedule
33	11	Class 3	Causes of Pavement Failure and Remedial Measures
34	12	Class 1	Flexible Pavement Failures – Surface Defects and Cracks
35	12	Class 2	Flexible Pavement Failures – Rutting, Fatigue, Settlement and Upheaval
36	12	Class 3	Flexible Pavement Failures – Loss of Aggregate, Stripping and Potholes
37	13	Class 1	Remedial Measures – Slurry Seal, Liquid Seal, Fog Seal
38	13	Class 2	Patching and Ready Mix Patch
39	13	Class 3	Case Studies on Flexible Pavement Maintenance
40	14	Class 1	Rigid Pavement Failures – Cracking, Spalling and Slab Rocking
41	14	Class 2	Rigid Pavement Failures – Settlement and Joint Sealant Failure
42	14	Class 3	Repair Methods – Spalled Joint Repair, Full Depth Reconstruction
43	15	Class 1	Replacement of Dowel Bars and Other Repair Techniques
44	15	Class 2	Comprehensive Revision of Pavement Design and Maintenance
45	15	Class 3	End Semester Problem Solving, IRC Provisions and Course Revision


 Signature of Faculty
 Civil Engg, GP Sonpur


 Signature of HOD
 Civil Engg, GP Sonpur


 Academic Co-ordinator
 Civil Engg, GP Sonpur