Techno India NJR Institute of Technology

Road Material Testing Lab (7CE4-21)

Bharat Suthar
(Assistant Professor)
Department of CE

For Techno India NJR Institute of Technology
पंकज पोरवाल
Dr. Pankaj Kumar Porwal
(Principal)

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Syllabus

IV Year- VII & VIII Semester: B. Tech. (Civil Engineering)

7CE4-21: Road Material Testing Lab

Credit 1 **Max. Marks: 50(IA:30, ETE:20)**

0L+0T+2P

1. Aggregate ImpactTest
2. To determine the Angularity Number, Flakiness Index & Elongation Index of aggregates
3. Los Angeles AbrasionTest
4. Aggregate Crushing ValueTest
5. Standard Tar Viscometer Test for given bitumensample
6. Ductility Test for a given bitumensample
7. To determine the softening point for given sample ofbitumen.
8. Marshall StabilityTest
9. FloatTest
10. Preparation of Dry lean concrete mix and testing of itsstrength

For Techno India NJR Institute of Technology
पंकज पोरवाल
Dr. Pankaj Kumar Porwal
(Principal)

Course Overview:

Road material testing is the process of evaluating the physical and mechanical properties of materials used in road construction and maintenance. This may include testing for characteristics such as strength, durability, and elasticity. Common tests include compressive strength testing, flexural strength testing, and abrasion resistance testing. The course overview would likely cover the various types of tests used, the equipment and procedures involved in performing the tests, and the interpretation of test results. It may also cover topics such as quality control and standard specifications for road materials.

Course Outcomes:

CO.NO.	Cognitive Level	Course Outcome
1	**Analysis**	Understand the importance and determination of physical properties of aggregates.
2	**Evaluation**	Understand the importance and determination of physical properties of bitumen.
3	**Synthesis**	Evaluate and analyze the suitability of materials from data collected by physical tests done on aggregates and bitumen.
4	**Synthesis**	Design of different bituminous layers of flexible pavement and compare their results with IRC/MoRTH recommendations.
5	**Application**	Prepare a formal report describing complex design procedures and results.

Prerequisites:

1. Basic understanding of civil engg. Material.
2. Understanding of transportation engg.
3. Basic understanding of Indian road codes.

For Techno India NJR Institute of Technology
पंकज पोरवाल
Dr. Pankaj Kumar Porwal
(Principal)

Course Outcome Mapping with Program Outcome:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Course Outcome	3	2	2	2	2	1	1	1	2	1	1	2	2	2	2
	2	2	1	1	1	2	1	1	2	2	2	1	1	2	2
	3	2	2	2	2	1	1	1	2	1	1	2	2	2	2
	3	3	3	2	2	1	2	1	2	1	1	1	2	2	1
	3	3	3	2	2	1	2	1	2	1	1	1	2	2	1
CO471 (AVG)	2.8	2.4	2.2	1.8	1.8	1.2	1.4	1	2	1.2	1.2	1.4	1.8	2	1.6

Course Coverage Module Wise:

Lab No.	Exp. No.	Topic
1	1	Aggregate Impact Test.
2	2	To determine the Angularity Number, Flakiness Index & Elongation Index of aggregates.
3	3	Los Angeles Abrasion Test.
4	4	Aggregate Crushing Value Test.
5	5	Standard Tar Viscometer Test for given bitumen sample.
6	6	Ductility Test for a given bitumen sample.
7	7	To determine the softening point for given sample of bitumen.
8	8	Marshall Stability Test.
9	9	Float Test.
10	10	Preparation of Dry lean concrete mix and testing of its strength.

For Techno India NJR Institute of Technology
पंकज पोरवाल
Dr. Pankaj Kumar Porwal
(Principal)

Faculty Lab Manual Link
https://drive.google.com/file/d/12H_9odeY1SSXebi4FIOcsI31kBaatijg/view?usp=share_link

Assessment Methodology:

1. Practical exam.
2. Internal exams and Viva Conduct.
3. Final Exam (practical paper) at the end of the semester.

For Techno India NJR Institute of Technology
पंकज पोरवाल
Dr. Pankaj Kumar Porwal
(Principal)