

IV Year I Semester
Code: 17CE711

L T P C
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TRANSPORTATIONENGINEERINGLAB

Course Learning Objectives

The objectives of this course are:

1. To test crushing value, impact resistance, specific gravity and water absorption, percentage attrition, percentage eabrasion, flakiness index and elongationindexfor the given road aggregates.
2. To know penetration value, ductility value, softening point, flash and fire point, viscosity and stripping for the given bitumen grade.
3. To test the stability for the given bitumen mix
4. To carryout surveys for traffic volume, speed and parking.

Course out comes

1. Ability to test aggregates and judge the suitability of materials for the road construction
2. Abilitytotestthegivenbitumensamplesandjudgetheirsuitabilityfortheroad construction
3. Ability to obtain the optimum bitumen content for the mix design
4. Ability to determine the traffic volume, speed and parking characteristics.

SYLLABUS

I. ROAD AGGREGATES:

1. Aggregate Crushing value
2. Aggregate Impact Test.
3. Specific Gravity and Water Absorption.
4. Attrition Test
5. Abrasion Test.
6. Shape tests

II. BITUMINOUSMATERIALS:

1. Penetration Test.
2. Ductility Test.
3. Softening Point Test.
4. Flash and fire point tests.
5. Stripping Test
6. Viscosity Test.

III. BITUMINOUS MIX

7. Marshall Stability test.

IV. TRAFFIC SURVEYS:

8. Traffic volume study at mid blocks.
9. Traffic Volume Studies (Turning Movements) at intersection.
10. Spot speed studies.
11. Parking study.

V. DESIGN & DRAWING:

1. Earthwork calculations for road works.
2. Drawing of road cross sections.
3. Rotors intersection design.

LIST OF EQUIPMENT:

1. Apparatus for aggregate crushing test.
2. Aggregate Impact testing machine
3. Pycnometers.
4. Los angles Abrasion test machine
5. Deval's Attrition test machine
6. Length and elongation gauges
7. Bitumen penetration test setup.
8. Bitumen Ductility test setup.
9. Ring and ball apparatus
10. Viscometer.
11. Marshal Mixde sign apparatus.
12. Enoscope for spot speed measurement.
13. Stop Watches

Text Books:

1. Highway Material Testing Manual, S. K. Khanna, C. E. G. Justo and A. Veeraraghavan, Neam Chan Brothers New Chand Publications, New Delhi.

Reference Books:

1. I R C Codes of Practice
2. Asphalt Institute of America Manuals
3. Code of Practice of B.I.S.