

**3/4 B.Tech. SIXTH SEMESTER  
TRANSPORTATION ENGINEERING LAB**

**CE6L1**

**Credits: 2**

**Lecture: --**

**Internal assessment: 25 marks**

**Lab : 3 periods/week**

**Semester end examination: 50 marks**

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**Pre-requisites:** Transportation engineering

**Learning objectives:**

- To study the properties of road materials and their suitability.
- To understand the stability requirements of the Bitumen mixes and desirable properties of the Bitumen mixes.
- To study the suitability of the foundation soil.
- To study traffic surveys and design of intersection including drawing.

**Course outcomes:**

After performing the experiments listed in the syllabus, the students will be able to:

1. Test the soil, road aggregate suitability in pavement construction
2. Determine the mix proportions of the Bituminous mixes.
3. To study the traffic surveys at mid block, intersection and parking study.

**LIST OF EXPERIMENTS:**

**I. ON ROAD AGGREGATES:**

1. Aggregate Crushing value test
2. Aggregate Impact value test
3. Specific Gravity and Water Absorption tests
4. Deval's Attrition value test
5. Los Angeles Abrasion value test
6. Shape tests

**II. ON BITUMINOUS MATERIALS:**

1. Penetration Test
2. Ductility Test
3. Softening Point Test
4. Flash and Fire point tests
5. Viscosity test

**III. BITUMINOUS CONCRETE MIX DESIGN:**

1. Marshall method

**IV. ON SUB GRADE:**

1. North Dakota cone test
2. Swell test

**V. TRAFFIC SURVEYS:**

1. Traffic volume study at mid blocks.
2. Studies at intersection
3. Turning movement.
4. Spot speed studies.
5. Parking study

**\* At least 15 experiments should be covered.**

**LIST OF EQUIPMENT:**

1. Apparatus for aggregate crushing test.
2. Aggregate Impact testing machine
3. Pycnometers
4. Los angeles Abrasion test machine
5. Deval's Attrition test machine
6. Length and thickness gauges
7. Bitumen penetration test setup
8. Bitumen Ductility test setup
9. Ring and ball apparatus
10. Penskey – Morten's apparatus
11. Tar Viscometer
12. North Dokota cone test apparatus
13. Marshal stability test apparatus
14. Balance
15. IS Sieves etc.

**Learning resources:****Text books:**

1. Highway Engineering, (9th edition) by Khanna, S.K. and Justo ,C.E.G., Nem Chand Bros, Roorkee, 2010.
2. Transportation Engineering Lab In House Manual

**Reference books:**

1. Specifications for Roads and Bridges - Manual for Maintenance of roads, MORTH publications, 2012.

**e-learning resources:**

vlab.co.in