



MARRI LAXMAN REDDY

INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

DEPARTMENT OF CIVIL ENGINEERING

2060179 – TRANSPORTATION ENGINEERING LABORATORY

VISION

- The Civil Engineering department strives to impart quality education by extracting the innovative skills of students and to face the challenges in latest technological advancements and to serve the society.

MISSION

- To fulfill the promised vision through the following strategic characteristics and aspirations: Provide quality education and to motivate students towards professionalism.
- Address the advanced technologies in research and industrial issues

PROGRAM EDUCATIONAL OBJECTIVES

PEO – I: Solving civil engineering problems in different circumstances.

PEO – II: Pursue higher education and research for professional development.

PEO – III: Inculcate qualities of leadership for technology innovation and entrepreneurship.

PROGRAM SPECIFIC OUTCOMES

PSO 1 – UNDERSTANDING: Graduates will have ability to describe, analyse and solve problems using mathematical, scientific, and engineering knowledge.

PSO 2 - ANALYTICAL SKILLS: Graduates will have an ability to plan, execute, maintain, manage, and rehabilitate civil engineering systems and processes.

PSO 3 - EXECUTIVE SKILLS: Graduates will have an ability to interact and work effectively in multi disciplinary teams.



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PROGRAMME OUTCOMES

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



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B.Tech. III Year - II Sem

L/T/P/C

0/0/3/1.5

COURSE OUTCOMES

1. Analyse crushing, abrasion and impact value of Highway materials
2. Analyse specific gravity and water absorption of Highway materials
3. Analyse Flakiness and elongation Indices of coarse Aggregates
4. Assess the ductility value of bitumen and identify Softening Point value of bitumen
5. Assess Traffic Volume and parking studies

LIST OF EXPERIMENTS

SECTION I: ROAD AGGREGATES

1. Determination of Aggregate Crushing value.
2. Determination of Aggregate Impact Test.
3. Determination of Specific Gravity and Water Absorption.
4. Determination of Abrasion value of aggregate.
5. Determination of Flakiness and elongation Indices of coarse Aggregates.
6. Determination of Attrition value of aggregate.

SECTION II: BITUMINOUS MATERIALS

7. Determination of Penetration Value.
8. Determination of Ductility value of bitumen.
9. Determination of Softening Point value.
10. Determination of Marshal Stability value
11. Determination of Flash and fire point temperature.

SECTION III: TRAFFIC STUDIES

12. Determination of Traffic Volume Counts-Mid Blocks
13. Determination of Traffic Volume Counts-Junctions
14. Determination of Spot speed study.
15. Determination of Parking Studies



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LIST OF EQUIPMENTS

- Aggregate Crushing value
- Aggregate Impact Test set up
- Specific Gravity and Water Absorption
- Los-Angels Abrasion test set up
- Shape tests- length gauge and Shape tests- Thickness gauge
- Devel Attrition Test Apparatus
- Bitumen Penetration Test set up
- Bitumen Ductility Test set up
- Ring & Ball Apparatus (Softening Point Test)
- Marshal Stability Test
- Fire & Flash Apparatus
- Traffic Volume Counts - Mid Blocks
- Traffic Volume Counts - Junctions
- Spot Speed Studies
- Stopwatch



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DO's

1. Be familiar with your laboratory assignment before you come to the laboratory.
2. Follow all written and verbal Instructions carefully.
3. Observe the safety alerts in the laboratory directions and If you do not understand a direction or part of a procedure, ask the teacher before proceeding.
4. Learn the objective & significance of the practical.
5. Before experimenting read the instrument manual carefully.
6. Always perform the experiment or work as directed by the teacher/instructor.
7. Don't forget to bring a calculator, graph sheet and other accessories when you come to the laboratory.
8. Students must stay away from the yellow strip marked around the machines/apparatus while the Machine is running.
9. Maintain silence in the laboratory

DONT'S

1. Absolutely no running, practical jokes or horseplay is allowed in the laboratories.
2. The use of personal audio or video equipment is prohibited in the laboratory.
3. Do not play with valves, screws and nuts of any apparatus.
4. In the absence of an instructor, no student shall be allowed to work in the laboratory.
5. Shoes must cover the entire foot. Open-toed shoes and sandals are in appropriate footwear in laboratories.
6. Don't use mobile phones during lab hours.