HIGHWAY ENGINEERING LAB

Course Code	23CE3652	Year	III	Semester	II
Course Category	Professional Core	Branch	CIVIL	Course Type	Practical
Credits	1.5	L-T-P	0-0-3	Prerequisites	Basic Geometry
Continuous Internal Evaluation	30	Semester End Evaluation	70	Total Marks	100

Course Objectives: By the end of this course student will be able to	
1	To test crushing value, impact resistance, specific gravity and water absorption, attrition value, abrasion value, flakiness index and elongation index for the given road aggregates.
2	To know penetration value, ductility value, softening point, flash and fire point, viscosity for the given bitumen grade.
3	To test the stability for the given bituminous mix
4	To carry out surveys for traffic volume, speed, air, noise pollution and parking.
5	To know the earthwork calculations, draw the road cross session and design rotary intersection

Course Outcomes: Upon the successful completion of this course, the students will able to		**BL**
CO1	Test aggregates and judge the suitability of materials for the road construction	L3
CO2	Test the given bitumen samples and judge their suitability for the road construction	L3
CO3	Obtain the optimum bitumen content for Bituminous Concrete	L3
CO4	Determine the traffic volume, speed, air, noise pollution and parking characteristics	L3
CO5	Draw highway cross sections, earthwork calculations and intersections design	L3

Course Articulation Matrix:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO 1			3	3								3	3
CO 2			3	3								3	3
CO 3			3	3								3	3
CO 4			3	3								3	3
CO5			3	3								3	3

Course Content		
Experiment No.1	Aggregate Crushing value test	CO1
Experiment No.2	Aggregate Impact value test	
Experiment No.3	Specific Gravity and Water Absorption tests	
Experiment No.4	Deval's Attrition value test	
Experiment No.5	Los Angeles Abrasion value test	
Experiment No.6	Shape tests	
Experiment No.7	Penetration Test	CO2
Experiment No.8	Ductility Test	
Experiment No.9	Softening Point Test	
Experiment No.10	Flash and Fire point tests	
Experiment No.11	Viscosity test	
Experiment No.12	Marshall method	CO3
Experiment No.13	Traffic volume study at mid blocks	CO4
Experiment No.14	Traffic Studies at intersection	
Experiment No.15	Spot speed studies	
Experiment No.16	Parking study	
Experiment No.17	Air pollution measurement	
Experiment No.18	Noise Pollution measurement	
Experiment No.19	Earthwork calculations for road works	CO5
Experiment No.20	Drawing of road cross sections	
Experiment No.21	Rotary intersection design	

Learning Resources	
Text Books & Reference Manuals	1.TE Lab Manual, Dept. of Civil Engg., PVPSIT. 2.Highway Engineering, (9^{th}edition) by Khanna, S.K. and Justo,C.E.G.,Nem Chand Bros, Roorkee,2010. 3.Traffic Engineering and Transportation Planning, (7^{th}edition) by Kadiyali, L.R., Khanna Publishers, New Delhi, 2010. 4.Specifications for Roads and Bridges- Manual for Maintenance of roads, Most Publications, 1976.
Reference Books	1.Fundamentals of Transportation Engineering, (3^{rd}edition) by Papacostas, C. S., Prentice Hall of India Pvt. Ltd, NewDelhi,2009. 2.Principles of Highway Engineering by Kadiyali, L.R., Khanna Publishers, New Delhi, 2012. 3.Traffic Planning and Design by Saxena, Dhanpat Rai Publishers, NewDelhi,2010. 4.Transportation Engineering- An Introduction, (3^{rd}edition) by Jotin Khisty. C, Prentice Hall, Engle wood Cliffs, New Jersey, 2012.
e-Resources	http://nptel.ac.in/courses.php http://jntuk-coeerd.in/