Departmental Practical

Course Type	Course Code	Name of Course	L	T	P	Credit
DP	NCEC518	Advanced Pavement Material Laboratory	0	0	3	1.5

Course Objective
The course aims at imparting knowledge on advanced testing related to pavement materials.
Learning Outcomes
Upon successful completion of this course, the students should be able to: • Develop knowledge on materials and methods related to pavement construction materials.

Unit No.	Topics to be Covered	Contact Hours	Learning Outcome
1	Determination of soundness of aggregate samples.	3	Learn to determine the resistance to weathering action of the aggregate sample.
2	Determination of slake durability of marginalised material.	3	Learn to determine the weathering resistance of marginalised materials such as shale, mudstone, siltstone, etc.
3	Determination of Resilient modulus of aggregate.	3	Learn to determine the stiffness of cylindrical aggregate specimens under repeated loading.
4	Determination of aging of bitumen through Rolling Thin-Film Oven (RTFO) test.	3	Learn to measure the effect of heat and air on a moving film of bitumen.
5	Determination of Indirect tensile strength of stabilised samples.	3	Learn to determine the splitting tensile strength of stabilised cylindrical specimen.
6	Determination of fatigue life of stabilised samples.	6	Learn to determine the expected service life of stabilised materials under repeated

Unit No.	Topics to be Covered	Contact Hours	Learning Outcome
			loading conditions.
7	Determination of particle charges of emulsion.	3	Learn to identify the charge associated with a particular asphalt emulsion.
8	Determination of water content of emulsion.	3	Learn to determine the water content of bitumen emulsion.
9	Determination of viscosity of emulsion by Saybolt Furol.	3	Learn to measure the flow resistance of bitumen emulsion at a specific temperature.
10	Determination of skid resistance by Pendulum Test.	3	Learn to determine the friction coefficient of a surface by measuring the energy loss during contact of the pendulum with the surface.
11	Determination of layer modulus through light weight deflectometer.	3	Learn to measure the in-situ stiffness or modulus of pavement layers by measuring its deflection under dynamic loading.
12	Project	6	To utilize the knowledge gained from the conducted experiments to undertake a project in highway material characterization.
	Total Contact Hours	42	

Text Books:

1. Laboratory Manual of "Advanced Pavement Material Laboratory"

Reference Books:

1. Respective Indian Standard/ International Standard Codes of Practices.
2. SP-36 (Part-1). Compendium of Indian standards on Soil Engineering, Bureau of Indian Standard, New Delhi