Subject : Pavement Analysis &Design (PC/CE/19-T) **Sem-8thsem**

Week	Theory		Topic Covered Date and Remarks		
	Lecture Day	Topic (Including Assignment/Test)	Date	HOD	Director-principal
1st	1.	**Pavement Materials:** Soil - Sub grade soil evaluation, evaluation of soil strength			
	2.	And various tests, IRC/IS specification for suitability of aggregates.			
	3.	Bituminous Materials**:** Types of bituminous materials – bitumen, tar, cutback and emulsions, properties			
2nd	4.	tests for paving bitumen, IRS/IS specifications for suitability of bituminous materials in road construction			
	5.	**Paving Mix Design:** Granular mix design, Proportioning of aggregates for road construction by trial-and-error method			
	6.	Design of Bituminous Mix, Marshall method of bituminous mix design			
3rd	7.	Basic concept of use of polymers and rubber modified bitumen in bituminous mixes			
	8.	**Polymer and Rubber Modified binders:** Physical and chemical properties. Fly ash and its characterization			
	9.	Performance based mix design Approaches. Visco elastic properties of bitumen and bituminous mixture.			
4th	10.	**PavementDesignElements:**Definition,HighwayandAirportPavementcomparison			
	11.	**PavementDesignElements:**Definition,HighwayandAirportPavementcomparison			
	12.	Wheel Loads, Tyre Pressure, Contact Pressure, ESWL, Design			
5th	13.	Wheel Loads, Tyre Pressure ,Contact Pressure, ESWL ,Design			
	14.	Factors, Type of distresses: structural and functional, Serviceability			
	15.	Stresses in Flexible Pavements: Layered system concept,			
6th	16.	multilayered solutions, Burmister‟s method, Fundamental Design concepts			
	17.	Stresses in Rigid Pavements: Relative stiffness of slabs			
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7th		**----------Ist Minor Test----------**			
8th	19.	Modulus of sub grade reaction,			
	20.	Modulus of sub grade reaction,			
	21.	Stresses due to warping, stresses due to friction,			
9th	22.	effect of warping, contraction and expansion,			
	23.	plain versus reinforced pavements,			
	24.	Stresses in dowel bar, tie bar, combined stresses.			
10th	25.	**Pavement Design**: Design of Flexible Pavements			
	26.	Design factors, Design wheel load, Equivalent single wheel load,			
	27.	Difference between Airport and Highway Design concept			
11th	28.	Different design methods, Examples of comprehensive design process as per IRC.			
	29.	Design of Rigid Pavement: General design considerations			
	30.	Design of joints in cement concrete pavements			
12th	31.	Design of joints in cement concrete pavements			
	32.	spacing of expansion joint,			
	33.	spacing of expansion joint,			
13th	34.	Spacing of contraction joints,			
	35.	Spacing of contraction joints,			
	36.	Design of dowel bars and tie bars,			
14th		**----------2nd MinorTest----------**			
15th	37.	Design of dowel bars and tie bars,			
	38.	IRC recommendations and design steps for design of Concrete pavements.			
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