Lecture plan for Subject: Advance Design of steel Structure (M.Tech Structural Engg.)

Unit No.	Lecture No.	Contents	Contact Hours
I	1	**Plastic design of continuous beams :**Basic study of Plastic analysis	8
	2	Plastic design of continuous beams	
	3	Examples of Plastic design of continuous beams	
	4	**Plastic design of portal Frames:** concept of analysis of portal frame	
	5	Examples of Plastic design of portal Frames	
	6	**Plastic design of Gable Frames**: Basic concept and uses	
	7	Plastic design of gable Frames	
	8	Example of plastic design of gable Frames	
II	9	**Different types of steel and metallic alloys:** Types of steel	8
	10	Different types of metallic alloys	
	11	**Torsion of open and closed sections:** Introduction	
	12	Beam subjected to torsion and bending	
	13	Buckling and warping	
	14	B.M., S.F .and Pure Torsion Diagrams of beams	
	15	Torsion of open and closed sections	
	16	Stability of frames	
III	17	**Tubular sections**: Introduction of tubular section	8
	18	Advantages of tubular section, grade of steel tubes	
	19	Tubular tension, compression and flexural members	
	20	Types of Connections	
	21	Tubular trusses, Analysis of tubular section	
	22	Combined bending and axial stresses	
	23	Design of elements with tubular sections	
	24	Orthotropic decks	
IV	25	**Light gauge steel section:** Form of L.G.S.	8
	26	Shapes for decks and panels	
	27	Local buckling of thin elements,	
	28	Basic design stress IS: 801	
	29	Effective design width of stiffened compression element	
	30	Axially loaded compression member	
	31	Design of Structural elements with light gauge section	
	32	Moment resistance connections	
V	33	**Behavior of material under fatigue:** fatigue of steel structure	8
	34	Fatique resistant design, s-n curve	
	35	**Behavior of material under temperature effects including fire:** introduction	
	36	Steel structure subjected to fire	
	37	Fire load and fire rating	
	38	Method of protection	
	39	Corrosion effect	
	40	Applications of steel cables in large span roofs, non-linearity	
		Total	40

Sanjay Kumar Tak
Asst. Prof.(Civil Engg.)