Lesson Plan

Name of Faculty : V.N.JHA
Discipline : CERAMIC ENGINEERING
Semester : 5th
Subject : GLASS TECHNOLOGYII
Lesson Plan Duration : 15 WEEKS
Work Load (Lecture /Practical) per week in hours : Lecture : 3 Practical 0

	Theory	
Week	**Lecture Day**	**Topic (Including assignment/test)**
1	1	**UNIT 1** - Concept of glassy state, effect of composition on manufacturing of glass.
1	2	Controlling devitrification of glass. Importance of Solar Energy.
1	3	Composition, Manufacturing and applications of fibre glass, and glass wool.
2	4	Composition, Manufacturing and applications of solar glass and safety glass.
2	5	**Assignment of chapter 1**
2	6	**UNIT II** - *Strain and Annealing*: Development of thermal stresses, Temporary and Permanent strain,
3	7	Detection and measurement of strain.
3	8	Concept of annealing and its purpose, Process of annealing.
3	9	Concept of Tempering and its purpose, Process of tempering.
4	10	Concept of toughening of glass by various methods: Chemical and Mechanical Toughening.
4	11	*Colorization and Decolorization*: Theory of colorization and decolorization of glass
4	12	Coloring and decoloring agents of glass.
5	13	**ssignment of chapter 2**
5	14	**Sessional test 1 as per HSBTE academic calendar**
5	15	**UNIT III** - *Refractories used in Glass Furnaces*: Refractories used in various parts of glass tank furnace, Bridge wall, crown, side wall, checkers, chimney, super structure, dog house, throat, refining zone etc.
6	16	efractories used in recuperators and regenerators.
6	17	*roperties of Glass Viscosity*: Importance of viscosity during glass melting, Viscosity variation with temperature and composition,
6	18	characteristics points on viscosity curves,
7	19	elation between viscosity and crystallization, viscosity and plaining, viscosity and strain,
7	20	viscosity and working processes,
7	21	measurement of viscosity of glass.
8	22	Density of glass, Surface tension of glass, thermal expansion of glass.
8	23	**Assignment of chapter 3**
8	24	**UNIT IV** *Testing of Glass:* Testing of glass by visual inspection: blisters and seeds, in glass.
9	25	esting of glass by visual inspection: cords, straie, knots, stones in glass.
9	26	Detection and observation of strain in glass.
9	27	**essional test 2 as per HSBTE academic calendar**
10	28	Measurement of Thermal Shock Resistance.

10	29	Testing of Viscosity and Density
10	30	Testing of Strength and durability,
11	31	measurement of refractive index,
11	32	tests for resistance to chemical attack
11	33	*Glass Decorations:* Cutting, Etching,
12	34	*Glass Decorations:* Polishing, Grinding,
12	35	*Engraving*: Needle, Sand blasting. Glass mirrors.
12	36	**Assignment of chapter IV**
13	37	**UNIT V** *Special Glasses:* Characteristics and Applications Borosilicate Glass and Pyrex Glass
13	38	Characteristics and Applications Heat Resisting Glass and Coloured Glass
13	39	Characteristics and Applications Ruby Glass , Laminated Glass and Heat absorbing glasses
14	40	*Pollution control in glass industry*: *Sources of pollutions*: water - its controlling measure, precautions required during manufacturing and processing of glass.
14	41	*Sources of pollutions*: noise - its controlling measure, precautions required during manufacturing and processing of glass.
14	42	*Sources of pollutions*: air pollution its controlling measure, precautions required during manufacturing and processing of glass.
15	43	**Assignment of chapter V**
15	44	**3rd sessional Test as per hsbte academic calendar**
15	45	**Revision & question answer session**