Lesson Plan

Name of Faculty : Satender Vashishtha Discipline : Ceramic Engg. Semester : 4th

Subject : **CERAMIC PROCESSING TECHNOLOGY (Programme Elective)**

Lesson Plan Duration :

Work Load (Lecture /Practical) per week in hours: Lecture : 3 Practical NIL

Week	**Theory**		**Practical**	
	Lecture Day	**Topic (Including assignment/test)**	**Practical Day**	**Topic**
1	1	Ceramic fabrication process, classification of ceramics fabrication methods.		
	2	(i) Pressing (a)DryPressing (b) Iso-static Pressing		
	3	ii) Plastic shaping (a) Extrusion (b) Jiggering & Jollying (c) Injection Moulding.		
2	4	(ii) SlipCasting (a) Hollow Casting (b) Solid Casting (C) Tape Casting.		
	5	Effects of processing on properties Introduction, Selection of Materials (Physical properties of phases, chemical properties of phases, Microstructure).		
	6	Effects of temperature on properties Strength, Fracture, Toughness, GrainSize.		
3	7	Effect of pressure on properties : Green density , Compaction, Shrinkage, FiredDensity		
	8	Effect of microstructure on properties Strength, Elastic Modulus, Hardness.		
	9	Revision of Unit - 1		
4	10	Assignment of Unit – 1		
	11	Processing additives De-flocculants (Particle Charging in liquid suspension, Double Layer formation) Coagulation and flocculation.		
	12	Binders Types of Binders : Clay Binders, Molecular Binders, Vinyl Binders, Cellulose Binders, Polyethylene Glycol Binders, Waxes		
5	13	Sessional - 1		
	14	Sessional - 1		
	15	Sessional - 1		
6	16	Revision of Unit – 2 and Assignment of Unit – 2		
	17	Plasticizer, Foaming and antifoaming agents, Lubricants, Preservatives		
7	18	Modeling and mould making Plaster of paris, Types of POP		
	19	Mixing of plaster, Model making , Mould making process		
	20	Production Controls in tile industry : Controls of raw material or bodies		

8	21	Post pressing expansion, Pressed tile bending strength (MOR), Drying shrinkage,		
	22	Dried tile Bending Strength, Loss on ignition, firing shrinkage, water absorption		
	23	Body Preparation Department Controls		
9	24	Spray Dried powder controls Moister content, Bulk density,		
	25	Revision of Unit – 3 and Assignment of Unit – 3		
	26	Production Controls in tile industry (II) Dried ware controls Moisture content at inlet, Average weight of dry ware, Moisture content of outlet		
	27	Biscuit ware controls Average weight, Water absorption, Bending Strength (MOR), Firing shrinkage,		
10	28	Sessional -II		
	29	Sessional -II		
	30	Sessional -II		
11	31	Biscuit thermal expansion coefficient		
	32	Controls in glazing departments Glaze Density, Glaze Viscosity, Glaze Applied weights		
	33	Finished products controls Average weights, water absorption, Size variation,		
12	34	Bending strength, Crazing resistance, Resistance to acids, Abrasion resistance		
	35	Revision of Unit –4		
	36	Assignment of Unit – 4		
13	37	Environmental impact of ceramic industry Introduction		
	38	Pollutants in raw materials for bodies, Pollutants in glazes,		
	39	Pollutants in gaseous emission, Atmospheric pollutions , Bag filters		
14	40	Safety in Ceramic industry		
	41	Ceramic laboratory Hazards,		
	42	Ways to avoid accidents Safety check list.		
15	43	Sessional Test 3		
	44	Revision of Unit – 5		
	45	Assignment of Unit – 5		