Lesson Plan

Name of Faculty : VIVEKA NAND JHA / NIRAJ KUMAR SINGH

Discipline : CERAMIC ENGINEERING

Semester : FOURTH

Subject : SLIP TESTING LAB

Course Duration : 15 WEEKS

Work Load per week: Lecture – NIL Practical – 4 Hrs

Week	Lecture No	Topic	Practical No	Topic
1			1	Prepare the good casting slip for the given raw material
1			2	Prepare the good casting slip for the given raw material
1				
2			1	Prepare the good casting slip for the given raw material
2			2	Prepare the good casting slip for the given raw material
2				
3			1	Prepare the good casting slip for the given raw material
3			2	Prepare the good casting slip for the given raw material
3				
4			1	Prepare the good casting slip for the given raw material
4			2	Prepare the good casting slip for the given raw material
4				

5			1	Find the effect on casting body by adding sodium carbonate.
5			2	Find the effect on casting body by adding sodium carbonate.
5				
6			1	Find the effect on casting body by adding sodium silicate
6			2	Find the effect on casting body by adding sodium silicate
6				
7			1	Find the effect in casting body by adding sodium carbonate solution
7			2	Find the effect in casting body by adding sodium carbonate solution
7				
8			1	Find the effect in casting body by adding sodium silicate solution
8			2	Find the effect in casting body by adding sodium silicate solution
8				
9			1	Find out the dry content of the given slip or liquid using the brongniart formula and also verify the weight of the slip
9			2	Find out the dry content of the given slip or liquid using the brongniart formula and also verify the weight of the slip
9				
10			1	Determination of density of casting slip
10			2	Determination of density of casting slip
10				

11			1	Determination of dry content of slip by drying
11			2	Determination of dry content of slip by drying
11				
12			1	Determination of residue of given slip.
12			2	Determination of residue of given slip.
12				
13			1	Determination of Specific gravity of suitable solution/slip.
13			2	Determination of Specific gravity of suitable solution/slip.
13				
14			1	Determination of rate of casting.
14			2	Determination of rate of casting.
14				
15			1	Control of density and viscosity of slip.
15			2	Control of density and viscosity of slip.
15				

6	18	(a)Pessing (pressure fabrication) (i) Dry pressing (ii) Semidry Pressing (iii) Hot pressing, (iv) isostatic pressing	2	Flow and rolling limit of clay bodies
7	19	(b)Plastic forming: Jiggering and Jollying, extrusion, Hand Moulding, injection moulding. Throwing.		Identify different formimg methods .
7	20	(c) Slip Casting: Detailed study of slip casting , Theoretical concept about slip casting , zeta potential, double layer formation,		Identify different formimg methods .
7	21	Role of electrolytes, deflowcculants. Different types of casting –(i) Ordinary of Natch casting (ii) Bench casting (iii) Battery casting	1	
8	22	(iv) Capillary casting . (d) Finishing operation; sponging, Smoothing	2	Preparation of different bodies and their glazes .
8	23	Jointing or stickup. Mould Materials: -Mould materials and their properties		Preparation of different bodies and their glazes
8	24	(Different Types of dies and mould),		
9	25	Process of mould making using POP.	1	Fabrication of test specimen by different process by casting and jiggering .
9	26	Process of Removal of water,		Fabrication of test specimen by different process by casting and jiggering .
9	27	Importance of drying Factors affecting drying rate time, Drying shrinkage		
10	28	Methods of drying, Stages of drying, Critical moisture content		**Study of defects in drying process in dry oven.**
Week	**Theory**		**Practical**	
	Lecture Day	**Topic (Including assignment/test)**	**Practical Day**	**Topic**
10	**29**	Types of dries-batch & continuous,		**Study of defects in drying process in dry oven.**
10	**30**	Hot floor(through steams pipes Chamber driers & tunnel driers etc. Defects in drying)		
11	**31**	Glaze prepration Storing and application of glaze		**Determination of linear drying shrinkage (LDS) of clay body .**
11	**32**	Sessional test-2		**Determination of linear drying shrinkage (LDS) of**

				clay body .
11	**33**	Precautions and methods of setting wares in kilns.		
12	**34**	Firing: Definition, stages of firing and firing schedules,		**Biscuit and glost firing of test pieces .**
12	**35**	Different types of firing;Biscuit firing, Glost firing,Decoration firing,		**Biscuit and glost firing of test pieces .**
12	**36**	Different types of kilns- Batch and Continuous.		Study of heating & colling schedule .
13	**37**	Kiln Furniture,Placing of wares in kiln.		Study of heating & colling schedule .
13	**38**	Defects in whiteware bodies and glazes :- Crawing, pinholes, peeling, crazing, spit-out dunting, blistering, sulphering		Determination of firing shrinkage of clay body.
13	**39**	Rolling, chipping and their records		Determination of firing shrinkage of clay body.
14	**40**	Removal of water, Factors affecting drying, Hot flow, Steams pipes		Determination of water absorption of fired Ceramic products.
14	**41**	Hot flow, Steams pipes, Chamber driers & tunnel driers, Defects in drying		Determination of water absorption of fired Ceramic products.
14	**42**	Revision of unit 5, Effect of heat on clay, qutarz, Effect of heat on Feldspar, Barium carbonate.		MOR (strength) of fired characteristics of test specimens.
15	**43**	Effect of heat on Talc, Bentonite, Effect of heat on ceramic bodies Firing of bone-china bodies,		MOR (strength) of fired characteristics of test specimens.
15	**44**	Different types of firing kilns, Shuttle kiln, Down draft kiln , Continuous kiln		Examine the crazing of the given sample by using Autoclave machine.
15	**45**	Revision		Examine the crazing of the given sample by using Autoclave machine.