

GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT

COURSE CURRICULUM

**Course Title: Fundamental of White ware
(Code: 3335202)**

Diploma Programme in which this course is offered	Semester in which offered
Diploma Ceramic Technology	3rd semester

1. RATIONALE

Diploma ceramic students should Obtain Basic knowledge of White Ware and their Preparation process. It is essential foundation for next curriculum of White Ware and Advance White Ware.

2. COMPETENCY

Plan the detailed process for production of Pottery for given application.

3. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE	PA	ESE	PA	200
3	0	4	7	70	30	40	60	

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit; ESE - End Semester Examination; PA - Progressive Assessment

4. COURSE DETAILS

Unit	Major Learning Outcomes	Topics and Sub-topics
Unit – 1 Historical development of pottery industry in india	1a. Explain scope of Whiteware industries in india	1.1Historical development of Whiteware industry in India. 1.2Present status of white ware industry in India.
Unit – 2 Classification of white wares	2a Identify Different White ware Products.	2.1Brief details of tiles, crockery, sanitary wares art wares, pressed electrical porcelain and chemical porcelain. 2.2Classification of Whiteware products

Unit	Major Learning Outcomes	Topics and Sub-topics
Unit – 3 Raw materials	3a. Identify different Raw Materials of Whiteware.	3.1 Clays :- China clay, ball clay and fire clay 3.2 Stony materials :- feldspar, quartz, sandstone, limestone 3.3 Other materials :- Nepheline syenites, talc, wollastonite, opacifiers, calcium carbonate, barium carbonate, borax, lead oxide and Other coloring oxide.
Unit – 4 Processing of raw materials	5a Prepare Raw materials for Shaping of article.	5.1 Methods of grinding and crushing of raw materials. 5.2 Study in details construction, functions and their use of various machines such as jaw crusher, roller crusher, Jigger & Jolley, Potters wheel, disintegrators and pulverizes etc. 5.3 Theory of Grinding in Ball Mill 5.4 Detail study of blungers, agitators, magnetic separators, vibrating sieves, diaphragm pumps, filter press and pug mill.
Unit – 5 Forming and Finishing	7a Enable to shape articles 7b Perform Finishing process of Articles.	7.1 Forming methods such as Throwing, jiggering & Jolleying, extrusion, casting etc. 7.2 Casting process with the use of “plaster of Paris” Mould. 7.3 Methods of finishing the wares such as trimming, Sizing and Sponging process etc 7.4 Turning of green articles.
Unit – 6 drying , Glazing and Firing	8a 1. Brief knowledge of Drying and Firing 2. Prepare of glaze and its Application	8.1 Method of drying of green articles. 8.2 Use of natural dryer and artificial dryer for drying various types ceramic articles. 8.3 Method of Preparation, screening and storing of glaze. 8.4 Method of glaze application 8.5 Different Stages of firing 8.6 Types of kilns & furnaces

5. SUGGESTED SPECIFICATION TABLE WITH HOURS & MARKS (THEORY)

Unit	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
1.	Historical development of pottery industry in india.	3	3	3	0	6
2.	Classification of white wares	5	2	3	5	10
3.	Raw materials	8	4	5	5	14
4.	Processing of raw materials	5	4	6	6	16
5.	Forming and Finishing	6	3	5	5	13
6.	drying , Glazing and Firing	4	3	4	4	11
Total		42				70

6. SUGGESTED LIST OF EXERCISES/PRACTICAL

The practical/exercises should be properly designed and implemented with an attempt to develop different types of skills so that students are able to acquire the competency.

Following is the list of experiments for guidance.

S. No.	Unit No.	Practical/Exercise	Apprx. Hrs. Required
1	4	Preparation of plaster of Paris moulds for cup & saucers.	4
2	5	Identify various forming methods for ceramic wares.	8
3	5	Preparation of earthenware by casting method.	4
4	5	Preparation of stoneware body by casting process.	4
5	5	Preparation of porcelain ware body by casting process	4
6	5	Preparation of earthenware glaze.	4
7	5	Preparation of stoneware glaze.	4
8	5	Preparation of porcelain ware glaze	4
	ALL	Industrial visit of pottery industry. 1. Prepare flow chart of Product preparation 2. Identify different suitable raw materials for Product. 3. Explain process used for Body and glaze making.. 4. Explain shaping process for articles. 5. Explain Drying and Firing process for articles. 6. Explain process for glaze application..	

7. SUGGESTED LIST OF STUDENT ACTIVITIES

1. Collection of different raw materials used in glass industry.
2. List out different White ware products used in Home.
3. Identify different shaping process for different products.
4. Visit different Whiteware maker's website.

8. SUGGESTED LEARNING RESOURCES

(A) List of Books:

S. No.	Title of Books	Author	Publication
1	A Hand Book of Modern Pottery Manufacture	H.N.Bose	Ceramic Publishing House, Bhagalpur
2	Element of Ceramic	F.H.Norton	Addison-Wesley Pub. Co.

3	Ceramic White Wares	Sudhir Sen	Oxford & IBH Publishing Co., New Delhi
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B. List of Major Equipment/Materials

1. Ceramic Soft Materials and Hard Materials
2. Lab type Jaw Crusher, Edge Runner Mill ,Disintegrators, Pulveriser.
3. Lab type Blunger,Pot mill, Megnetic separator,Vibrating sieves,Filter press,Pug mill
4. Lab type Hand Press,Hydraulic Press,Jigger and Jolley
5. Lab type Hot air Oven ,Electric Muffle Kiln

C List of Software/Learning Websites

1. <http://www.toolingu.com/definition-500250-15942-whiteware.html>
2. <http://www.cheminfonet.org/art/ceramics101.pdf>
3. http://en.wikipedia.org/wiki/Ceramic_engineering

9. COURSE CURRICULUM DEVELOPMENT COMMITTEE**Faculty Members from Polytechnics**

1. Shri B.B.Patel (Lecturer L.E.College, Morbi)
2. Shri H.B.Dedania (Retired Lecturer L.E.College, Morbi)
3. Shri S.Prasaad (Retired Lecturer L.E.College, Morbi)