

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma in Ceramic Technology

Semester: 3

Subject Code

Subject Name POTTERY – I

Sr. No.	Course content
1.	HISTORICAL DEVELOPMENT OF POTTERY INDUSTRY IN INDIA : 1.1 Historical development of pottery industry in India. 1.2 Present status of white ware industry in India.
2.	CLASSIFICATION OF WHITE WARES : 2.1 Brief details of tiles, crockery, sanitary wares art wares, pressed electrical porcelain and chemical porcelain 2.2 Classification of pottery products
3.	RAW MATERIALS : 3.1 Clays :- China clay, ball clay and fire clay 3.2 Stony materials :- feldspar, quartz, sandstone, limestone 3.3 Other materials :- Naphthalene crenate, talc, wollastonite, magnetite, opacifiers, calcium carbonate, barium carbonate, borax, lead oxide and other coloring oxide.
4.	BATCH FORMULATIONS AND CALCULATION : 4.1 Details regarding batch formulations different types of narrating batch composition of ceramic bodies and glazes. 4.2 Brief details regarding nuclear formula of various ceramic raw materials, oxide supplied to the ceramic bodies, glazes and colors. 4.3 Methods of various calculations of ceramic bodies and glazes i.e. batch recipe, chemical composition and molecular formula and vise-versa.
5.	PROCESSING OF RAW MATERIALS : 5.1 Introduction. 5.2 Methods of grinding and crushing of raw materials. 5.3 Use of various machines such as raw crusher, roller crusher, edge runners, disintegrators, pulverizes. Study in details of their construction, functions. 5.4 Ball mill grinding and its theory, slip making, detail study of blungers, agitators, magnetic separators, vibrating sieves, diaphragm pumps, filter press and pug mills of both types ordinary and de-airing.
6.	BODY MAKING : 6.1 Slip house, use of equipments such as filter press, pump, pug mill etc. brief description with regards to their function.

7.	FORMING : 7.1 Forming methods, Throwing, jiggering, extrusion, casting, detailed working of forming machine such as potter's wheel, jigger and jolley's of various types, extrusion machines and process. Casting process with the use of "plaster of Paris".
8.	FINISHING & DRYING : 8.1 Methods of finishing the wares, trimming process, Sponging process. 8.2 Turning of green articles. 8.3 Method of drying of green articles. 8.4 Use of natural dryer and artificial dryer for drying various types ceramic articles. 8.5 Factors considerations during drying process.
9.	GLAZES : 9.1 Preparation of glaze and Use of various materials for glaze making. 9.2 Glaze calculation and formulations glaze preparation. 9.3 Method of screening and storing of glaze. 9.4 Control of glaze properties. 9.5 Method of glaze application.
10.	FIRING : 10.1 Stages of firing and Precautions during firing process. 10.2 Types of kilns & furnaces. 10.3 Uses of waste heat. 10.4 Pollution control. 10.5 Industrial visit to the ceramic industries.
11.	SORTING OF VARIOUS DEFECTS : 11.1 Detection of various defects. 11.2 Reasons and remedies of defects. 11.3 Method of packing of finished.

LABORATORY EXPERIMENTS:

1. Preparation of plaster of Paris moulds for cup & saucers.
 2. To study of various methods of forming ceramic wares.
 3. Preparation of earthenware body and shaping of articles by casting method.
 4. Preparation of stoneware body and shaping of articles by casting process.
 5. Preparation of porcelain ware body and shaping of articles by casting process.
 6. Preparation of earthenware glaze.
 7. Preparation of stoneware glaze.
 8. Preparation of porcelain ware glaze.
- * Industrial visit of pottery industry.

Reference Books:

1. A hand book of modern pottery manufacture. H.N.Bose
2. Element of ceramics F.H.Norton
3. Ceramic glazes Kenneth shaw
4. Ceramic whitewares Sudhir sen
5. Ceramic whitewares Rexford new cemix
6. Ceramic calculation A.I.Audrews.
7. Fine ceramics F.H.Norton