

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN CERAMIC TECHNOLOGY

SEMESTER: V

Subject Name: Advance White Wares

Sr. No.	Course Content
1.	Introduction: 1.1 General introduction about the Advance whitewares 1.2 Scope of Advance whitewares
2.	Raw Materials: 2.1 Plastic materials such as kaolin, ball clay and bentonite, 2.2 Chemical compositions of plastic raw materials, Physical properties and their behavior at high temperature 2.3 Non plastic materials such as flint, felspar, nephelin synte, talc, pyrophyte, spodumene, lime, beryl, zircon, bone ash, sillimanite etc. 2.4 Chemical composition of non-plastic raw materials, physical properties and their behavior at high temperature,
3.	Texture Effect: 3.1 Introduction 3.2 Texture effect in whitewares 3.3 Function of quartz in whitewares 3.4 Dewatering of porcelain slip 3.5 Practical control of slip properties 3.6 Effect of processing methods on the physical properties of ceramic whitewares
4.	Special Ceramic Whitewares: 4.1 Introduction 4.2 Specialization in the technology of Bonechinawares, porcelain wares, chemical wares, sanitary wares, electrical wares and ceramic fibres 4.3 Manufacture process of special ceramic whitewares 4.4 Increase in strength of porcelain insulators 4.5 Factors affecting breakdown of electric insulators 4.6 Low alkali porcelain as a resistor carrier
5.	Grain Growth Sintering and Vitrification: 5.1 Introduction 5.2 Method of grain growth

	5.3 Method of sintering 5.4 Details about vitrification in ceramic whitewares 5.5 Factors affecting the vitrification
6.	Ceramic Colour and Decoration: 6.1 Introduction 6.2 Raw materials used for manufacture of ceramic colours 6.3 Properties and function of raw materials used in manufacture of ceramic colours 6.4 Method of manufacture of ceramic colours 6.5 Factors affecting the properties of ceramic colours 6.6 Methods of decorating ceramic whitewares 6.7 Various modern processes of decoration with particqlar emphasis to glazed wall tiles decoration. 6.8 Preparation of ceramic colours for decoration on ceramic articles 6.9 Factors affecting decoration
7.	Kilns: 7.1 Introduction. 7.2 Details of various types of kilns with various parts and their relationship in dimension 7.3 Coal fired, oil fired and gas fired kilns 7.4 Intermittent and continuous kilns 7.5 Comparison of intermittent and continuous kilns. 7.6 Waste heat utilization 7.7 Control of temperature inside kilns, manual, control automatic control 7.8 Factors consideration for safety & pollution control during manufacture

Laboratory Experiments:

1. To determine water of plasticity of various clays.
2. To determine the electrolyte and their behavior on clays.
3. To prepare porcelain ware body.
4. Laboratory preparation of plaster of Paris.
5. To prepare different types of ceramic stains.
6. To prepare of colored glaze and its application.
7. To study the method of decorating ceramic wares.
8. To study various defects in ceramic products and their remedies.

Reference Books:

- | | | |
|-----|--|--------------------|
| 1. | Ceramic whitewares | Rexford New course |
| 2. | Fine ceramics | F.H.Norton |
| 3. | Industrial Ceramics | Singert Singer |
| 4. | Ceramic Whitewares | Sudhir Sen |
| 5. | A hand book of modern
pottery manufacture | H.N.Bose |
| 6. | Tests and Calculation | A.I.Andrew |
| 7. | Ceramic glazes | Keneath Shaw |
| 8. | Ceramic glaze | W.Parmlee |
| 9. | Drying | R.W.Ford |
| 10. | The effect of heat on ceramics | R.W.Ford |