

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma in Ceramic Technology

Semester: 3

Subject Code

Subject Name DRYING AND FIRING

Sr. No.	Course content
1.	THEORY OF DRYING : 1.1 Introduction. 1.2 Study of factors governing drying. 1.3 Details of various stages of drying. 1.4 Information regarding drying system. 1.5 Drying shrinkage. 1.6 Drying efficiency. 1.7 Rate of drying. 1.8 Process of drying such as evaporation, aeration, heating ventilations and absorption.
2.	CLASSIFICATION OF DRYERS : 2.1 Introduction. 2.2 Intermittent dryers. 2.3 Semi continuous dryers. 2.4 Construction and functions of tunnel dryers. 2.5 Construction and functions of mangle dryers, rotary dryers and spray dryers. 2.6 Detail study regarding infrared drying and high frequency drying. 2.7 Detail study various defects arising during drying and their rectification.
3.	EFFECT OF HEAT ON CERAMIC WARES : 3.1 Effect of heat on physical properties of ceramic wares drying. 3.2 Effect heat on properties of ceramics ware during drying. 3.3 Effect of heat on properties of ceramic bodies. 3.4 Effect of heat on properties of ceramic glazes during firing.
4.	GENERAL REMARKS ON FIRING : 4.1 General remarks on modification in the constitution of bodies. 4.2 Details study regarding part played by different materials used for constitution of bodies with regards to their fusibility. 4.3 Modification remarks in the volume and density. 4.4 General remarks in modification in coloring. 4.5 General remarks in size control due to variation in shrinkage.
5.	STAGES OF FIRING : 5.1 Detail study regarding various stages of firing. 5.2 Detail study regarding thermo-chemical reactions in bodies and glaze during firing. 5.3 Defectors occurs in bodies and glazes after firing.

6.	KILNS & FURNACES : 6.1 Introduction. 6.2 General remarks on kilns. 6.3 Study regarding various aspects of kilns, such as fire places, draughts, chimney, ducts, flues, dome and holes. 6.4 Kilns their classification detailed description of various kilns, modern operation of various types of kiln such as up draught kiln, down draught kiln, continuous kiln, intermit tent kiln, and chamber kilns with their construction and functions.
7.	SETTING OF CERAMIC WARES : 7.1 Introduction. 7.2 Various methods of setting of wares. 7.3 Setting of crockery's wares. 7.4 Setting of refractory wares. 7.5 Precautions required during setting of wares. 7.6 Detail study of setters and saggars used in biscuit & glost firing of commercial wares. 7.7 Study regarding loading and unloading of wares.
8.	BURNERS : 8.1 Know the fuel efficient burners used in ceramic industries. 8.2 Selection of burners and their operation. 8.3 Method of controlling temperature by adjustment of burners. 8.4 Handling of fuels.

Reference Books:

1. A hand book of modern pottery manufacture H.N.Bose
2. Ceramic white wares Rexford, New Cambe
3. Industrial ceramics Singer & Singer
4. Treatise on clay
5. Elements of ceramics F.H.Norton
6. Refractory F.H.Norton