GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Semester : IV

Chemical Technology

Subject Code: 143603
Subject Name: Introduction to Glass & Ceramic Technology - II(Department Elective – II)

(Institute Subject Code: GC - 02 : Glass & Ceramic Technology)

Sr. No.	Course contents
01.	Natural raw materials: Structure & properties of silicates, different clays, mica, talc, sillimanite. Properties of non – plastic materials, Polymorphic forms of SiO_2 & their transformation. Properties, composition, thermal effects, uses of natural materials such as pyrophillite, talc, sillimanite minerals, zircon etc.
02.	Plastic raw materials: Classification of clay, composition, particle size & shape of clays, flocculation & deflocculation, plasticity etc. Major deposits of clays for ceramic industry.
03.	Refractory materials: Properties & deposits of materials such as Bauxite, Magnesite, Dolomite, Limestone, Graphite etc.
04.	Fluxing agents: Composition, availability & properties of different fluxing agents such as Nepheline, Syenite, Bone ash, Wollastonite etc.
05.	Synthetic raw materials: Properties , characteristics, importance & synthesis of important raw materials such as Al_2O_3, TiO_2, Barium titanate, Sodium aluminum silicate, ZrO_2, Fumed silica etc.
06.	Importance of particle shape, size, porosity, density & other physical properties.

Reference Books:

1) Elements of Ceramics ,Norton F.H, Longman Higher Education, 2nd Ed, 2001
2) Introduction to Ceramics, Barsoum, Institute Of Physics Publishing (gb) 2002
3) Introduction to Ceramics ,Kingery W.D,. Wiley New York :, 2nd Ed, 1976
4) Material Science ,Smith, Mcgraw Hill Higher Education, 4th Ed,2005
5) Industrial Ceramics ,Singer & Singer, , Oxford & Ibh (From Technip), 1st Ed.,2008
6) Textbook of Physical Geology ,Mukherjee, , CBS Publishers & Distributors-New Delhi 1st Ed.,2011
7) Textbook of Mineralogy, Tyrrel,W, , CBS Publishers & Distributors, 4th Ed.,2006
8) Textbook of Geology, J B Mahapatra, CBS Publishers & Distributors, 2nd Ed. ,2008