

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Nano Science & Nano Technology)
Semester: III
Syllabus with Effect from: June - 2013

Paper Code: PS03CNST01	Total Credit: 4
Title Of Paper: Glass Ceramics and Nanostructured Materials	

Unit	Description in detail	Weightage (%)
I	Polycrystalline ceramics, various types of ceramics, phase diagrams, raw materials, fabrications science of ceramics, principles of main fabrication techniques, drying, firing, sintering, reaction sintering, control of nanostructures in Ceramics. Crystalline structures, properties of fabricated bodies density, porosity, permeability, strength, thermal properties thermal shock theory.	25%
II	Nature of glass, structure, glass forming systems, silicate systems, non-silicate systems, manufacture of glass, raw materials, forming operations, toughening of glass ceramics.	25%
III	Phase diagram, types of refractories, fireclay, mullite, silica, refractories, magnesite refractories, carbide & nitride refractories, pure oxide refractories, chrome & magnesite refractories, cement types processing & properties.	25%
IV	Carbon nanostructures, Fullerene, carbon clusters, carbon nanotubes – development, structures, properties Porous structure, ordered mesoporous, Random mesoporous structure, crystalline microporous materials.	25%

Basic Text & Reference Books:-

- Science of Engineering Materials – Manas Chanda
- Ceramic Science for Materials Technologists – I. J. McColm.
- An Introduction to carbon science – Herry Marsh
- Industrial Ceramic – F. Singer, S. Singer.

