

4th Sem

## Ceramic science (lesson plan)

Sl no.	topics	Number of classes required
1.	Discuss Atomic Structure in details	One period
2.	Discuss the importance of the periodic table	One period
3.	Explain electronic configuration of atoms	One period
4.	Define Chemical Bonding	One period
5.	State and explain different types of bonds like Ionic, covalent, metallic, vander walls and Hydrogen bond	Two period
6.	Bond energy and Bond strength	One period
7.	State and explain different physical properties based on chemical bond	One period
8.	Define Crystal system	One period
9.	Explain different types of crystal system	One period
10.	Define Crystal Defects	One period
11.	State different types of crystal defects	One period
12.	Draw the following structure of : i. NaCl ii. CsCl iii. Spinel iv. Clay. v. Silicate structure	Three period
13.	Define solid solution.	One period
14.	Explain Different types of solid solution.	One period
15.	Diffusion	One period
16.	Fick's law of Diffusion	One period
17.	Phase Transformation	One period
18.	Define Nucleation and crystal growth	One period
19.	State the role of nucleation and grain growth in phase transformation.	One period
20.	Method of Sintering	One period
21.	Factors affecting sintering & vitrification.	One period



22.	State the effect of temperature on Silica, Zircon, Magnesite and clay	Four period
23.	Describe the different changes during firing of Silica, Zirconia, kaolin, dolomite, chromite & Graphite etc.	five period
24.	Pyro chemical changes in triaxial bodies.	One period
25.	Behavior	One period
26.	Types	One period
27.	Mechanism	One period
28.	Ceramic Products showing properties of conductor, semi-conductor, insulator and super conductor	Two period
29.	State and explain following properties of ceramic material in brief Mechanical	One period
30.	.. Electrical .	One period
31.	Chemical	One period
32.	. Optical	One period
33.	. Thermal	One period
34.	.. Nuclear	One period
35.	. Magnetic	One period
36.	How Ceramic is different from polymer and metals.	One period
37.	Define Micro Structure & its characteristics	One period
38.	Various technique of studying microstructure	One period
39.	Describe different types of Micro scopes like . Mineralogical Micro scope	One period
40.	Electron Microscope	One period
41.	Describe the process to prepare a specimen to study microstructure of typical ceramic materials and products .	One period
42.	Micro Structure of various ceramic white wares and refractories products	One period
43.	Development of microstructure in relation to sintering and control of microstructure.	One period

Total 54 periods will be taken as class one period for internal 5 periods for revision of class