UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA

LESSON PLAN

SESSION: 2023-2024

DEPARTMENT OF CERAMIC TECHNOLOGY

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SUBJECT CODE: TH-2

NAME OF THE SUBJECT: CHEMISTRY OF CERAMIC MATERIAL

BRANCH: CERAMIC TECHNOLOGY

SEMESTER: DIPLOMA 3RD SEM

NUMBER OF CLASS ALLOTED PER WEEK: 4(01-08-23 to 30-11-23)

TOTAL PERIODS ALLOTED TO THE SUBJECT ACCORDING TO STEVT:60

NAME OF THE FACULTY: KRUSHNA PRASAD DASH

Week/Date	Lecture	Topic to be covered	Remarks
1st week	1st	Chapter-1:Thermodynamics and Thermo Chemistry 1.1: Define different terms of thermodynamic system.	
	2nd	1.2: State ideal gas law.	
	3rd	1.3: Explain Extensive and intensive properties.	
2nd week	1st	1.4: Define and explain Homogeneous and heterogeneous system.	
	2nd	1.5: State and explain first law of thermo dynamics.	
	3rd	1.6: Explain similarities between heat and work.	
	4th	1.7: Define internal energy.	

3rd week	1st	1.8: Define heat capacity and specific heat.	
	2nd	1.9: Define adiabatic Isothermal process.	
4th week	1st	1.10:Define heat of formation 1.11:define heat of reaction	
	2nd	1.12:Limitation in the 1st law of thermodynamics	
5th week	1st	1.13:explain the postulates of 2nd law of thermodynamics	
	2nd	1.14:Explain carnot cycle.	
	3rd	1.15:Explain absolute scale of temperature.	
	4th	1.16:State and explain free energy.	
6th week	1st	1.17:Define entropy and chemical potential.	
	2nd	1.18:State the importance of thermodynamics in ceramics in ceramic industry.	
	3rd	1.19:State and explain 3rd law of thermo dynamics.	
	4th	**CH. 2-PHASE RULE AND PHASE DIAGRAM** 2.1:Define phases, components, degree of freedom.	
7th week	1st	2.2:Phase diagram of pure substance Eutectic system, leaver rule.	
	2nd	2.3:Phase rule, one component, two component and three component system.	
8th week		2.4:Explain importance of phase diagram and its application.	
		2.5:SiO2, Al2O3-SiO2, CaO-MgO and MgO-Al2O3 system.	
		Ch. 3- COLLOID 3.1:Define and classify colloids.	
9th week	1ST	3.2:State & Explain different method of preparation of colloids.	

	2ND	3.3:Application of colloids in ceramic making and in other areas.	
	3RD	3.4:Base exchange capacity, flocculation, deflocculation & clay water system.	
10th week	1st	**Ch.4-THERMAL ANALYSIS AND SPECTROSCOPY**. 4.1:Introduction to thermo – gravimetric analysis.	
	2nd	4.2:Basic idea on thermal method of analysis.	
	3rd	4.3: State and Explain spectrophotometry concept in spectroscopy.	
11th week	1ST	4.4: Define spectroscopy and describe various types of spectrophotometers.	
	2nd	4.6: Visible spectrophotometry and colorimetric.	
12th week	1ST	4.7: Discuss different application of spectrophotometric.	
	2ND	4.8: Description of atomic absorption spectrophotometers.	
	3RD	4.9: Introduction DTA, TGA, XRD, & XRF.	