

## SUBJECT- APPLIED CHEMISTRY

Discipline : Metallurgical Engg.		Semester: 2nd Sem	Name of the Teaching Faculty :Kuni Majhi	
Subject : TH.2b		No. of Days / per week class allotted	Semester From date : 04.02.2025 To Date : 17.05.2025	
Month	Week	Day	Topics	
FEBRUARY	2nd	1st	Graphical presentation of water distribution on Earth (pie or bar diagram). Classification of soft and hard water based on soap test	
		3rd	salts causing water hardness, unit of hardness and simple numerical on water hardness	
	3rd	1st	Cause of poor lathering of soap in hard water, problems caused by the use of hard water in boiler (scale and sludge, foaming and priming, corrosion etc)	
		3rd	quantitative measurement of water hardness by ETDA method, total dissolved solids (TDS) alkalinity estimation.	
	4th	1st	quantitative measurement of water hardness by ETDA method, total dissolved solids (TDS) alkalinity estimation.	
		3rd	Water softening techniques – soda lime process	
5th	1st	Water softening techniques – zeolite process		
MARCH	2nd	1st	Water softening techniques – ion exchange process	
	3rd	1st	Municipal water treatment (in brief only) – sedimentation	
		3rd	Municipal water treatment (in brief only) – coagulation	
	4th	1st	Municipal water treatment (in brief only) – filtration, sterilization	
		3rd	Water for human consumption for drinking and cooking purposes from any water sources and enlist Indian standard specification of drinking water (collect data and understand standards).	
	5th	1st	Water for human consumption for drinking and cooking purposes from any water sources and enlist Indian standard specification of drinking water (collect data and understand standards).	
3rd		REVISION		
APRIL	1st	3rd	SURPRISE TEST	
	2nd	1st	Polymers – monomer, homo and co polymers, degree of polymerization, simple reactions involved in preparation and their application	
		3rd	Thermoplastics and thermosetting plastics (using PVC, PS, PTFE)	
	3rd	3rd	Thermoplastics and thermosetting plastics (nylon – 6, nylon-6,6 and Bakelite)	
	4th	1st	Rubber and vulcanization of rubber.	
3rd		Unit 4: Chemistry of Fuels and Lubricants Definition of fuel and combustion of fuel, classification of fuels, calorific values (HCV and LCV), calculation of HCV and LCV using Dulong's formula.		

	<b>5th</b>	<b>1st</b>	Proximate analysis of coal solid fuel petrol and diesel - fuel rating (octane and cetane numbers), Chemical composition, calorific values and applications of LPG, CNG, water gas, coal gas, producer gas and biogas.
		<b>3rd</b>	Lubrication – function and characteristic properties of good lubricant, classification with examples, lubrication mechanism – hydrodynamic and boundary lubrication,
<b>MAY</b>	<b>2nd</b>	<b>1st</b>	physical proper- ties (viscosity and viscosity index, oiliness, flash and fire point, cloud and pour point only)
		<b>3rd</b>	chemical properties (coke number, total acid number saponification value) of lubricants.
	<b>3rd</b>	<b>3rd</b>	REVISION