

### Lesson Plan (Applied Chemistry)

**Name of the faculty** : Prahlad Prashar

**Discipline** : **All Branches**

**Semester** : 2<sup>nd</sup>

**Subject** : Applied Chemistry

**Lesson Plan Duration** : 15 weeks (From January 2018 to April 2018)

Week	Theory		Practical		Remark
	Lecture Hours	Topic/Chapter covered	Practical day	Topic	
1 <sup>st</sup>	1	Metallurgy : general metallurgical terms of metallurgy	1 <sup>st</sup>	Gravimetric analysis and apparatus used	_____
	2	Metal ores of iron and Extraction of iron from its ore			_____
	3	Metal ores of copper and Extraction of copper from its ore			_____
2 <sup>nd</sup>	4	Metal ores of aluminium and Extraction of aluminium from its ore	2 <sup>nd</sup>	Determination of percentage purity of commercial sample of blue vitriol using N/20 sodium thiosulphate	_____
	5	Manufacture of steel- open hearth process			_____
	6	Alloys- Definition and purpose of alloying, Types of alloys- ferrous and non ferrous alloys			_____
3 <sup>rd</sup>	7	Properties and applications of ferrous alloys	3 <sup>rd</sup>	Gravimetric estimation of moisture in the given coal sample	_____
	8	Properties and applications of non ferrous alloys-brass, bronze, duralumin, magnalium , solder			_____
	9	Corrosion and its control- Definition of corrosion ,its types and factors affecting corrosion			_____

4 <sup>th</sup>	10	Theories of corrosion	4 <sup>th</sup>	Determination of percentage composition of volatile /non volatile matter in the given coal sample	
	11	Definition of passivity in metals in metals as per galvanic series			
	12	Corrosion control- metal coatings			
5 <sup>th</sup>	13	Corrosion control - Inorganic coatings, organic coatings and internal corrosion preventive measures.	5 <sup>th</sup>	Gravimetric estimation of ash content in the given coal sample (proximate analysis)	_____
	14	Revision of chapter 1st			_____
	15	Revision of chapter 2 nd			_____
6 <sup>th</sup>	16	Assignment 1 <sup>st</sup>	6 <sup>th</sup>	Determination of viscosity of given liquid using redwood viscometer	_____
	17	Fuels - definition of fuel, classification of fuels, characteristics of good fuel			_____
	18	Relative merits of gaseous, liquid and solid fuels			_____
7 <sup>th</sup>	19	Calorific value and its types, calculation of calorific value by using bomb calorimeter	7 <sup>th</sup>	Determination of flash point of given lubricating oil using flash point apparatus	_____
	20	Coal and its types, proximate analysis of coal			_____
	21	Fuel rating- octane no. and cetane no.			_____
	22	Gaseous fuels- chemical composition,	8 <sup>th</sup>	To study the effect	

8 <sup>th</sup>		calorific value and applications of LPG, CNG, producer gas ,water gas and biogas		of metal coupling on corrosion of iron	
	23	Elementary idea on- hydrogen as future fuel, nuclear fuels			
	24	Lubricants- lubricant and lubrication and type of lubrications			
9 <sup>th</sup>	25	Classification of lubricants Liquid lubricants Solid lubricants Semisolid lubricants	9 <sup>th</sup>	Detection of iron metal in the given solution of rust(solution of rust in HCl be provided)	_____
	26	Physical Properties of lubricants			_____
	27	Chemical properties of lubricants			_____
10 <sup>th</sup>	28	Designation of lubricating oils according to society of automotive engineers	10 <sup>th</sup>	Revision of experiment 1	_____
	29	Cutting fluids- applications of cutting fluids, types and factors that governs the selection of cutting fluids			_____
	30	Revision of chapter 3rd			_____
11 <sup>th</sup>	31	Revision of chapter 4th	11 <sup>th</sup>	Revision of experiment 2	_____
	32	Assignment 2 <sup>nd</sup>			_____
	33	Engineering materials and refractory's- definition and types with suitable examples			_____
12 <sup>th</sup>	34	Applications of ceramics, refractory and composite materials	12 <sup>th</sup>	Revision of experiment 3	_____
	35	Glass , its chemical composition, and application of soda, borosilicate and lead glass			_____
	36	Paint, varnish and enamels			_____

13 <sup>th</sup>	37	Polymers and plastics- definition of polymer, monomer and degree of polymerization	13 <sup>th</sup>	Revision of experiment 4	
	38	Addition and condensation polymers with examples			
	39	Definition of plastics , thermoplastics and thermosetting plastics with examples and distinction between them			
14 <sup>th</sup>	40	Applications of polymers in industry and daily life	14 <sup>th</sup>	Revision of experiment 5	
	41	Revision of chapter 5th			
	42	Revision of chapter 6th			
15 <sup>th</sup>	43	Assignment 3 <sup>rd</sup>	15 <sup>th</sup>	Revision of experiment 6	
	44	Dictation of important questions			
	45	Dictation of important questions			