GOVT. POLYTECHNIC. KORAPUT

LESSON PLAN(ENGG. CHEMISTRY)

DISCIPLINE: MATH AND SCIENCE	SEMESTER: FIRST	NAME OF THE TEACHING FACULTY: SHRI SRIDHARA MOHARANA , PTGF in Chemistry, Govt. Polytechnic, Koraput

SUBJECT: ENGG. CHEMISTRY	NO. OF DAYS PER WEEK CLASS ALLOTED	SEMESTER FROM DATE: 26/10/2022 TO DATE: 31/01/2023 NO.OF WEEKS: 15	
WEEK	**CLASS DAY**	**THEORY**	**PRACTICAL**
1st	1ST	-Introduction, Matter and its states.	Introduction to chemistry lab, about safety measures, about maintenance of practical records.
	2ND	-Atomic structure: fundamental particles (electron, proton and neutron), their properties.	Introduction to the students about use of different lab equipments and how to handle them safely.
	3RD	-Atomic number and mass no. - Rutherford's atomic model and its drawback.	-----
	4TH	- Drawback of Rutherford's atomic model. - Bohr's Atomic model	-----
2nd	1ST	- Drawbacks of Bohr's atomic model. - Bohr-Bury scheme -Quantum Number,types	Exp. 1, preparation and study of properties of CO_2 gas, explanation of theory with equations.
	2ND	-Detail of quantum number. -Aufbau's principle, Hund's rule, Electronic configuration	Checking of rough practical record and demonstratation of the experiment.
	3RD	-Doubt clearing class of Atomic structure. -Question practice.	-----
	4TH	-Introduction to Chemical bonding(definition, cause and types	-----
3rd	1ST	)-Ionic Bonding and Covalent bonding(Definition and formation of compounds with examples)	Expt. Conducted by the students.
	2ND	-Coordinate bonding(Definition and formation of compounds with examples) - discussion and Doubt clearing of Chemical	Correction of practical records, discussion of viva questions of the expt.

		bonding	
	3RD	-Basics of acid and bases. -Arrhenius concept of acid and base.	-----
	4TH	-Draw backs of Arrhenius theory and Bronsted-Lowry theory with examples.	-----
4th	1ST	-Conjugate Acid-Base pair with examples. -Drawbacks of Bronsted-Lowry Theory	Exp. 2. Preparation and study of properties of ammonia gas. Explanation Of Theory With Equations.
	2ND	-Lewis Theory of acid and base with examples.	Checking of rough practical record and demonstratation of the experiment.
	3RD	-Neutralization Reaction with examples. -Doubt clearing of acid base concept	-----
	4TH	-Definition of salt and types of salt.	-----
5th	1ST	- Definitions of atomic weight, molecular weight, -Equivalent weight. Determination of equivalent weight of Acid, Base and Salt.	Expt. Conducted by the Students.
	2ND	- Molarity , Normality -Related Numericals	Checking of practical records and discussion of viva questions of expt. 2.
	3RD	-Molality and related numericals.	-----
	4TH	-pH of solution and numericals	-----
6th	1ST	- Importance of pH in industry. - Doubt clearing.	Exp. 3. Crystalization of $CuSO_4$. Explanation Of Theory With Equations.
	2ND	-Electrochemistry: Definition and types (Strong & weak) of Electrolytes with example.	Checking of rough practical record and demonstratation of the experiment.
	3RD	- Process of Electrolysis, its Mechanism with different example.	-----
	4TH	- Faraday's 1st and 2nd law of Electrolysis.	-----
7th	1ST	-Numericals, -Industrial application of Electrolysis-Electroplating.	Expt. Conducted by the Students.
	2ND	-Corrosion and its types. - Definition of Corrosion, Types of Corrosion - Atmospheric Corrosion, Waterline corrosion.	Checking of practical records and discussion of viva questions of expt. 3.
	3RD	- Mechanism of rusting Iron only. - Protection from Corrosion by Alloying and Galvanization	-----
	4TH	--Basics of Organic chemistry -Types of organic compound on the basis carbon skeleton.	-----

8th	1ST	-Hydrocarbons: definitions,general formula, examples. -Rules for IUPAC system of nomenclature.	Exp. 4. Acid Base Titration. Explanation Of Theory With Equations.
	2ND	-Some more Rules for IUPAC system of nomenclature.	Checking of rough practical record and demonstratation of the experiment.
	3RD	Huckles rule, Aromatic compounds. -Practice of IUPAC nomenclature	-----
	4TH	-Doubt clearing of organic chemistry. -revision	-----
9th	1ST	-Definition of Mineral, ores, gangue with example. -introduction to the extraction of minerals	Expt. Conducted by the Students Acidimetry.
	2ND	-Ore Dressing -Gravity separation, magnetic separation,	Expt. Conducted by the Students Alkalimetry.
	3RD	-Froth floatation & leaching -Calcinations,.	-----
	4TH	-Roasting. -Smelting & examples of flux, slag	-----
10th	1ST	-Electro refining, & Distillation	Checking of practical records and discussion of viva questions of expt. 4.
	2ND	-Definition of alloy. Types of alloys with example. -amalgam	Exp. 5. Test of acid radicals. Discussion regarding Basic ideas of acid and basic radicals, aim and basic steps of the test.
	3RD	-Composition and uses of Brass, Bronze, Alnico, Duralumin -Revision of Inorganic Chemistry.	-----
	4TH	- Water Treatment : Sources of water, Soft water, Hard water, hardness, types of Hardness.	-----
11th	1ST	-Removal of hardness by lime soda method - Advantages of Hot lime over cold lime process.	Checking of rough practical record and demonstratation of the experiment.
	2ND	-Organic Ion exchange method	Expt. Conducted by the Students.
	3RD	-Question discussion and Revision.	-----
	4TH	- Definition of lubricant, Types. -Uses of Graphite, Oils, Grease.	-----
12th	1ST	- Purpose of lubrication, Revision.	Checking of practical records and discussion of viva questions of expt. 5.
	2ND	- Definition and classification of fuel -Definition of calorific value of fuel - Choice of good fuel.	
	3RD	- Composition and uses of diesel, petrol, kerosene. Producer gas and Water gas	-----
	4TH	- composition & uses of LPG, CNG and coal gas.	-----

		- revision of chapter fuel.	
13th	1ST	-Basic ideas about polymer -Definition of Monomer, Polymer, Homo-polymer, Co-polymer with example.	Exp. 6. Test of basic radicals (known).
	2ND	-Degree of polymerization -Difference between Thermosetting and Thermoplastic, -Composition and uses of Polythene,	Checking of rough practical record and demonstration of the experiment.
	3RD	-Poly-Vinyl Chloride and Bakelite. -.	-----
	4TH	-Natural Rubber - Definition of Elastomer	-----
14th	1ST	Vulcanisation of Rubber. -Advantages of Vulcanised rubber over raw rubber.	Expt. Conducted by the Students.
	2ND	-Question discussion and Revision of polymer	Test of unknown acid and basic radicals.
	3RD	-introduction regarding modern agriculture. -Chemicals in Agriculture:	-----
	4TH	-Pesticides: Insecticides, herbicides, fungicides with Examples and uses	-----
15th	1ST	-Bio Fertilizers: Definition, examples and uses. - Question discussion and Revision of polymer	Test of unknown salt.
	2ND	-Doubt clearing and Question discussion	Checking of practical records and viva voice.
	3RD	-Previous year Questions and probable questions Discussion.	-----
	4TH	-Previous year Questions and probable questions Discussion.	-----

18/11/22

(HOD Maths Dept)

18/11/22.

Submitted by

Shri. Sridhara Maharana.

PTGF (Engg. Chem)