

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT- 3	Sheet No. 1/3
Branch	COMMON TO ALL BRANCHES			Semester	I/II
Course Code		Course Name	CHEMISTRY		
Course Outcome 1	Illustrate the structure of atom , knowledge of radioactivity and interpret the type of bonding in molecules.			Teach Hrs	Marks
Learning Outcome 1	Able to Write the electronic configuration of atoms using various principles.			8	10
Contents	<ul style="list-style-type: none"> • Concept of fundamental particles of atom –their mass, charge, location. • Rutherford's and Bohr's model of an atom their limitations. Bohr's scheme of filling the electrons in s,p,d,f orbitals. (atomic no. upto 30) • Hund's rule , Aufbau 's principle and Pauli's exclusion principle. 				
Method of Assessment	External---End semester Theory exam.				
Learning Outcome 2	Able to differentiate the types nuclear reactions . Identify the types of bonding based on properties of compound.			10	10
Contents	<ul style="list-style-type: none"> <input type="checkbox"/> Theory of Radioactivity ,Alpha , Beta and Gamma rays ,their properties. <input type="checkbox"/> Group displacement laws, numericals based on it, Half life period . <input type="checkbox"/> Nuclear fission and nuclear fusion. • Draw and Compare types of bonds ie. Electrovalent, Co-valent, co-ordinate and hydrogen bond 				
Method of Assessment	External ---End semester Theory exam				
Learning Outcome 3	Able to identify the cations and anions present in the given salt and type of bonding present in the given compound on the basis of properties .			15	15
Contents	<ul style="list-style-type: none"> • Comparative study of ionic and covalent compounds. • Qualitative analysis of simple ionic salts • Anions-Carbonate, acetate, chloride, sulphate Cations- Ammonium, Lead , Copper , Ferrous, Zinc, Calcium and Magnesium.				
Method of Assessment	External End semester Practical exam.				
Course Outcome 2	Able to describe engineering materials and its properties.				

Learning Outcome 1	Able to explain metallurgical process	8	10
Contents	<ul style="list-style-type: none"> • General principles of metallurgy. • Minerals/ ores, ore dressing, roasting ,smelting, bassemerisation, fluxes, purification . • Physical and chemical properties of metals, copper, iron, aluminum. <p>Explanation of alloying,composition and uses of brass,bronze, german silver,gun metal, solder, duralumin, stainless steel.</p>		
Method of Assessment	<i>External –End semester Theory Exam</i>		
Learning Outcome 2	Able to describe the properties of cement ,glass and refractories.	6	10
Contents	<ul style="list-style-type: none"> • Cement, Types of cement and composition of Portland cement. • Manufacture of port land cement. • Setting and hardening of cement. • Glass, Basic raw materials , composition of glass. • Varities of glass. Annealing of glass <p>Refractories their types and properties of good refractories.</p>		
Method of Assessment	Internal assessment- Quiz/Survey/Presentation/Pen paper test.		
Learning Outcome 3	Able to analyse and choose a suitable lubricant for a given situation.	4	10
Contents	<ul style="list-style-type: none"> • Meaning, type and theories of lubricants. • Properties of good lubricants. • Flash point ,Fire point,cloud point,pour point, emulsification number,viscosity of lubricants. 		
Method of Assessment	Internal assessment- Quiz/Survey/Presentation/Pen paper test/ assignment/multiplechoice questions.		

Course Outcome 3	Able to Outline the electrochemical processes and suggest methods for corrosion control.	Teach Hrs	Marks
Learning Outcome 1	Able to calculate pH numerically ,instrumentally and estimate the acidity and basicity of a given sample.	5	10
Contents	<ul style="list-style-type: none"> • Idea of Arrhenius theory of ionization , factors affecting ionization. • pH meaning, determination instrumentally and numerically. Buffer solutions,Buffer actions. <p>Choice of indicators, acidimetry and alkalimetry.(preparation of standard solutions.)</p>		
Method of Assessment	Internal viva voce/Laboratory observation/ Practical files and assignment/multiple choice questions/Demonstration.		

Learning Outcome 2	Able to write chemical reactions and apply Faraday's laws of electrolysis.	10	10
Contents	<ul style="list-style-type: none"> Faraday's laws of electrolysis, Numerical problems on Faradays Law Electrochemical series .Electrolytic cell, Electrodes. Mechanism of electrolysis Applications of electrolysis-- electroplating, electrorefining General idea and salient features of Fuel cells Draw the diagram of solar cell and solar panels and their applications. 		
Method of Assessment	External –End semester Theory Exam.		
Learning Outcome 3	Able to estimate strength of different acids,base and reagents volumetrically.	10	15
Contents	<ul style="list-style-type: none"> Concept of volumetric titration, Concept of strength of solutions --- molarity, normality Volumetric Analysis: Redox titration ---Determination of strength of ferrous ammonium sulphate. <p>Acid base titration</p>		
Method of Assessment	External End semester practical exam.		

Course Outcome 4	Able to apply methods for domestic and industrial water treatment.	Teach Hrs	Marks
Learning Outcome 1	Able to explain removal of impurities in water samples.	10	10
Contents	<ul style="list-style-type: none"> Sources of water, types of water, hardness of water, its causes. Removal of hardness of water by lime-soda,zeolite and ion exchange methods. <p>Boiler feed water. Harmful effects of hard water in boilers.</p>		
Method of Assessment	External –End semester Theory Exam.		
Learning Outcome 2	Able to estimate impurities in water samples by chemical methods.	12	10
Contents	<ul style="list-style-type: none"> Determination of hardness of water by O'Hehners method,E.D.T.A. method and soap titration method. <p>Collection of hard water samples from different water sources and calculate T.D.S.</p>		
Method of Assessment	Internal viva voce/Laboratory observation/ Practical files and assignment/multiple choice questions /Demonstration.		
Learning Outcome 3	Able to sketch the municipal water supply methods	4	10

Contents	<ul style="list-style-type: none"> Basic town water supply procedure, chemical methods of sterilization, precipitation, chlorination, bleaching powder method. <p>Draw charts of municipal water plant.</p>		
Method of Assessment	Internal assessment- Quiz/Survey/Presentation/Pen paper test/ Chart preparation.		
Course Outcome 5	Able to explain the utility of fuels and polymers.	Teach Hrs	Marks
Learning Outcome 1	Able to analyse the purity of solid fuels by proximate analysis	8	5
Contents	<ul style="list-style-type: none"> Classification of fuel, gross and net calorific value. Determination of a solid fuel by bomb calorimeter . Crude petroleum. fractional distillation of petroleum and its products. cetane and octane number. Proximate analysis of fuel, its utility, 		
Method of Assessment	External –End semester Theory Exam.		
Learning Outcome 2	Able to use safety equipments.	3	5
Contents	Types , Construction, and working of fire extinguishers.		
Method of Assessment	External –End semester Theory Exam.		
Learning Outcome 3	Able to differentiate polymers on the basis of their synthesis and uses.	7	10
Contents	<ul style="list-style-type: none"> Polymerization and condensation, classification of plastics, constituents of plastics <p>Compounding and Moulding. Insulators: definition, properties, Glass wool, thermocole.</p> <ul style="list-style-type: none"> Preparation Properties and uses of PVC, polyethene, polystyrene, polyamides, polyesters , Bakelite. Synthetic fibers – nylon, rayon, decron, and polyesters. Idea about rubber and vulcanization and relate the properties of raw rubber and vulcanised rubber. 		
Method of Assessment	External –End semester Theory Exam		

