

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. -
Branch	EE, E&TC, EEE, ELECT&INST., ELECTRONICS ENGG		Semester I/II LATERAL ENTRY STUDENTS FROM ITI (Remedial Course)		
Course Code	6809	Course Name	ENGG SCIENCES Part A PHYSICS		
Course outcome 1	Able to make physical measurements with accuracy by minimizing different types of errors.			Teaching Hrs	Marks
Learning outcome 1.1	Able to convert the unit of a physical quantity from one system of measurement to another and be conversant with practical units of physical quantities.			08	10
Contents	Unit of a physical quantity, fundamental and derived quantities and their units, different system of Units (CGS, MKS, FPS and SI). Dimensional formulae of physical quantities and its applications.				
Method of Assessment	Internal assessment- Quiz/Presentation/Pen paper test/ multiple choice questions.				
Learning Outcome 1.2	Able to measure the dimensions of given object by using a proper instrument.			08	10
Contents	Construction, principle, least count and different errors of vernier calipers and screw gauge.				
Method of Assessment	External End semester Practical exam.				
Learning Outcome 1.3	Able to estimate error in measurements.			08	10
Contents	Accuracy, Precision of instruments, Errors in measurements (systematic and random), Estimation of errors (absolute error, relative error and percentage error, error propagation), Significant figures.				
Method of Assessment	External---End semester Theory exam.				
Course outcome 2	Able to characterize basic optical laws and phenomena.			Teaching Hrs.	Marks
Learning outcome 2.1	Able to find refractive index of given material in form of prism.			06	10

Contents	Reflection, Refraction, Snell's law, physical significance of refractive index (simple problems), Total internal reflection, Prism, refraction of light through prism, dispersion.		
Method of Assessment	External End semester Practical exam.		
Learning Outcome 2.2	Able to describe the propagation of light on the basis of wave theory.	06	10
Contents	Newton's corpuscles theory of light, Huygen's wave theory, wave front, Types of wave front (spherical, cylindrical and plane), Huygen's principle of propagation of light,		
Method of Assessment	Internal assessment- Quiz/Presentation/Pen paper test/ multiple choice questions.		
Learning Outcome 2.3	Able to express different phenomena of light related to wave theory.	08	10
Contents	Principle of superposition of waves, Interference of light, constructive and destructive interference, Young's experiment. Analytical treatment of interference, conditions for stationary interference pattern. Diffraction and polarization of light (only introduction).		
Method of assessment	External---End semester Theory exam.		
Course outcome 3	Students will be able to describe principles of photoelectric effect, X-rays, Lasers and their uses.	Teaching Hrs	Marks
Learning outcome 3.1	Able to explain the concept of photoelectric effect and working of photoelectric cell with sketch.	10	10
Contents	Electron emission, Photo electric effect, laws and characteristics of photoelectric effect. Plank's hypothesis, Einstein's photoelectric equation, properties of photons. Construction and working of photoelectric cell (Photoemissive cell), applications of photoelectric cell. Simple numerical problems		
Method of Assessment	Internal viva voce/Laboratory observation/ Practical files and assignment/multiple choice questions /Demonstration. /mini-project		
Learning Outcome 3.2	Able to explain the production of X-rays with its properties and applications.	07	10
Contents	X-rays, Production of X-rays, types of X-ray, X-ray spectra-continuous and characteristics, X-ray wavelength, simple numerical problems, properties of X-rays, applications of X-rays.		
Method of Assessment	External---End semester Theory exam.		

Learning Outcome 3.3	Describe the lasing action of a typical LASER system and its applications.	08	10
Contents	Laser, properties of laser, absorption,spontaneous and stimulated emission, population inversion, active medium, pumping methods, He-Ne laser (construction and working), applications of Laser.		
Method of Assessment	External---End semester Theory exam.		

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT- 3	Sheet No. 1/3
Branch	EE, E&TC, EEE, ELECT&INST.			Semester	I/II
Course Code		Course Name	ENGG SCIENCES Part BCHEMISTRY		
Course Outcome 4	Able to Outline the electrochemical processes and suggest methods for corrosion control.			Teach Hrs	Marks
Learning Outcome 4.1	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. Choice of indicators, acidimetry and alkalimetry.(preparation of standard solutions.)				
Method of Assessment	Internal Assessment - Test /Assignment/Multiple choice questions/Presentation .				
Learning Outcome 4.2	Able to write chemical reactions and apply Faraday's laws of electrolysis.			10	07
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 4.3	Able to estimate strength of different acids,base and reagents volumetrically.	10	10
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 5	Able to apply methods for domestic and industrial water treatment.	10	08
Learning Outcome 5.1	Able to explain removal of impurities in water samples.		
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 5.2	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 Assessment - viva voce/Laboratory observation/ Practical files and assignment/multiple choice questions /Demonstration.		
Course Outcome 6	Able to explain the utility of fuels and polymers.	Teach Hrs	Marks

Learning Outcome 6.1	Able to analyse the purity of solid fuels by proximate analysis	8	4
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 6.2	Able to use safety equipments.	3	3
Contents	Types , Construction, and working of fire extinguishers.		
Method of Assessment	External –End semester Theory Exam.		
Learning Outcome 6.3	Able to differentiate polymers on the basis of their synthesis and uses.	7	8
Contents	<ul style="list-style-type: none"> • Polymerization and condensation, classification of plastics, constituents of plastics Compounding and Moulding.Insulators: definition, properties, Glass wool, thermocole. • 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		