

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. -
Branch	ELECT, E&TC, EEE, ELECT&INST, OPTO ELECT.,CIVIL,CTM,REF&PETROCHEMICAL, PLASTIC, PRINTING, AND TEXT TECH			Semester	First/ Second
Course Code	6802	Course Name	Physics		
Course outcome 1	Able to make physical measurements with accuracy by minimizing different types of errors.			Teachi ng Hrs	Marks
Learning outcome 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.			06	08
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.				
Learning Outcome 2	Able to measure the dimensions of given object by using a proper instrument.			08	15
Contents	Construction, principle, least count and different errors of vernier calipers and screw gauge.				
Method of Assessment	External End semester Practical exam.				
Learning Outcome 3	Able to estimate error in measurements.			06	07
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 elaborate various general properties of material.			Teaching Hrs.	Marks
Learning outcome 1	Able to define different terms related to elasticity, moduli of elasticity and relation between them.			07	10

Contents	Deforming force, Restoring force, Elastic and plastic body, Stress and strain with their types, Hook's law, Poisson's ratio, Young's modulus, Bulk modulus, Modulus of rigidity and relation between them (no derivation), simple numerical problems.		
Method of Assessment	Internal assessment- Quiz/Presentation/Pen paper test.		
Learning Outcome 2	Able to measure the surface tension of water using capillary rise method.	07	10
Contents	Cohesive and adhesive force, surface tension and surface energy, effect of impurity and temperature on surface tension, shape of liquid surface in a capillary tube and angle of contact, capillary action with examples, relation between surface tension , capillary rise and radius of capillary (no derivation)		
Method of Assessment	Internal viva voce/Laboratory observation/ Practical files and assignment/multiple choice questions /Demonstration.		
Learning Outcome 3	Able to illustrate different terms related to viscosity.	06	10
Contents	Viscosity of fluid, Velocity gradient, Newton's law of viscosity, coefficient of viscosity, streamline and turbulent flow, critical velocity, Reynolds number, simple numerical problems, Stokes' law and terminal velocity, simple numerical problem. Effect of temperature & adulteration on viscosity of liquid.		
Method of Assessment	External---End semester Theory exam.		
Course outcome 3	Able to describe the basic rules of heat and thermodynamics.	Teaching Hrs.	Marks
Learning outcome 1	Able to distinguish between conduction, convection and radiation.	06	08
Contents	Transmission of heat (conduction, convection and radiation), law of thermal conductivity, coefficient of thermal conductivity, Simple numerical problems.		
Method of Assessment	External---End semester Theory exam.		
Learning Outcome 2	Able to determine the relation between specific heats of a gas.	06	10
Contents	Heat and Temperature, Internal energy, Heat capacity, Specific heat, specific heat of gases, relationship between the two specific heat of gas "Mayer's formula", simple numerical problems.		

Method of Assessment	External---End semester Theory exam.		
Learning Outcome 3	Able to apply laws of thermodynamics to various thermodynamic processes.	08	12
Contents	Boyle's law, Charles' law, absolute temperature, general gas equation (no derivation), thermodynamic variables, first law of thermodynamics (statement & equation only), Application of first law in isothermal, adiabatic, isobaric, isochoric & cyclic processes, simple numerical problems, Second law of thermodynamics: Kelvin & Plank statement.		
Method of Assessment	Internal assessment- Quiz /Presentation/Pen paper test		
Course outcome 4	Able to characterize basic optical laws and phenomena.	Teachin g Hrs.	Marks
Learning outcome 1	Able to find refractive index of given material in form of prism.	06	15
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	Able to describe the propagation of light on the basis of wave theory.	06	08
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	External---End semester Theory exam.		
Learning Outcome 3	Able to express different phenomena of light related to wave theory.	08	07
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 5	Students will be able to describe principles of photoelectric effect, X-rays, Lasers and their uses.	Teaching Hrs	Marks
Learning outcome 1	Able to explain the concept of photoelectric effect and working of photoelectric cell with sketch.	07	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 2	Able to explain the production of X-rays with its properties and applications.	06	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	Describe the lasing action of a typical LASER system and its applications.	07	10
Contents	Laser, properties of laser, absorption, spontaneous and stimulated emission, population inversion, active medium, pumping methods, Three energy level system, He-Ne laser (construction and working), applications of Laser.		
Method of Assessment	External---End semester Theory exam.		

Remark:

Total teaching hours = 100

Total marks = 150 (Internal 50 + External 100)

Internal = Practical 20 + Progressive 10x2=20 + Project/Quiz/Assignment 10

External = (Theory 70 +practical 30)