

**SYLLABUS FOR
THE FOUR-YEAR UNDERGRADUATE PROGRAMME
(FYUGP)**

As per provisions of NEP_2020 to be implemented from
academic year 2022 onwards.



SESSION 2024-2025

**DEPARTMENT OF PHYSICS
GENRIC ELECTIVE (GE)**

**GOVT. DIGVIJAY AUTONOMOUS
P.G. COLLEGE,
RAJNANDGAON (C.G.)**



Govt. Digvijay Autonomous PG College Rajnandgaon(CG)

FYUGP (CBCS/LOCF Course)

Department of Physics

Session 2024-25	Programme- UG
Semester - V	Subject- PHYSICS
Course Type - GE	Course Code-
Course Title :	PHYSICS FOR ALL - I
Credit - 3(Theory) =4	Lecture - 60
MM - Theory - 80 + IA 20 = 100	Min Marks- 40 %

Course Title	PHYSICS FOR ALL -I
Course Learning Outcome:	<ul style="list-style-type: none"> Identifying and applying relevant physical laws and principles to problems. Able to understand the basic law of physics applied in daily life Able to understand the motion, forces, and energy of the ordinary experience Able to understand the Friction and laws of friction.
Programe Specific Outcome:	<p>After completion of course the students will able to:-</p> <ul style="list-style-type: none"> A fundamental/systematic or coherent understanding of the academic field of Physics, its different learning areas and applications in basic Physics. Procedural knowledge that creates different types of professionals related to the disciplinary/subject area of Physics, including professionals engaged in research, development and teaching. Demonstrate the ability to use skills in Physics and its related areas of technology for formulating and tackling Physics-related problems.

Unit	Lecture	Contents/Topic	Credits
I	13	Measurements and Units:- physical Quantities ,Units for Measurements, Fundamental and derived Units, Systems of Units (CGS ,FPS,SI), Practical units :Fermi, Angstrom , Nano-meter, Light year , Dimensional formula ,Dimensional Equation, Limitation of Dimensional analysis, errors in measurements , types of errors, Significant figures .	04
II	17	Motion:- Frame of reference ,Motion in one, two & three Dimension, Motion in a straight line, Position time graph, Distance and displacement ,Speed and velocity, Uniform motion ,Non-Uniform motion ,accelerated motion ,Equation of motion, Uniform Circular motion ,Centripetal and centrifugal force, Bending of cyclist.	
III	17	Laws of motion:- concept of force ,Conservative and Non-conservative force, Inertia ,types of inertia ,Newton's first law of motion, Newton's second law of motion ,Newton's third law of motion example of Newton's law's , momentum, impulse and its application , conservation of liner momentum and its applications	
IV	13	Friction:- Introduction, Static friction, kinetic friction: sliding and rolling friction, examples of friction, Law's of friction, coefficient of friction, angle of friction, angle of repose, advantages and disadvantages ,Methods of reducing , Methods of increasing friction.	
Total	60	04 Unit	

❖ TEXT AND REFERENCE BOOKS :-

- | | |
|---------------------------------|-------------------------------|
| 1. Fundamental law of Mechanics | - IE Irodov |
| 2. Fundamentals of physics | - B.N. Inanov |
| 3. Concept of physics | - H. C. Varma |
| 4. Principles of physics | - V. K. Mehta and Rohit Mehta |
| 5. Basic physics | - H.L. Eubank , J.M. Ramsy |

❖ H.O.D.	-	.....	<i>P. T. W.</i>	<i>20.12.2024</i>
❖ BY V.C. Nominated	-	.....	<i>Sanu</i>	
❖ Subject Expert	- 1	.....	<i>Sanu</i>	2
❖ Faculty members	- 1	.....	<i>Sanu</i>	2
❖ Industrialist	-	.....		<i>Sanu</i>
❖ Alumni	-	.....	<i>Hemanth</i>	



Govt. Digvijay Autonomous PG College Rajnandgaon(CG)

FYUGP (CBCS/LOCF Course)

Department of Physics

Session 2024-25	Programme- UG
Semester - VI	Subject- PHYSICS
Course Type - GE	Course Code-
Course Title :	PHYSICS FOR ALL -II
Credit - 4(Theory)=4	Lecture - 60
Mim - Theory -80 + IA-20 = 100	Min Marks- 40 %

Course Title	PHYSICS FOR ALL-II
Course Learning Outcome:	<ul style="list-style-type: none"> Identifying and applying relevant physical laws and principles to problems. Able to understand the basic law of physics applied in daily life Able to understand the work , energy and gravitaion of the ordinary experience .
Programe Specific Outcome:	<p>After completion of course the students will able to:-</p> <ul style="list-style-type: none"> a fundamental/systematic or coherent understanding of the academic field of Physics, its different learning areas and applications in basic Physics. procedural knowledge that creates different types of professionals related to the disciplinary/subject area of Physics, including professionals engaged in research , development and teaching . Demonstrate the ability to use skills in Physics and its related areas of technology for formulating and tackling Physics-related problems .

Unit	Lecture	Contents/Topic	Credits
I	15	Work and Energy - work , work done by constant force, positive work , negative work , zero work ,unit and dimensional formula of work, Energy, kinetic energy , potential energy, Work -energy theorem ,Law of conservation of energy, Mechanical energy, Internal energy, electrical energy ,Nuclear energy.	04
II	15	Gravitation:- Introduction , Characteristics of gravitational force , Kepler's law: first law, second law, third law (only definition), Principle of superposition, Acceleration due to gravity, Derivation of Newton's law of gravitation with the help of Kepler's law, Relation between g and G , difference between g and G.	
III	15	Oscillation and waves :- Periodic motion, Oscillatory motion , Time Period, Frequency , relation between time period and frequency, displacement and amplitude, simple harmonic motion and its characteristics, Concept of Phase, Wave motion, Transverse wave , longitudinal waves, difference between Transverse wave and longitudinal waves.	
IV	15	Elasticity :- introduction, Elastic and Plastic behaviour of solids, difference between Elastic and Plastic bodies, Limit of elasticity, Strain, types of strain, Stress, Types of stress, Hook's law, Young's modulus, Bulk modulus, modulus of rigidity, Poisson's ratio.	
Total	60	04 Unit	

❖ TEXT AND REFERENCE BOOKS :-

1. Wave Oscillation and Acoustics - SL Kankani and C Hemrajani
2. Basic Physics - Karl.Kuhn
3. Fundamental law of Mechanics - IE Irodov
4. Fundamentals of physics - B.N. Inanov
5. Concept of physics - H. C. Varma
6. Basic physics - H.L. Eubank , J.M. Ramsy

❖ H.O.D.	-	.....
❖ BY V.C. Nominated	-	.....
❖ Subject Expert	- 1.....	.....	2.....
❖ Faculty members	- 1.....	.....	2.....
❖ Industrialist	-	.....
❖ Alumni	-	.....

Handwritten signatures and marks:
 - Above "BY V.C. Nominated": *Sham*
 - Above "Subject Expert": *Sham*
 - Above "Faculty members": *Sham*
 - Above "Alumni": *Hemanth*
 - To the right of "Faculty members": *Sham*