Course Type	Course Code	Name of Course	L	T	P	Credit
OE	PHO303	PHYSICS FOR SOCIETY	3	0	0	9

Course Objective
For economic growth and a better sustainable future of our society, technology plays a great role. On the other hand, technological advances in our society are driven by fundamental knowledge of Physics. The main objective of the course is making the students familiar with the physics concepts through an application oriented approach that has great impact on our society.
Learning Outcomes
Upon successful completion of this course, 1. Students will have the better understanding of physics which drives the world around them. 2. Students will be capable to explain and predict what they observe in the real world.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	**Applications of Mechanics**: Skating, Falling Objects, Ramps, Seesaws, Wheels, Spring Scales, Bouncing balls, Carousels and Roller Coasters, Bicycles, Rockets, Space Travel	7	Student will understand the physics of various real world applications of Mechanics including rocket propulsion, interplanetary travel.
2	**Applications of Periodic Motion (Waves & Acoustics)**: Clocks, Sea surfing, Musical Instruments, Sonography	3	Students will learn about the applications of periodic/ wave motions steadily mark our journey through time and space
3	**Applications of Fluids and its Motion**: Balloons, Water Distributions (Hydrostatics & Hydraulics), Garden Watering, Sports, Airplanes and Aviation Industries, Skydiving	4	Students will learn a variety of situations in which fluid motion contributes to the understanding of physics
4	**Application of Electricity and Magnetism**: Static Electricity, Xerographic Copiers, Flashlights, Household Magnets, Electric Power Distribution (DC & AC), Radio, Microwave Oven, Magnetic Storage	6	Students will learn about various electrical and electromagnetic devices which has changed the lifestyle of the society.
5	**Application of Thermodynamics**: Woodstove, Water-Steam-Ice, Insulation and Clothing for various climate, Air Conditioners, Automobiles, Cryocoolers, Superconductors, Radiation Shield	4	Students will learn about effect of temperature, heat, and the phases of matter to understand more about our hot and cold world.
6	**Applications of Optics**: Sunlight, Discharge Lamps, Outdoor Lighting, Video Walls, Lasers Show, Laser Cutting, Microscopes (Optical and Electron), Telescope, Cameras, Optical Recording, Optical Fibres, Audio Players	7	Students will learn about the importance of light and its interaction with the world we live.
7	**Applications of Nuclear Energy**: Nuclear Weapons (Fission Bomb & Hydrogen Bomb), Nuclear Reactor and Nuclear Power Plants	2	Students will learn about various uses of Nuclear energy
8	**Applications in Health Science**: X-ray Scanner, CT scan, MRI, Ultrasound, Nuclear Medicine, Radiotherapy, Endoscopy	4	Students will learn about the underlying physics of medical equipment used in health sector.
9	**Future Energy Demands**: Rechargeable Batteries, Solid Oxide Fuel Cells, Supercapacitor, Solar energy, Hydrogen energy	5	Students will learn about the role of Physics in meeting future energy demand by the innovative energy sources.
	Total	42	

Textbooks/Reference Books:

1. How Things Work: The physics of everyday life, 6th Edition, Louis A Bloomfield, John Wiley & Sons, 2015.
2. Fundamentals of Physics, David Halliday, Robert Resnick and Jearl Walker, John Wiley & Sons, 2014.
3. Introductory Medical Imaging, A. A. Bharath, Morgan & Claypool Publishers, UK, 2009.
4. Introduction to Medical Electronics Applications, D Jennings, J. W. Arrowsmith Ltd. UK, 1995.
5. Concept of Modern Physics, A. Beiser, Tata Mc-Graw Hill, 2009.
6. Modern Microscopies – Techniques and applications, P. J. Duke and A. G. Michette, Springer, NY, 1990.
7. Applied Physics for Engineers, Neeraj Mehta, PHI Learning Pvt. Ltd., New Delhi, 2011.