

**JSS COLLEGE OF ARTS, COMMERCE AND SCIENCE
OOTY ROAD MYSORE**

**PG DEPARTMENT OF PHYSICS
Physics in Everyday Life**

Course Outcomes (COs):

After completing this course the student will be able to,

- CO1. Understand the thermodynamical processes involved in air conditioning.
- CO2. Explore electromagnetic induction principles.
- CO3. Explain the principle of photovoltaic conversion in solar cells.
- CO4. Analyse the working principles of generators for electric power generation.
- CO5. Apply the concepts of Physics to identify and explain the characteristics of various musical instruments.
- CO7. Differentiate between longitudinal and transverse waves.
- CO8. Explore the principles of room acoustics.
- CO9. Describe the physics of blood pressure measurement.
- CO10. Explain the applications and benefits of lasers in surgical interventions.
- CO11. Understand the physics of X-ray production and interactions with tissues.
- CO12. Analyse the applications of X-rays in medical imaging and diagnostics.

Physics of Domestic Gadgets: Refrigerators, air conditioners, induction stove, microwave oven, pressure cooker, vacuum cleaners, incandescent light bulb, fluorescent lamps, White LEDs, Colours, additive and subtractive colours, colour printing, Cameras, binoculars, photocopying, laser printers. 16 hours

Physics of Energy Devices: Solar cells, nuclear fission, nuclear fusion, nuclear reactors, breeder reactors, Electric power generation, Electric power distribution, Generators and Electric motors, Transformers, Synchronous AC motors, Induction AC motors, Stepping Motors, Wind energy, Tidal energy, Physics of Communication Devices-Electromagnetic waves-Physics of radio, TV and satellite communication, Mobile Communication 16 hours

Physics of Musical instruments: Sound waves-Travelling and Standing Waves-Pitch-Loudness-Timbre-Resonance- Resonant cavity-Harmonics, String instruments-Wind instruments-Percussion instruments-Keyboard instruments-Stereo sound, Recording and reproduction of sound-Acoustics of rooms and auditoria-reverberation of sound-Filters-amplifiers-microphones-loud speakers 16 hours

Physics in Health Care: Retaining body's heat in extreme cold, thermometer, thermos flask, blood pressure Optometry: vision correction through the use of lenses, photochromic glasses Ultrasound imaging—Magnetic resonance imaging—Lasers in surgery—Laser Doppler velocimetry-Endoscopy- X-rays in medicine 16 hours

Total **64 hours**

References

1. Louis A Bloomfield, *How Things Work: The Physics of Everyday Life*, 6th Edition, John Wiley & Sons,1997.