Sapthagiri College of Engineering

DEPARTMENT OF PHYSICS

2018 SCHEME

COURSE OUTCOME (CO'S)

Engineering Physics (18PHY12/22)

Upon completion of this course, students will be able to

CO1: Explain the concept, types and applications of oscillations and shockwaves.
CO2: Analyze the elastic properties of materials for engineering applications.
CO3: Describe the concept and types of Maxwell Equations, Electromagnetic waves and optical fibers.
CO4: Describe the fundamentals and applications of quantum mechanics through Schrodinger's wave equation and Laser.
CO5: Differentiate the conductivity of conductors, semiconductors based on quantum free electron theory and Dielectrics.

Engineering Physics Lab (18PHYL16/26)

Upon completion of this course, students will be able to

CO1: Formulate, Conduct and inference of the Engineering physics experiments
CO2: Characterize the conductor, semiconductor and Dielectric materials.
CO3: Determine the physical parameter in optical experiments.
CO4: Find the mechanical properties of materials.
CO5: Analyze the electrical resonance and Magnetic effect of current.

2015/17 SCHEME

COURSE OUTCOME (CO'S)

Engineering Physics (15PHY12/22)

Upon completion of this course, students will be able to

CO1: Describe the fundamentals of Modern Physics and Quantum Mechanics and apply to wave mechanics.
CO2: Differentiate the conductivity of conductors, semiconductors and super conductors based on Quantum theory
CO3: Explain basic principles, types and applications of Laser and Optical fibres.
CO4: Classify the crystal systems, and analyze crystal structure using XRD
CO5: Explain the concept, production and applications of shockwaves.
CO6: Explain the synthesis, characterization and applications of Nano materials.

Engineering Physics Lab (15PHYL17/27)

Upon completion of this course, students will be able to

CO1: Formulate, Conduct and inference of the Engineering physics experiments
CO2: Characterize the semiconducting materials
CO3: Determine the physical parameters in optical experiments.
CO4: Find the mechanical properties of materials.
CO5: Identify and verify the passive electronic components

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DEPARTMENT OF PHYSICS

PROGRAM OUTCOME

PO1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. **Problem analysis**: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.