Sri Adichunchanagiri College of Arts and Commerce
Nagamangala, Mandya District.

DEPARTMENT OF PHYSICS

PROGRAMME: B.Sc. PHYSICS

Programme Outcomes

- Acquire adequate knowledge of the subject
- Craft a foundation for higher learning
- Be initiated into the basics of research
- Accept sound moral and ethical values
- Become conscious of environmental and societal responsibilities
- Attain skills for communication and career
- Learn to tolerate diverse ideas and different points of view
- Become empowered to face the challenges of the changing universe
- Self-motivating and inspiring team members to engage with the team objectives by using management skills.
- Ability to think, acquire knowledge and skills through logical reasoning and to inculcate the habit of self-learning.
- Ability to identify unethical behavior and adopting objective, unbiased and truthful actions in all aspects of their programme.
- This programme will also help students to enhance their employability for jobs in different sectors.

H.O.D. of PHYSICS
S.A.C. COLLEGE OF ARTS COMMERCE & SCIENCE
Nagamangala, Mandya Dist

PRINCIPAL
Sri Adichunchanagiri College of Arts and Commerce
Nagamangala-571 432, Mandya Dist

Sri Adichunchanagiri College of Arts and Commerce
Nagamangala, Mandya District.

DEPARTMENT OF PHYSICS

COURSE OUTCOMES (NEP)

Students are expected to acquire core knowledge in physics, including the major fields of classical mechanics, special theory of relativity and modern physics.

This course will provide a theoretical basis for doing experiments in related areas. Students should learn how to design and conduct an experiment demonstrating their understanding of the physics concepts.

The student should effectively communicate their knowledge of physics from basic concepts to specific detailed presentations through oral and written modalities.

SEMESTER I:-(DSC) PHY 101MECHANICS AND PROPERTIES OF MATTER

After successful completion of the course, the student is expected to:

1. Will learn fixing units, tabulation of observations, and analysis of data (graphical/analytical)

2. Will learn about accuracy of measurement and sources of errors, importance of significant figures

3. Will know how g can be determined experimentally and derive satisfaction

4. Will see the difference between simple and torsional pendulum and their use in the determination of various physical parameters.

5. Will come to know how various elastic moduli can be determined.

6. Will measure surface tension and viscosity and appreciate the methods adopted

7. Will get hands on experience of different equipment.

H.O.D. of PHYSICS
S. A.C. COLLEGE OF ARTS, COMMERCE & SCIENCE
Nagamangala, Mandya Dist

PRINCIPAL
Sri Adichunchanagiri College of Arts and Commerce
Nagamangala-571 432, Mandya Dist.

DEPARTMENT OF PHYSICS

COURSE OUTCOMES (Non CBCS)

Students are expected to acquire core knowledge in physics, including the major fields of classical mechanics, quantum mechanics, electromagnetic theory, electronics, optics, special theory of relativity and modern physics.

This course will provide a theoretical basis for doing experiments in related areas. Students should learn how to design and conduct an experiment demonstrating their understanding of the physics concepts.

The student should effectively communicate their knowledge of physics from basic concepts to specific detailed presentations through oral and written modalities.

SEMESTER I :-MECHANICS, PROPERTIES OF MATTER

After successful completion of the course, the student is expected to:

1.The students would have attained a common understanding in basic mechanics, properties of matter, Heat and thermodynamics.

2. The students developed their experimental and data analysis skills through a wide range of experiments in the practical laboratories.

SEMESTER II :- HEAT AND THERMODYNAMICS

After successful completion of the course, the student is expected to:

1. The students would have been introduced to powerful tools for tracking a wide range of topics in heat and thermodynamics become familiar with additional relevant Maxwell's formulation.

2. Further developed their experimental skills through a series of experiment which illustrates major themes of the lecture courses

SEMESTER III :-WAVES, ACOUSTICS AND OPTICS

After successful completion of the course, the student is expected to:

1. Understand the basic concepts of wave optics and learn very important and fascinating areas of interference, diffraction and polarization with many experiments associated with it.

2. Have in depth knowledge of the general equation of wave motion and transverse waves in stretched strings and longitudinal waves in gases and rod
3. Familiarize with the types of transducers and their characteristics

SEMESTER IV:-ELECTRICITY AND ELECTROMAGNETISM

After successful completion of the course, the student is expected to:

1. Be able to solve a variety of problems related to Maxwell's equations and explain term displacement current
2. Know in depth the response of CR, LC, CR and LCR circuits to AC, which is essential in designing as well as understanding the working of electronic circuits.
3. Familiarize with electrical circuits, electrical connections, and storage devices their working etc. which will be quite useful in their daily life.
4. Learn construction & working CRO and its use in measurement of voltage, frequency and phase.

SEMESTER V PAPER V :-SPECTROSCOPYAND ELECTRONICS

After successful completion of the course, the student is expected to:

1. Become familiar with molecular spectroscopy and have gained basic ideas regarding vector model of atom, spin orbit interaction, Zeeman effect, Raman effect
2. Acquire knowledge about how a semiconductor diode rectifies an input ac signal and
3. Learn how to construct a transistor amplifier and how its gain varies with frequency
4. Familiarize with logic circuits and their applications which enables them to design logic circuits of their own.

PAPER VI CONDENSED MATTER PHYSICS

After successful completion of the course, the student is expected to :

1. Familiarize about statistical distribution and have basic ideas about Maxwell Boltzmann, Bose-Einstein and Fermi Dirac statistics and their applications
2. Learn thermal, electrical properties of solid and Compton effect
3. Gain knowledge of superconductivity, its underlying principles and its applications inmodern world
4. Have gained basic knowledge of laser and working of different type of lasers

PAPER VII SOLID STATE AND SEMICONDUCTOR PHYSICS

After successful completion of the course, the student is expected to:

1. Acquire basic knowledge of semiconductor , classification of solid on the basis band gap theory, concept of hole in a semiconductor, charge carrier density, mobility and continuity equation
2. Learn how LED and solar cell work

3. Know the physics behind dia, para and ferromagnetism
4. Familiarize with different types of liquid crystal, its uses and defects in solids
5. Acquire knowledge of classical and quantum theories of Polaris ability Semester

SEMESTER VI PAPERVIII SPECIAL THEORY OF RELATIVITY AND QUANTUM MECHANICS

After successful completion of the course, the student is expected to:

1. Have gained a clear knowledge about wave properties of particles, De Broglie waves and its implications on the uncertainty principle.
2. Find solution to Schrödinger's equation for systems such as particle in a box, linear simple harmonic oscillator
3. Describe departure from classical physics, basic principles of special theory of relativity and derive Lorentz transformation equations and their application to understand time, length and mass measurement in inertial frames

PAPER IX NUCLEAR PHYSICS

After successful completion of the course, the student is expected to:

1. Gain a clear picture of nuclear composition and various nuclear models
2. Have in depth knowledge about radio activity, nuclear fission and nuclear fusion, the relevance of nuclear transformation and energy production in stars
3. Familiarize with fundamental particles of nature
4. Understand the working of nuclear detectors and particle accelerators , realize the importance of Cosmic rays and its effects on earth
5. Explain the origin of radioactivity, liquid drop and shell model of nucleus

PAPER X ANALOG AND DIGITAL ELECTRONICS

After successful completion of the course, the student is expected to:

1. Know about flip flops, counters, OPAMP, FET and UJT
2. Analysevarious combinational and sequential circuits
3. Analyses the functioning of ADC and DAC 4. explain amplitude and frequency modulation, super heterodyne receiver

H.O.D. of PHYSICS
S. A.C. COLLEGE OF ARTS.
COMMERCE & SCIENCE
Nagamangala, Mandya Dist

PRINCIPAL
Sri Adichunchanagiri College
of Arts and Commerce
Nagamangala-571 432, Mandya Dist

DEPARTMENT OF PHYSICS

COURSE OUTCOMES (CBCS)

Students are expected to acquire core knowledge in physics, including the major fields of classical mechanics, quantum mechanics, electromagnetic theory, electronics, optics, special theory of relativity and modern physics.

This course will provide a theoretical basis for doing experiments in related areas. Students should learn how to design and conduct an experiment demonstrating their understanding of the physics concepts.

The student should effectively communicate their knowledge of physics from basic concepts to specific detailed presentations through oral and written modalities.

SEMESTER I:-(DSC) PHY 101MECHANICS, PROPERTIES OF MATTER AND ELECTROSTATICS

After successful completion of the course, the student is expected to:

1. Know the fundamentals of different types of frames of references and Galilean transformation
2. understand the basics of properties of matter, how Young's modulus and rigidity modulus are defined how they are evaluated for different shapes of practical relevance
3. Gain knowledge about the properties of fluids especially of viscosity and surface tension which help the students in their daily life.
4. Know conservation laws of energy and linear and angular momentum and apply them to solve problems
5. Learn the basics of potentials and fields, central forces and Kepler's laws
6. Have basic knowledge of moving coil and Helmholtz galvanometer, electric pressure on a charged surface and attracted disc electrometer

SEMESTER II:-(DSC)PHY 201 HEAT, THERMODYNAMICS AND SOUND

After successful completion of the course, the student is expected to:

1. Become familiar with various thermodynamic process, reversible and irreversible process and knowledge of calculating change in entropy for various process

2. Realize the importance of thermodynamic functions and applications of Maxwell's relations.

3. Learn the fundamentals of harmonic oscillator model, including damped and forced oscillators and expression for amplitude and phase at resonance

4. Have in depth knowledge of the general equation of wave motion and transverse waves in stretched strings and longitudinal waves in gases and rod.

SEMESTER III :-PHY301 (DSC) ELECTRICITY AND ELECTROMAGNETISM

After successful completion of the course, the student is expected to:

1. Be able to solve a variety of problems related to Maxwell's equations and explain term displacement current
2. Know in depth the response of CR, LC, CR and LCR circuits to AC and Dc, which is essential in designing as well as understanding the working of electronic circuits.
3. Familiarize with electrical circuits, electrical connections, and storage devices their working etc. which will be quite useful in their daily life.
4. Learn construction & working CRO and its use in measurement of voltage, frequency and phase.

SEMESTER IV :-PHY401 (DSC) OPTICS AND SPECTROSCOPY

After successful completion of the course, the student is expected to:

1. Understand the basic concepts of wave optics and learn very important and fascinating areas of interference, diffraction, polarization and laser with many experiments associated with it.
2. Become familiar with molecular spectroscopy and have gained basic ideas regarding vector model of atom, spin orbit interaction, Zeeman effect, Raman effect

SEMESTER V :-PHY501 (DSE) NUCLEAR AND THEORETICAL PHYSICS

After successful completion of the course, the student is expected to:

1. Gain a clear picture of nuclear composition and various nuclear models
2. Have in depth knowledge about radio activity, nuclear fission and nuclear fusion, the relevance of nuclear transformation and energy production in stars
3. Familiarize with fundamental particles of nature
4. Understand the working of nuclear detectors and particle accelerators; realize the importance of Cosmic rays and its effects on earth
5. Explain the origin of radioactivity, liquid drop and shell model of nucleus
6. Describe departure from classical physics, basic principles of special theory of relativity and derive Lorentz transformation equations and their application to understand time, length and mass measurement in inertial frames

PHY511 (SEC) LASERS AND FIBRE OPTICS

After successful completion of the course, the student is expected to:

1. Familiarize about types of laser, fiber optics their applications
2. Understand the basic concepts of wave optics and Coherence properties of laser light, temporal coherence, mono chromaticity, spatial coherence, directionality, line width, brightness, and laser with many experiments associated with it.

PHY601 (DSE) SOLID STATE PHYSICS

After successful completion of the course, the student is expected to:

1. Acquire basic knowledge of semiconductor, classification of solid on the basis band gap theory, concept of hole in a semiconductor, charge carrier density, mobility and continuity equation
2. Learn how LED and solar cell work
3. Familiarize with different types of liquid crystal, its uses and defects in solids
4. Acquire knowledge of classical and quantum theories of Polaris ability Semester
5. Know about flip flops, counters, OPAMP, FET and UJT
6. Analysevarious combinational and sequential circuits

PHY611 (SEC) OPTOELECTRONICS

After successful completion of the course, the student is expected to:

1. Learn how LED and solar cell work
2. Familiarize about t Types of photodiodes Junction photodiodes, pin diode, avalanche photodiodes, CCD photo detectors; Comparison of different detectors, Photomultiplier tubes. Phototransistors characteristics

H.O.D. of PHYSICS
S. A.C. COLLEGE OF ARTS, COMMERCE & SCIENCE
Nagamangala, Mandya Dist

PRINCIPAL
Sri Adichunchanagiri College of Arts and Commerce
Nagamangala-571 432, Mandya Dist.