



VKV GOVERNMENT DEGREE COLLEGE, KOTHAPETA

NAAC Accredited 'B' Grade (2.13 CGPA)



Affiliated to Adikavi Nannaya University, Rajamahendravaram

Kowshik Road, Kothapeta-533223 Dr B R Ambedkar Konaseema Dt AP

An ISO 9001-2015 Certified college by HYM International Certifications Pvt Ltd

DEPARTMENT OF PHYSICS

COURSE OUTCOMES OF PHYSICS

Semester- II

Course: I B. Sc (Computer Science)–Physics minor

Subject: Mechanics & properties of matter

CO1: Understand Newton's laws of motion and motion of variable mass system

CO2: Application to rocket motion and the concepts of impact parameter, scattering cross section.

CO3: Apply the rotational kinematic relations, the principle and working of gyroscope, its applications

CO4: The precessional motion of a freely rotating symmetric top.

CO5: Comprehend the general characteristics of central forces.

CO6: The application of Kepler's laws to describe the motion of planets and satellite in circular orbit.

CO7: Understand postulates of Special theory of relativity and its consequences such as length contraction, time dilation, relativistic mass and mass-energy equivalence.

CO8: Examine phenomena of vectors and their applications in various physical quantities.

CO9: Acquire the knowledge on properties of matter and their applications.

Semester- III

Course: II B. Sc (Physics)–MPC, MPCs

Subject: Heat & Thermodynamics

CO1: Understand the basic aspects of kinetic theory of gases, Maxwell-Boltzman distribution law, equipartition of energies, mean free path of molecular collisions.

CO2: The transport phenomenon in ideal gases

CO3: Gain knowledge on the basic concepts of thermodynamics, the first and the second law of thermodynamics,

CO4: The basic principles of refrigeration, the concept of entropy, the thermodynamic potentials and their physical interpretations.

CO6: Understand the working of Carnot's ideal heat engine, Carnot cycle and its efficiency

CO7: Develop critical understanding of concept of Thermodynamic potentials, the formulation of Maxwell's equations and its applications.

CO8: Differentiate between principles and methods to produce low temperature and liquefy air and also understand the practical applications of substances at low temperatures

CO9: Examine the nature of black body radiations and the basic theories.

Semester- IV

Course: II B. Sc (Physics)–MPC, MPCs

Subject: Electricity, Magnetism and Electronics (4A)

- CO1: Understand the Gauss law and its application to obtain electric field in different cases
- CO2: formulate the relationship between electric displacement vector, electric polarization, Susceptibility, Permittivity and Dielectric constant.
- CO3: Distinguish between the magnetic effect of electric current and electromagnetic induction and apply the related laws in appropriate circumstances.
- CO4: Understand Biot-Savart's law and Ampere's circuital law to describe and explain the generation of magnetic fields by electrical currents.
- CO5: Understanding the electric and magnetic fields and Maxwell's equations.
- CO6: Phenomenon of resonance in LCR AC-circuits, sharpness of resonance, Q- factor, Power factor and the comparative study of series and parallel resonant circuits.
- CO7: Describe the operation of p-n junction diodes, zener diodes, light emitting diodes and α transistors
- CO8: Understand the operation of basic logic gates and universal gates and their truth tables.

Semester- IV

Course: II B. Sc (Physics)–MPC, MPCs (4B)

Subject: Modern Physics

- CO1: Develop an understanding on the concepts of Atomic and Modern Physics, basic elementary quantum mechanics and nuclear physics.
- CO2: Develop critical understanding of concept of Matter waves and Uncertainty principle.
- CO3: Get familiarized with the principles of quantum mechanics and Schrodinger wave equation.
- CO4: Examine the basic properties of nuclei, characteristics of nuclear forces,
- CO5: salient features of nuclear models and different nuclear radiation detectors.
- CO6: Classify Elementary particles based on their mass, charge, spin, half-life and interaction.
- CO7: Get familiarized with the nano materials, their unique properties and applications.
- CO8: Increase the awareness and appreciation of superconductors and their practical α applications

Semester- V

Course: III B. Sc (Physics)–MPC, MPCs

Subject: Applications of Electricity & Electronics (6C)

Course Outcomes

- CO1: Identify various components present in Electricity & Electronics Laboratory.
- CO2: Acquire a critical knowledge of each component and its utility (like resistors, capacitors, inductors, power sources etc.).
- CO3: Demonstrate skills of constructing simple electronic circuits consisting of basic circuit elements.
- CO4: Understand the need & Functionality of various DC & AC Power sources.
- CO5: Comprehend the design, applications and practices of various electrical & Electronic devices and also their trouble shoots.

Semester- V

Course: III B. Sc (Physics)–MPC, MPCs

Subject: Electronic Instrumentation (7C)

CO 1: Identify various facilities required to set up a basic Instrumentation Laboratory.

CO 2: Acquire a critical knowledge of various Electrical Instruments used in the Laboratory.

CO 3: Demonstrate skills of using instruments like CRO, Function Generator, Multimeter etc. through hands on experience.

CO 4: Understand the Principle and operation of different display devices used in the display systems and different transducers

CO 5: Comprehend the applications of various biomedical instruments in daily life like B.P. meter, ECG, Pulse oxy-meter etc. and know the handling procedures with safety and security

Semester- VI

Course: III B. Sc (Physics)–MPC, MPCs

Subject: Semester term Intern ship

PROGRAMME OUTCOMES FOR B. Sc (Physics) COURSE

On successful completion of Under Graduate programme (BSc), students will be able to:

- PO 1:** Acquire comprehensive Knowledge and effectively apply such knowledge and skills to address various issues.
- PO 2:** Acquire self-learning skills and adopt them for emerging demands at work place and life.
- PO 3:** Access ICT tools effectively and have a knowledge of software applications to analyze data.
- PO 4:** Develop scientific thinking process and use the technology for communication and entertainment and more for the benefit of mankind.
- PO 5:** Predict problems, frame hypothesis, investigate and interpret the empirical data.
- PO 6:** Learn group dynamics and deal individually as well as with teams and groups to perform effectively in diverse teams /groups.
- PO7:** Develop Efficient Communication & Life Skills and present significant information clearly and concisely to interested groups.
- PO 8:** Understand Environmental Sustainability, propagate and follow environment friendly practices.
- PO 9:** Identify the goals, objectives and components of a project and decide the appropriate time of completion.

PROGRAMME SPECIFIC OUT COMES B. SC (MPC)

- PSO 1:** Understand the theoretical concepts of physical and chemical properties of materials and the role of mathematics in dealing with them in a quantitative way.
- PSO 2:** Analyze the concepts of mathematics, physics and chemistry and understand the relation among them like physical chemistry, mathematical modelling of physics and chemistry problems. Skills needed to handle instruments.
- PSO 3:** Mathematical, numerical techniques required to model them.

PSO 4: Ability to interlink the skills and knowledge in mathematics, physics and chemistry and develop an aptitude to address the problems.

PSO 5: Learn problem solving techniques related to Mathematics, Physics and Chemistry

PROGRAMME SPECIFIC OUTCOMES B.SC (MPCS)

PSO 1: Understand the concepts of vector spaces, group theory, quantum mechanics, optical, thermal, electrical, mechanical properties of a materials, probability, algorithm design, data base

PSO 2: Understand the concepts of vector spaces, group theory, quantum mechanics, optical, thermal, electrical, mechanical properties of a materials, probability, algorithm design, data base

PSO 3: Analyze the concepts of mathematics, physics and computers science able to relate them in numerical programming of models of physical systems.

PSO 4: Acquire the skills to study the properties of materials, implementation of numerical algorithms by using various

PSO 5: Ability to interlink the skills developed and acquires an aptitude to address the problems in simulations of material properties, web and mobile app development.