

**Government College, Mangali (Hisar)**  
**Department of Physics**  
**Program/Course Outcomes Outcome**

BSc Ist Physical Science

1. Understand the motion of rigid object along the surface, so that they can calculate moment of inertia, velocity, acceleration, total kinetic energy of an object that undergoing both translational and rotational motion and apply energy conservation in analyzing such motion.
2. Know about the basic concepts of elasticity, bending moment, torsional oscillations, and modulus of rigidity
3. Perform experiments on Properties of matter such as the determination of moduli of elasticity viz., Young's modulus, Rigidity modulus of certain materials; Sextant, Moment of inertia of some regular bodies by different methods and compare the experimental values with the standard values
- 4.. Understand the Gauss law and its application to obtain electric field in different cases.
5. Develop an understanding on the unification of electric and magnetic fields and Maxwell's equations governing electromagnetic waves.
6. Phenomenon of resonance in LCR AC-circuits, sharpness of resonance, Q- factor, Power factor and the comparative study of series and parallel resonant circuits.
7. Learn to present observations, results analysis and different concepts related to experiments of Electricity and Magnetism

BSc IInd Physical Science

- 1 Understand the thermodynamics systems, laws of thermodynamics and their significance, Joule-Thomson effect and entropy.
2. Understand the basics of statistical physics, Classical and quantum statistics, and Maxwell's distribution of speed & velocity.
3. Perform experiments on thermodynamics and statistical physics by different methods and compare the experimental values with the standard values
4. Understand the Interference, Young's double slit experiment, Fresnel's Biprism, Newton's Rings: measurement of wavelength and refractive index.
5. Understand diffraction and its various types, resolving power of grating and telescopes.
6. Learn about different types of optical fiber and their applications.
7. Learn to present observations, results analysis and different concepts related to experiments of optics.

BSc IIIrd Physical Science

**Quantum Mechanics Mastery**

Understand and apply the principles of quantum mechanics to model microscopic systems, solve Schrödinger's equation, and interpret quantum phenomena like superposition and entanglement.

**Nuclear Physics Understanding**

Analyze nuclear structure, radioactive decay, and nuclear reactions; evaluate applications in energy, medicine, and safety.

**Solid State Physics Competence**

Explain crystal structures, band theory, and properties of materials; understand semiconductors, superconductors, and magnetic behavior.

**Interdisciplinary & Practical Skills**

Integrate knowledge across fields to solve complex problems using mathematical and computational tools; communicate effectively and consider societal imp

*Mandeep Singh*  
HOD  
17/09/2025

Govt. College, Mangali

*Sun*  
17/09/2025

Principal

Principal

Govt. College, Mangali

### Subject Outcomes of Mathematics

At the end of these courses, students will acquire comprehensive knowledge and cognitive skills in fundamental and advanced areas of Algebra, Number Theory, Differential Equations, Sequences and Series, Groups and Rings, Trigonometry, and Statistics, along with their applications in real life and computational practice. They will be able to:

Formulate, analyze, and solve mathematical problems involving matrices, polynomials, congruences, number-theoretic functions, algebraic structures, and trigonometric expansions.

Apply systematic procedures, theorems, and methods (such as Cayley-Hamilton theorem, Fermat's theorem, Euler's theorem, Chinese Remainder Theorem, Fourier series, and various convergence tests) to theoretical and practical problem solving.

Develop higher-order thinking skills to explore, classify, and evaluate structures in algebra and analysis, such as groups, rings, fields, differential equations, and infinite series.

Gain practical and technical skills through computational approaches (using Python/software tools) for solving algebraic, differential, and statistical problems.

Apply mathematical reasoning, problem-solving strategies, and statistical techniques in everyday life situations involving numbers, averages, percentages, profit & loss, time & work, probability, and data analysis.

Cultivate a foundation for lifelong learning, research, and application of mathematics across disciplines, while developing analytical and logical skills to tackle both theoretical and real-world problems.

Ajay Kumar  
17/09/25

(AJAY KUMAR)  
A P in Maths

Sun  
17/09/2025  
Principal  
Govt. College,  
Mangali (Hisar)

## Course Outcomes of Computer Science (B.Sc./B.A.)

### 1. Fundamental Knowledge

Gain strong foundational knowledge of computer science concepts including algorithms, data structures, operating systems, databases, and computer networks.

### 2. Programming Skills

Develop the ability to design, write, test, and debug computer programs using different programming paradigms and languages (C, C++, Java, Python, etc.).

### 3. Problem-Solving & Analytical Thinking

Apply logical reasoning, mathematical foundations, and computational skills to solve real-world problems.

### 4. Software Development & Tools

Acquire practical skills in software design, web development, and the use of modern development tools, IDEs, and version control systems.

### 5. Database & Information Management

Understand database design, normalization, SQL, and data handling for efficient information management.

### 6. Systems Understanding

Learn about computer hardware, operating systems, computer architecture, and how hardware and software interact.

### 7. Emerging Technologies

Gain exposure to recent trends in cloud computing, artificial intelligence, machine learning, cybersecurity, and data science.

### 8. Research & Project Skills

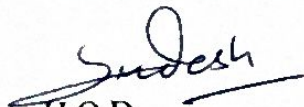
Develop project management, research methodology, and technical writing skills through mini-projects and a final-year project.

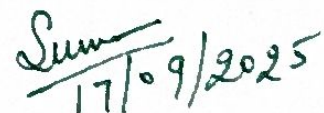
### 9. Professional & Ethical Practices

Apply ethical principles, understand societal impacts of technology, and follow professional practices in computing.

### 10. Employability & Higher Studies

Be prepared for careers in IT/software industries, government jobs, or higher education (M.Sc., MCA, MBA, etc.).

  
H.O.D.

  
17/09/2025  
PRINCIPAL

## **Chemistry Course Outcomes**

( under B.Sc. in Physical Sciences And B.Sc. in life Sciences Programs )

- **Understanding Fundamental Principles:**

Students learn about atomic structure, the nature of chemical bonds, molecular geometry, and the periodic trends of elements.

- **Chemical Reactions and Equilibrium:**

Develop knowledge of chemical reactions, quantitative and qualitative methods to describe them, and the dynamics of physical and chemical equilibrium.

- **Thermodynamics:**

Gain an introduction to the concept of chemical thermodynamics, understanding the energies involved in driving chemical reactions.

- **Experimental Interpretation:**

Ability to apply conceptual knowledge and interpret physical and chemical phenomena through experimental evidence.

- **Laboratory Skills:**

Acquire and master laboratory skills using modern methods and equipment for synthesizing, characterizing, and analyzing chemical compounds.

- **Quantitative & Qualitative Analysis:**

Apply main qualitative and quantitative strategies, including volumetric and gravimetric methods, to determine analytes.

- **Instrumental Analysis:**

Utilize instrumental techniques for chemical analysis and evaluate the results obtained from these analyses.

### **Advanced & Specialized Outcomes:**

- **Organic and Biological Chemistry:**

Students may focus on the physical and functional aspects of organic chemistry and understand the principles of biological chemistry.

- **Materials and Physical Chemistry:**

Develop knowledge in areas such as the properties of materials, the states of matter, and solid-state chemistry.

*M. Manabhai*  
17/9/25

(HOD Chemistry)

*Sunil*  
17/09/2025  
Principal  
Govt. College,  
Mangali (Hisar)