

Mathematics:

- CO1: To recognize the type of given differential equation and able to solve that D.E.
- CO2: Finding the orthogonal trajectories of given family of curves by using differential equations.
- CO3: To get awareness on applications of differential equations in various fields.
- CO1: To find the location of objects in space.
- CO2: To know the properties of lines, planes, sphere, cylinder and cone.
- CO3: To get awareness about application of solid geometry in various fields like astronomy Antennas etc.
- CO1: Generalization of arithmetic operations addition and multiplication of the real numbers.
- CO2: To recognize similar groups by using the concept of isomorphism.
- CO3: To recognize whether a group is normal sub group (or) cyclic group (or) abelian group (or) Permutation group.
- CO4: To understand every group is nothing but a permutation group.
- CO5: To get awareness about group theory applications in brain scanning, solving quintic equations etc.
- CO1: To know the properties of real numbers.
- CO2: To find whether a sequence (or) series is convergent (or) divergent.
- CO3: To recognize whether a function is continuous, derivable, integrable (or) not.
- CO4: To find the rate of change, slope of a curve by using derivatives and to find areas by Using integration.
- CO1: To recognize the types of rings like commutative ring, Integral domain, Boolean ring, field, ideals etc.
- CO2: To find the properties of algebraic structures with two binary operations by using rings.
- CO3: To solve the given system of equations and find whether the system has infinitely many Solutions (or) unique solution (or) no solution.
- CO4: To find the characteristic equation, characteristic .roots, characteristic vectors of a given square matrix

CO1: By generalizing the properties of vectors we get vector space and by using this vector Space to find the properties of vectors.

CO2: To recognize whether two vector spaces are similar or not by using isomorphism.

CO3: To know every homomorphic image of a vector space is nothing but a quotient group of the vector space.

CO4: To find some inequalities in real numbers and complex numbers by using Cauchy Schwartz inequality.

Physics:

- The students would learn about the behaviour of physical bodies it provides the basic concepts related to the motion of all the objects around us in our daily life. The course builds a foundation of various applied field in science and technology; especially in the field of mechanical engineering. The course comprises of the study vectors, laws of motion, momentum, energy, rotational motion, gravitation, fluids, elasticity and special relativity.
- Students would perform basic experiments related to mechanics and also get familiar with various measuring instruments would learn the importance of accuracy of measurements.
- It gives an opportunity for the students to learn about one of the fundamental interactions of electricity and magnetism, both as separate phenomena and as a singular electromagnetic force.
- Students would gain practical knowledge about electricity and magnetism and measurements such as: Resistance, Voltage, current etc.
- The course makes the students able to understand the basic physics of heat and temperature and their relation with energy, work, radiation and matter. The students also learn how laws of thermodynamics are used in a heat engine to transform heat into work.
- Students would gain practical knowledge about heat and radiation.

Computer Science:

- Ability to analyze software requirements with existing tools.
- Ability to gather and specify requirements of the software projects.
- Able to differentiate different testing methodologies.
- Able to understand and apply the basic project management practices in real life projects.
- Ability to work in a team as well as independently on software projects.
- Ability to Design, model, store and retrieve data in database.
- Apply logical skills to analyze a given problem.
- Develop an algorithm for solving a given problem.
- Understand C language constructs like iterative statements, Array processing, Pointers etc
- Apply C language constructs to the algorithms to write a C language program.

- To explore basic knowledge on computers and Photoshop's beauty from the practical to the painterly artistic and to understand how Photoshop will help you create your own successful images.
- Appreciate and understand the working of a digital computer
- Analyze a given problem and develop an algorithm to solve the problem
- Improve upon a solution to a problem
- Use the 'C' language constructs in the right way
- Design, develop and test programs written in 'C'
- Understand the concept and underlying principles of Object-Oriented Programming
- Understand how object-oriented concepts are incorporated into the Java programming language
- Develop problem-solving and programming skills using OOP concept
- Understand the benefits of a well structured program
- Develop the ability to solve real-world problems through software development in high-level programming language like Java
- Develop efficient Java applets and applications using OOP concept
- Become familiar with the fundamentals and acquire programming skills in the Java language.
- Analyze the concepts of processes in operating system and illustration of the scheduling of processor for a given problem instance.
- Identify the dead lock situation and provide appropriate

solution so that protection and security of the operating system is also maintained.

- Analyze memory management techniques, concepts of virtual memory and disk scheduling.
- Understand the implementation of file systems and directories along with the interfacing of IO devices with the operating system.
- The course comprises of the study of superposition of harmonic oscillations, waves motion (general), oscillators, sound, wave optics, interference, diffraction, polarization. The course is important for the students to make their career in various branches of science and engineering, especially in the field of photonic engineering.
- The practical knowledge of wave motion doing experiments: Tuning fork, electric vibrations. They would also learn optical phenomena such as interference, diffraction and dispersion and do experiments related to optical devices: Prism, grating, spectrometers.

Micro Biology:

- Students will be able to communicate scientific information effectively, especially relating to microbiological organisms, and the roles of microbial organisms in ecosystem function and health-related issues
- Students will be able to collect, analyze and interpret scientific data, including developing a familiarity with microbiology laboratory techniques and safety procedures
- Students will develop proficiency in the quantitative skills necessary to analyze biological problems (e.g., arithmetic, algebra, dimensional analysis, and statistical analysis as applied to biology), with a knowledge of specialized techniques used in microbiology
- Students will be able to apply the scientific method as a demonstration that they understand its application furthering our knowledge of the microbial world
- Students will be able to describe fundamental principles of biology e.g., central dogma, diversity of life, inheritance and how these principles relate to microorganisms

- Students will be able to describe unique microbial genetic systems (i.e., prokaryotic and viral genomes, lateral gene transfer, plasmid structure and function, etc.)
- Students will appreciate the biological diversity of microbial forms, and appreciate that this diversity results from evolutionary processes
- Students will be able to access and interrogate the primary scientific literature and be aware of leading journals in the field of microbiology
- Students will be able to synthesize material from lower division courses across a biological sub-discipline and apply this to advanced course material (i.e., a Capstone experience); specifically, students will draw from their learning experiences in the fields of microbial ecology & evolution, microbial physiology, bioremediation, immunology, etc., as related to the topic of their capstone course
- Students will gain familiarity with the unique role of microbes play in genetic modification technologies (i.e., creation of GMOs, industrial applications, gene therapy, etc.)
- Students will gain familiarity with the role of microbes in human disease, the role of microbes in issues of international health, and the human immune response to microbial infection
- Students will gain familiarity with the role of microbes in the context of ecosystem function (e.g., microbial ecology, microbiome, etc.)

Zoology:

- 1. An ability to apply profound understanding of Chemistry, Zoology and Botany
- 2. An ability to design and perform experiments, as well as to analyze and interpret data
- 3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, and sustainability
- 4. An ability to function on multidisciplinary teams
- 5. An ability to identify, formulate, and solve scientific problems
- 6. An understanding of professional and ethical responsibility.

- 7. An ability to communicate effectively.
- 8. The broad education necessary to understand the impact of scientific solutions in global, economic, environmental, and societal context .
- 9. A recognition of the need for, and an ability to engage in life -long learning.
- 10. A knowledge of contemporary issues.
- 11. An ability to use the techniques, skills, and modern s cientific tools that provide the learning base for future careers in disciplines such as health sciences, agriculture, environmental management, the emerging biotechnologies, publishing, teaching, research and consultancy.
- 11: Demonstrate and apply the fundamental knowledge of the basic principles of majosr fields of Zoology;
- 12: Apply knowledge to solve the issues related to animal sciences.
- 13: Take appropriate steps towards conservation of endemic and endangered animal species.
- 14: To foster curiosity in the students for Zoology.
- 15: To create awareness amongst students for the basic and applied areas of Zoology.
- 16: To orient students about the importance of abiotic and biotic factors of environment and their conservation.
- 17: To provide an insight to the aspects of animal diversity.
- 18: To inculcate good laboratory practices in students and to train them about proper handling of lab instruments.
- 19: Demonstrate knowledge and understanding of Zoology and management principles and apply these to one's own work, as a member and leader in a team.
- 20: 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.
- 21: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Chemistry:

- Undergraduate students are to be passionately engaged in initial learning with an aim to think differently as agents of new knowledge, understanding and applying new ideas in order to acquire employability/self-employment.
- 2. Undergraduate students are trained to take up higher learning programmes.
- 3. Undergraduate students are made to be competent and socially responsible citizen of India.
- 4. Undergraduate students are to be exposed to technical, analytical and creative skills.
- 5. Undergraduate students are to be imparted with a broad conceptual background in the Biological sciences / Computing sciences / Languages and culture / Management studies / Physical sciences.
- 6. Positive approach towards Environment and Ecology from the Chemistry perspective
- 4. Critical thinking and the Analytical mind, students develop for the in depth knowledge in advanced-level Chemistry
- 7. The relevance of extension of Chemistry in the social context for solving social issues.
- 8. Employability Skills shall enable the students to find jobs in core chemistry and other related fields.
- 9. Entrepreneurial Skills shall empower the students to start their own industries / business in core-chemistry fields.
- 10.. Analytical or Experimental Skills make the students capable of doing higherlevel research works in the emerging fields of chemistry.