

IV) Employ multiple forms of evidence in their work.

Department of Physics



Physics involves the study of matter, its motion and behaviour through space and time along with related concepts such as energy and force. The main goal of Physics is to understand the behavior of the universe. The curriculum of physics as a subject in B.Sc. pass course has been designed with following goals in view-

Students will be acquainted with the knowledge of classical mechanics, electromagnetism, quantum mechanics, thermal physics, electronics, optics etc. and will be able to apply this knowledge to analyze a variety of physical phenomena. Electronics is widely used in information, processing telecommunication and signal processing. The ability of electronic devices to act as switches makes digital information processing possible. Power electronics applications are extended to various fields such as aero space, automotive, electrical and electronic systems.

Electromagnets are used in all kinds of electrical devices including hard disk drives, speakers, motors, generators, in MRI machines etc. The knowledge of quantum theory can be used in quantum computing, LEDs, Lasers, Superconducting magnets.

Further, students will be able to demonstrate proficiency in mathematics as the mathematical concepts needed for a proper understanding of physics are part of the curriculum.

Students will be able to show learned laboratory skills, enabling them to take measurements in a physics laboratory and analyze the measurements to draw valid conclusions. This increases analytical and logical thinking and also creates an interest in research. Students will be capable of oral and written scientific communication.

After graduation in physics, students can go for postgraduate courses in various universities

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Department of Mathematics

Mathematics helps us to have better problem solving skills analytical thinking refers to the ability to think critically about the world around us.

Analytical and reasoning skills are important because they help us to solve problems and look for solutions. Differential equations have remarkable ability to predict exponential growth and decay change in investment return. We use the derivative as cost strength, amount of material use in a building. The application of dynamics and statics as modeling the behavior of moving and stationary object.

In every competition there is a paper of mathematics and analytic reasoning. There are many job opportunities i.e. data scientist investment analyst, CAD technicians, game designer etc. Numerical analysis model are used in financial management i.e. LIC, mutual funds etc.

Linear programming problems have a great applications in inventory problems, transportation problems, queuing theory and assignment problems and game theory etc.

Department of Botany

The three years UG course of Botany is divided in nine papers (three papers per year) with related practical exercises to enrich student with the basic knowledge of concepts and the phenomena related to the world of plants. At the completion of B.Sc. in Botany the student are able to understand –

- The structural organization of cell, cell organelles, cell division, genetics and inheritance.
- The morphological and structural organization of algae, fungi, bryophytes, pteridophytes, gymnosperms and angiosperms.
- The various physiological and metabolic activities of plants, biotechnology and biochemical estimation of byproducts.
- Economic botany and plant utilization in concern with human life.
- Study of microorganisms and their industrial applications.
- Diversity of plants., environment, ecosystem and biogeochemical cycles in nature, phytogeography etc.
- Student is equipped to gain self employment in the field of organic manure preparation, horticultural plant production, cultivation of crops, plant tissue culture, biotechnology and genetic engineering, mushroom cultivation, food industries etc.

Department of Chemistry

Graduates from this syllabus courses will be better prepared to understand the new environment friendly systems and can understand the processes that the chemical society / industry is adopting.

After doing B.Sc. Chemistry one can go for M.Sc. Chemistry or take up various jobs and take up in internship to prepare for industry level entries. Some of the jobs are as follows after M.Sc. Chemistry.

- Analytical Chemist
- Bio-medical chemist
- Chemical engineering associate
- Industrial research scientist
- Lab chemist
- Materials technologist
- Production chemist
- Quality controller
- R & D Director
- Research and development manager
- Safety, health and environment specialist

Department of Zoology

The course offered in zoology Graduation programme enables the students to:-

- Have a broad understanding of animal diversity, including knowledge of the scientific classification and evolutionary relationships of major groups of animals.
- Comprehend the relationships between structure and functions at different levels of biological organization (e.g., molecules, organs, organisms, populations, and species) for the major groups of animals.
- Characterize the biological, chemical, and physical features of environments (e.g., terrestrial, freshwater, marine, host) that animals inhabit. Explain how animals function and interact with respect to biological, chemical and physical processes in natural and impacted environments.
- Explain how organisms function at the level of the gene, genome, cell tissue, organ and organ-system. Illustrate change drawing upon this knowledge, they are able to give specific examples of the physiological adaptation, development, reproduction and behavior of different forms of life.
- Understand the applied biological sciences or economic Zoology such as sericulture, Apiculture, aquaculture, Industrial microbiology, rDNA technology and medicine for their career opportunities.
- Grab the basic concepts of biosystematics and taxonomy.
- Identify the taxonomic status of non-chordates up to annelids and able to discuss the evolutionary model of the group.
- Describe the social life and economic importance of insects.
- Understand the morphological diversity, biological characters and taxonomical importance of some selected museum specimens belonging to different animal phyla.
- Identify the taxonomic status of chordates and discuss the evolutionary model of the group.
- Understand the comparative anatomy and vital systems of chordates.



- Understand the detailed structure of cell and cell organelles in relation to the functional aspects and working principles; and application of microscopy.
- Understand the process of development of animals.
- Understand the theories of evolution and highlight the role of evidence in support of evolution.
- Understand the theories of classical genetics and blood group inheritance in man.
- Understand the genetic defects and inborn errors of metabolism, role of inbreeding and outbreeding eugenics.
- Understand about the composition of food and mechanisms of digestion, absorption and assimilation.
- Comprehend the energy source, chemical bonds and the principles of thermodynamic and the importance of acid base balance.
- Describe taxonomy, Morphological sexual differentiation in larva and adult.
- Attain knowledge about the history, branches and scope of biotechnology and gene transfer technology.
- Understand the recombinant DNA technology, gene integration into the vector and with host genome and creation of transgenic animals.
- Understand the ecology and environment with respect to the life on earth.
- Understand the abiotic factors of environment, biogeochemical cycles and intraspecific relationships of animals.
- Understand the tools of gene manipulation and gene transfer.
- Understand the techniques of recombinant DNA technology and its key applications
- Procure knowledge of sterilization technique, blotting technique, DNA isolation from cells etc.

Department of English

1. Interpretation and appreciation of selected texts from the genres of poetry, drama, prose and fiction.
2. Strengthening skills of not making, summarizing and dialogue writing.
3. Understanding texts with specific references genres, forms and literary terms.

Studying literature not only provides pleasure but also broadens the horizons of our knowledge and improves our mind. It helps us develop an optimistic approach to life; to discover our inner strengths and hidden potential and to encounter the challenges of life boldly. Literature inculcates human values in us and inspires us to make our lives sublime.

DEPARTMENT OF GEOGRAPHY

For Graduate students-

The curriculum is designed to make students familiar about earth surface, environment and various human activities affected by nature.

'Physical Geography' develops the understanding of students about features of earth surface like rocks, soil, denudation, topography made by different agents of erosion and various changes the earth has gone through in geological time history. The curriculum deals with the atmospheric phenomena like stratification of atmosphere, related characteristics, air pressure, wind belts, global climatic classification and related flora and fauna. Oceanography explains the relief features of the oceans, their salinity, density, temperature, ocean currents etc. Biogeography is added as a unit of the paper to make the student aware of the ecosystem, food chain, producers and consumers at various levels. This paper gives the basic information to students about our surroundings.

'Geography of Resources' paper helps students understand about the classification of resources and their world distribution. As the exploitation of resources is reaching dangerous levels, the need for awareness of conservation techniques is becoming a prime necessity. This paper contributes to creating this awareness.

'Human geography' focuses on the study of humans. Since human is the active agent of nature, he creates vivid changes in nature through social, cultural, economic activities such as trade and transport etc. These all changes have been taught in the paper.

Besides systematic approach, regional approach has been given equal significance in the syllabus. Geography of India, Geography of Rajasthan and Regional Geography of the world are the papers which give a new perception to students for spatial analysis of macro to micro regions. Mapping promotes the understanding of students about localization of various places.

Practical –

Cartographical techniques help students to know more about the basic ingredients of map and how to prepare a map. Scales and Projections are few of them. Weather maps interpretation guides students how to read forecast about weather with the help of the said maps. Various Cartographic methods like Isopleth, Choropleth, Chorochromatic, Choroshematic, Shading practices train students to present the different demographic, economic, political distribution data on map.

Chain tape survey, Prismatic Compass survey and Plain Table survey have been added to curriculum at different graduate level to make students familiar with preparing the plan of the area.

For Post Graduates

Post graduate curriculum is designed to develop the advanced and in-depth understanding of geography. 'Advanced physical Geography' gives the conceptual knowledge about lithosphere, atmosphere hydrosphere.

Evolution of Geographical thought is the paper which makes the students familiar with the history of geography. The paper deals with the various philosophies and associated geographers like Radicalism, Idealism, Exceptionalism, Quantitative revolution etc.

Principles and Theories of Economic Geography delves in the various theories related to various economic activities like land use, industrial localization etc.

Advanced Geography of India paper enhances the analytical skills of students regarding regional geography of India.

'Man and Environment' helps students to understand the impact of environment on man and man's impact of environment. Dualism like Determinism, Possibalism and Neo Determinism has been deliberated upon.

'Quantitative Techniques in Geography' and 'Research Methodology' are the papers which develop research aptitude in students. They help students to prepare research design. The papers deal with various analysis methods like Nearest Neighbour Analysis, Principle Component Analysis, Transport Network Analysis, Population Potential Analysis which are helpful for analytical study of data.

Besides these papers, geographical study of various human activities has been done through optional papers like Agricultural Geography, Industrial Geography, Political Geography, Cultural Geography, Rural Development etc.

Practical

Developing Cartographic understanding is the basic focus in previous year as Mathematical projection construction, distribution methods, Statistical methods, Topographical sheets analysis, Cartograms are the main course contents. Socio Economic Survey report is added in curriculum to help students to know about questionnaire and collect primary data. It helps students to identify the problems of study area and suggest probable remedies.

Practical content of Final year emphasizes on the field mapping skills of students. Theodolite, Clinometer, Dumpy level, GPS are some of the survey instruments used to develop their survey skills.

Thus the course content is concise and designed to develop their analytical thinking regarding spatial and temporal features.

Department of Hindi

हिन्दी साहित्य साहित्य के विद्यार्थियों के लिए स्नातक स्तर पर साहित्य की विभिन्न विधाओं जैसे – कविता, कहानी, निबन्ध, नाटक, एकांकी एवं उपन्यास आदि का प्रयोग पाठ्य सामग्री के रूप में किया गया है। इससे न केवल वे साहित्य की विधाओं से परिचित हुए हैं अपितु उनमें पढ़ने के प्रति सकारात्मक दृष्टिकोण भी विकसित हुआ है। इस पाठ्यक्रम से विद्यार्थियों का अभिव्यक्ति कौशल सुधरा है जिसके फलस्वरूप भाषा का सटीक प्रयोग करना उन्हें आने लगा है। साहित्य की पाठ्य सामग्री, पठन कौशल के साथ श्रवण, वाचन और लेखन कौशल की अभिवृद्धि में भी सहायक सिद्ध हुई है।

DEPARTMENT OF POLITICAL SCIENCE

The under graduate program in Political Science familiarizes a student with a wide spectrum of political theories, concepts and politicking. The course includes the study of key concepts such as Behaviouralism, Post- Behaviouralism, Power, Authority, Legitimacy, Political System, Political Development, Political Modernisation, Political parties, Pressure Groups, Constitutionalism, Liberalism, Democracy, Dictatorship, Political parties, Idealism, Marxism, Democratic Socialism, Anarchism, Feminism, etc.

The understanding of various Indian political thinkers such as Manu, Kautilya, Shukra, Ram Mohan Roy, Dayanand Saraswati, Gokhale, Tilak, Vivekanand, Gandhi, Nehru, Ambedkar, M.N.Roy, J. P. Narain, D. D. Upadhyay and western thinkers such as Plato, Aristotle, Aquinas, Machiavelli, Hobbes, Locke, Rousseau, Bentham, J.S. Mill, Marx is in the purview of the course.

Some selected political systems such as that of Britain, USA, People's Republic of China and Switzerland, besides the working of the Indian political system have been included in the syllabus, representative of various systems enabling the students to comprehend the execution of the political order.

The study of international developments post World War II, U.N.O, USA and the third world, collapse of Communist block, reorganization of Europe, Indian foreign policy and its relations with its neighbours as well as major powers, India and UN, NAM and its relevance, India's Look East Policy and India in contemporary multi-polar world is included in the ambit of Political Science programme. This equips with students with the knowledge about the dynamics of the political system and their challenges.

Department of Sanskrit

संस्कृत इण्डो-यूरोपीयन भाषा की प्राचीनत एवं वैज्ञानिक भाषा है। दिव्य व दैवीय गुणों से युक्त, अतिपरिष्कृत, परिमार्जित, सर्वाधिक व्यवस्थित, अलंकृत सौन्दर्ययुक्त, पूर्ण समृद्ध व सम्पन्न देववाणी संस्कृत – मनुष्य की आत्मचेतना को

