

### **PROGRAMME OUTCOME (PO) for Bachelor of Science, Botany**

<b>PO1</b>	Understands the world of microbes, algae, fungi and lichens and understands the economic, environmental and pathological importance of bacteria and fungi and their ecological and industrial significance. Learns about Cultivation Technology of different species of edible algae and mushroom. Know the role of microorganisms in different production processes in order to improve these processes and ensure their success.
<b>PO2</b>	Imparting an insight into the internal structure and reproduction of the most evolved group of plants, the Angiosperm. Knows the different plant reproduction systems, how they affect genetic variability and how they condition the strategies and processes of selection and breeding.
<b>PO3</b>	Understand the diversity in habits, habitats and organisation of various groups of plants and impart an insight into the modern classifications and evolutionary trends in lower forms of plants like Bryophytes, Pteridophytes and Gymnosperms.
<b>PO4</b>	Understand the morphology and development of reproductive parts and get an insight in to the fruit and seed development. Understand the significance of Paleobotany & Palynology and its applications.
<b>PO5</b>	Understand the systems of classification of angiosperms, nomenclature and interdisciplinary approaches and can identify plants in their natural habitats.
<b>PO6</b>	Recognise members of the major angiosperm families by identifying their diagnostic features and economic importance and evaluate the economic importance of selected angiospermic plants. Describe the cultural uses of plants for food, fiber, medicine, biotechnology, etc and transfer knowledge of Agriculture/Horticulture in the field of agricultural research especially horticulture including field of economically important plants.
<b>PO7</b>	Understands about the inter relationship between living world & environment and Identify plant species important in different ecosystems.
<b>PO8</b>	Describe Origin & evolution, and appreciates genetic diversity of Algae, bacteria, fungi, Pteridophyte, Gymnosperms and angiosperms. Describe major evolutionary lineages of plants and their defining characteristics.
<b>PO9</b>	Describe cytological, biochemical, physiological and genetic aspects of the cell, including cellular processes common to all cells, to all eukaryotic cells as well as processes in certain specialized cells and Apply quantitative problem-solving skills to genetics problems and issues.
<b>PO10</b>	Demonstrate an understanding of various physiological and biochemical processes in plants at both molecular and organismal level.
<b>PO11</b>	Understand about the plant tissue culture & describe about the Biotechnological process for the development of genetically modified microbes and plant for managing environmental issues and high yield respectively.
<b>PO12</b>	Select method of data collection and apply different analysis method. Correlation and statically inference of different observed data.
<b>PO13</b>	Substantial multidisciplinary knowledge about natural resources management & Use data collection and analysis tools (such as field methods, GIS, modelling, and statistics) to develop plans for managing resource/environmental challenges and adapt plans in response to rapid change.

[illegible]

## **Programme Outcome (PO) for Bachelor of Science in Chemistry**

PO 1: Strong foundation in the fundamentals and application of theoretical chemistry i.e., analytical, inorganic, organic and physical Chemistry helping to pursue career in industry as well as in research work.

PO2: By using statistical methods in chemical analysis to design experiments, record data and analyze results enhancing their problem solving approach.

PO3: Critical thinking and analytical reasoning to scientific problems.

PO4: Handling of digital instrumentation and techniques helping to understand modern scientific problems.

PO5: Clear communication skill developing through documentation of laboratory note book and presentation.

PO6: Providing opportunity to work in interdisciplinary area.

PO7: Development of basic knowledge and application in pharmaceutical chemistry, medicinal chemistry through synthesis and characterization of organic molecules.

PO8: Reducing adverse effects on environment using of green techniques alternative to conventional laboratory methods.

PO 9: Developing new software program for solving chemistry problems through exposure to modern software and computational language

PO10: To qualify competitive exam for progression to higher studies in chemistry by studying the modern topics.

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CC-1-1(Inorganic)	√			√	√					√
CC-1-1(Organic )	√		√	√			√		√	√
CC-1-2(Physical)	√	√	√	√	√	√				√
CC-1-2(Organic)	√		√	√			√		√	√
CC-2-3(Organic)	√		√	√			√		√	√
CC-2-4(Inorganic)	√			√	√					√
CC-3-5 (Physical)	√	√	√	√	√	√				√
CC-3-6(Inorganic)	√			√	√					√
CC-3-7(Organic)	√		√	√			√		√	√
CC-4-8(Organic)	√		√	√			√		√	√
CC-4-9(Physical)	√	√	√	√	√	√				√
CC-4-10(Inorganic)	√			√	√					√
CC-5-11(Physical)	√	√	√	√	√	√				√
CC-5-12(Organic)	√		√	√			√		√	√
CC-6-13(Inorganic)	√				√	√				√

CC-6-14(Physical)	√	√	√	√	√					√
DSE A-1(Molecular modelling and drug design)	√	√	√	√		√			√	√
DSEA-2 (Applicaion of computer in chemistry)	√		√	√	√	√			√	√
DSE-A-3(Green chemistry and Chemistry of natural products)	√			√		√	√	√	√	
DSE-A-4(Analytical methods)	√	√	√		√	√				√
DSE-B-1(Inorganic materials of industrial importance)	√			√	√	√				√
DSE-B-2(Novel inorganic solids)	√			√	√	√				√
DSE-B-3(Polymer)	√			√	√	√				√
DSE-B-4(Dissertation)	√	√	√	√	√	√	√	√	√	√
SEC-A-1(Mathematics and statistics for chemists)	√		√	√	√	√			√	√
SEC -A-2(Analytical clinical biochemistry)	√		√			√	√			√
SEC-B-3(Pharmaceutical)	√		√			√	√			√
SEC-B-4 (Pesticide)	√		√			√	√			√

Programme Outcome (PO) for Bachelor of Science in  
Economics

Programme Outcome:

PO 1: To develop analytical ability among students

PO 2: To have an idea about how the Government functions

PO 3: To have an idea about the evolution of the present day Indian Economy

PO 4: To maximise standard of living and to achieve stable Economic Growth

PO 5: To understand and apply core Economic Principles related to consumers, producers and market

PO 6: To know policy making mechanism related to money and currency from an applied finance context

PO 7: Application of Statistics and Mathematics in Economics usually used for forecasting

PO 8: Basic idea of Indian Economic structure, problems and policies

PO 9: Idea between Environment and Economy as Environment plays a key role in Economics in terms of GDP, trade and the like.

PO 10: To generate ideas about the Indian rural economy, Women empowerment, self help groups, functions of NGOs.

PO 11: To make students aware about the concepts and indicators of Economic development, development strategies and international development agencies.

PO 12: To give an overall idea about share market derivative market and financial instruments as a whole.

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CCI Introductory Microeconomics	√					√					√	
CCII Mathematical Methods in Economics	√				√		√					√
CCIII Introductory Macroeconomics	√	√		√		√					√	√
CC IV Mathematical Methods in Economics-II	√				√		√					√
CC V Intermediate Microeconomics	√				√						√	
CC VI Intermediate Macroeconomics I	√	√		√		√					√	√
CC VII Statistical Methods for Economics	√			√	√		√				√	√
CC VIII Intermediate Microeconomics	√				√						√	
CC IX Intermediate Macroeconomics II	√	√		√		√					√	√
CC X Introductory Econometrics	√			√	√	√	√				√	√

CC XI International Economics	√	√		√	√	√	√			√	√	√
CC XII Indian Economy		√	√	√		√		√	√	√	√	
CC XIII Public Economics	√	√		√				√	√	√	√	
CC XIV Development Economics	√	√		√	√			√	√	√	√	
SEC I, SEC-3 A(1) (A) Rural Development	√	√		√				√		√	√	
SEC II , SEC-4 B(2) Managerial Economics	√	√		√	√						√	
DSE- 5 A (2) Economic History of India	√		√	√	√	√	√		√			√
DSE-5 B (1) Financial Economics	√	√				√			√			√
DSE-6 A (2) Money and Finance Markets	√	√				√						√
Dse-6 B (2) Environmental Economics	√	√						√	√		√	

**Programme Outcome (PO) for Bachelor of Science in  
Geography**

	<b>Programme Outcome (PO)</b>
PO1	To understand origin and evolution of topographic and bathymetric phenomenon created by physical, chemical and biological processes operating at or near the earth surface.
PO2	Ability to use survey instruments, Toposheets and basic cartographic techniques for map making.
PO3	Evolution of human society in relation to its demographic changes and adaptation to environment sustainably. Understanding importance of water resources (underground, surface run-off as well as inland) and marine resources along with their sustainable uses.
PO4	To provide knowledge about application of statistics in field work preliminarily so that the students can apply it in future higher studies like Hazard management, Climate change, Soil Geography, Bio-Geography, Socio-Economic studies for research.
PO5	Gathering actual knowledge about the fundamental concept of the indicators of development and Regional Planning by which regional imbalances of India may be reduced on the basis of locally available resources with the assistance of rural as well as urban governance.
PO6	Providing sufficient knowledge about research methodology and field work with special reference to man-environment relationship and hazard resisting preparedness.
PO7	To impart true concept of remote sensing, GIS and GNSS for the advanced skill development of the students towards various fields of Geographical research, modern map making and hazard preparedness through Q-GIS.
PO8	Obtaining detailed knowledge about the evolution of Philosophy of Geography moving towards 21 <sup>st</sup> Century oriented techno-scientific era.
PO9	Gathering actual knowledge about Global as well as domestic tourism leading to the development of the concerned region utilising the local resource.
PO10	Imparting proper concept about rural governance that can be applied to remove regional disparity of India by paradigms of rural development and Special Area Development Programme on the basis of local resources.
PO11	To develop a solid foundation about various geographical aspects of India along with cultural diffusion and diversity as well as rural and urban settlement features.

### Course Outcome (CO)

CO	P O1	P O2	P O3	P O4	P O5	P O6	P O7	P O8	P O9	PO1 0	PO1 1
GEO-A-CC-1-01-TH/P Geotectonics and Geomorphology	√	√	√			√	√			√	√
GEO-A-CC-1-02-TH/P Cartographic Techniques	√	√	√	√	√	√	√	√	√	√	√
GEO-A-CC-2-03-TH/P Human Geography	√	√	√	√	√	√		√	√	√	√
GEO-A-CC-2-04-TH/P Cartograms, Thematic Mapping and Surveying	√	√	√	√	√	√	√		√	√	√
GEO-A-CC-3-05-TH/P Climatology			√	√		√	√		√		√
GEO-A-CC-3-06-TH/P Hydrology and Oceanography	√		√	√			√				√
GEO-A-CC-3-07-TH/P Statistical Methods in Geography	√	√	√	√	√	√	√		√	√	√
GEO-A-CC-4-08-TH/P Economic Geography			√	√	√	√			√	√	√
GEO-A-CC-4-09-TH/P Regional Planning and Development			√	√	√	√			√	√	√
GEO-A-CC-4-10-TH/P Soil and Biogeography	√	√		√	√		√			√	√
GEO-A-CC-5-11-TH/P Research Methodology and Field Work	√	√	√	√	√	√	√		√	√	√
GEO-A-CC-5-12-TH/P Remote Sensing, GIS and GNSS	√	√	√	√	√	√	√		√	√	√
GEO-A-CC-6-13-TH/P Evolution of Geographical Thought		√				√		√			
GEO-A-CC-6-14-TH/P Disaster Management	√	√	√	√	√	√	√		√	√	√



GEO-A-DSE-B-5-05-TH/P – Cultural and Settlement Geography	√	√	√	√		√			√	√	√
GEO-A-DSE-A-6-04-TH/P- Resource Geography		√	√	√	√	√			√	√	√
GEO-B-DSE-B-6-08-TH/P- Geography of India	√	√	√	√	√	√	√		√	√	√
GEO-A-SEC-A-3-02-TH- Tourism Management		√		√	√	√			√	√	√
GEO-A-SEC-B-04-03-TH- Rural Development		√	√	√	√	√	√			√	√

## **Programme Outcome (PO) for Bachelor of Science in Mathematics**

PO1: Communication Skills: Ability to explain the development of mathematics in the civilization context and its role as queen of all sciences.

PO2: Critical thinking and analytical reasoning: Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.

PO3: Problem solving: Capacity to solve problems like various ecological and radioactive models, linear programming problems, network flow problems in computer using various concepts of mathematics.

PO4: Research-related skill: To know about the advances in various branches of mathematics.

PO5: Information/digital literacy: Capacity to understand, use and apply appropriate software for mathematical investigations and problem solving.

PO6: Self-directed learning: Ability to work independently and do in-depth study of various notions of mathematics.

PO7: Moral and ethical awareness: Moral and ethical awareness and reasoning are imparted through the various courses.

PO8: Lifelong learning: Ability to think, acquire knowledge and skills through logical reasoning and to inculcate the habit of self-learning.

PO9: Experiential learning: hands on experience for problem solving and programming.

PO10: Disciplinary knowledge: Capability of demonstrating comprehensive knowledge of mathematics and understanding of one or more disciplines which form a part of an undergraduate programme of study.

## Course Outcome (CO)

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CC-1: Calculus, Geometry & Vector Analysis		√		√			√			
CC-2: Algebra			√				√			
CC-3: Real Analysis	√	√		√			√			
CC-4: group Theory – I		√	√			√	√			
CC-5: Theory of Real Functions	√	√	√				√			
CC-6: Ring Theory and Linear Algebra-I	√	√	√			√	√			
CC-7:ODE & Multivariable Calculus-I			√	√			√			√
CC-8: Riemann Integration & Series of Functions		√	√			√	√			
CC-9: PDE & Multivariate Calculus-II	√		√	√			√	√		√
CC-10: Mechanics	√		√				√	√		√
CC-11: Probability & Statistics	√	√	√				√	√		√
CC-12: Group Theory-II & Linear Algebra-II			√	√			√			
CC-13: Metric Space & Complex Analysis		√				√	√	√		
CC-14: Numerical Methods	√		√	√	√		√	√	√	√

DSE-A1: Advance Algebra		√				√	√	√		
DSE-A2: Mathematical Modelling	√	√	√			√	√	√		
DSE-B1: Linear Programming & Game Theory	√	√	√			√		√		
DSE-B2: Point Set Topology				√			√			
SEC-A: C Programming Language	√		√		√	√		√	√	√
SEC-B: Scientific Computing and Sage Math	√		√	√	√			√	√	√

## **Programme Outcome**

### **(PO) B. Sc. in Physics**

#### **(Hons.)**

**POA:** To enhance the capability of the students in knowledge production and thus to equip them with skills relevant for national and global standards.

**POB:** To prepare the students for coherent understanding of the basic fields of Physics, its different learning areas and applications, its linkage with mathematics and other related subjects.

**POC:** To promote the ability to use skills in physics and its related areas of technologies for formulating, identifying and applying appropriate physical principles and methodologies in solving a wide range of problems.

**POD:** To develop the ability amongst the students to plan and execute Physics related experiments , to handle sensitive electrical and electronic circuits and to use modern and sophisticated instruments. And also to analyze and interpret data/information collected using appropriate method and software packages.

**POE:** To encourage the students to use different modern techniques, application software including programming languages for analysis of experimental data and report accurately the findings of the experiments.

**POF:** To promote the habit of reading texts, reference books and research papers analytically and to construct logical arguments using correct technical language.

**POG:** To improve the i) communication skills including the ability to listen carefully, ii) personal skills that is the ability to work independently and in a group. And iii) ICT skill.

**POH:** To create /produce professionals related to the subject area of Physics who will be engaged in research and development , teaching and other Public/Private sector services.

**POI:** To make the students capable to face global competition by enhancing their problem solving skills, investigative skill that is the skill to investigate physics related problems independently.

**POJ:** To inculcate /insert qualities among the students/graduates such as i) commitment to the profession ii) Ethical integrity that involves resisting pressure in decision making and not abusing power iii) Enhancement of competencies by offering ideas clearly and effectively with subsequent logical explanation.



CO		POA	POB	POC	POD	POE	POF	POG	POH	POI	POJ
CC14 (Solid State Physics)	Theory	√	√	√	√	√	√	√	√	√	√
	Practical	√	√	√	√	√	√	√	√	√	√
DSEA1a (Advanced Math methods)	Theory	√	√	√			√	√	√	√	√
	Tutorial	√	√	√			√	√	√	√	√
DSEA1b (Laser and Fibre Optics)	Theory	√	√	√			√	√	√	√	√
	Tutorial	√	√	√			√	√	√	√	√
DSEA2a (Nano materials and Applications)	Theory	√	√	√			√	√	√	√	√
	Tutorial	√	√	√			√	√	√	√	√
DSEA2b (Advanced Classical Dynamics)	Theory	√	√	√			√	√	√	√	√
	Tutorial	√	√	√			√	√	√	√	√
DSEB1a (Astronomy and Astrophysics)	Theory	√	√	√			√	√	√	√	√
	Tutorial	√	√	√			√	√	√	√	√
DSEB1b (Nuclear and Particle Physics)	Theory	√	√	√			√	√	√	√	√
	Tutorial	√	√	√			√	√	√	√	√
DSEB2a (Communication Electronics)	Theory	√	√	√			√	√	√	√	√
	Tutorial	√	√	√			√	√	√	√	√
DSEB2b(Advanced Statistical Mechanics)	Theory	√	√	√			√	√	√	√	√
	Tutorial	√	√	√			√	√	√	√	√
SECA1 (Scientific Writing)	Project Type	√	√	√			√	√	√	√	√
SECA2(Renewable energy and energy harvesting)	Knowledge Skill	√	√	√			√	√	√	√	√
SECB1 (Arduino)	Project Type	√	√	√	√	√	√	√	√	√	√
SECB2 (Electrical Circuits and Network skills)	Knowledge Skill	√	√	√			√	√	√	√	√

**Programme Outcome (PO) for Bachelor of Arts/Science in Department of Psychology**

PO 1: To introduce students to the basic concepts of psychology and applications of psychology in everyday life.

PO 2: Building orientation regarding psychological research (quantitative and qualitative) and to familiarize students with the use of statistical method.

PO 3: To explore the biological basis of behavior and develop understanding regarding cognition and neurobiological basis of psychological function.

PO 4: Developing the introduction to the development of discipline, concept of psychological thought, individual differences, individual's potential and self and Identity from Indian and western Perspective.

PO 5: To introduce students to the realm of social world, its influence and help students gain knowledge about social problems with intervention strategies to address them

PO 6: Understanding and dealing with psychological disorders and concepts, processes and techniques of counseling.

PO 7: To impart an understanding of the various domains of human development across life span.



PO 12: To help students learn how they can make adjustments and manage to cope with stress effectively.

[illegible]

<b>CC 3 Biopsychology</b>			√									
<b>CC 4 Psychology of individual differences</b>				√								
<b>CC 5 Development of psychological thought</b>				√								
<b>CC 6 Psychological research</b>		√										
<b>CC7 Social psychology</b>					√							
<b>CC 8 Understanding Psychological Disorder</b>						√						
<b>CC 9 Statistical methods for psychological research</b>		√										
<b>CC 10 Applied social psychology</b>					√							
<b>CC 11 Understanding and dealing with psychological disorder</b>						√						
<b>CC 12 Developmental psychology</b>							√					
<b>CC 13 Organizational behaviour</b>								√				
<b>CC 14 Counselling psychology</b>						√						
<b>DSE-A-1 Positive psychology</b>									√			

[illegible]

### **Programme Outcome (PO) for Bachelor of Science in Zoology**

**PO 1:** In-Depth knowledge and understanding about the fundamental concepts, principles and processes underlying the academic field of Zoology.

**PO 2:** Procedural knowledge that creates different types of professionals in the field of Zoology

**PO 3:** Develop skills related to specialization areas within Zoology and allied sub-fields

**PO 4:** Use appropriate information with a critical understanding of animals

**PO 5:** Learn basic laboratory and analytical skills

**PO 6:** Participate in animal management programmes in an effective manner

**PO 7: Work safely and effectively in the field, in laboratories and in animal facilities**

**PO 8: Use appropriate information with a critical understanding**

**PO 9:** Demonstrate competence in handling and statistical analysis of data gained from practical

**PO 10:** Learn communication and IT skills, including the collection and statistical analysis of data, citing, and referencing work appropriately, communicating using a range of formats

**Course Specific Outcomes (CSO)**

[illegible]

<b>CC 11: Ecology</b>	√	√	√	√	√	√	√	√	√	√
<b>CC 12: Principle of Genetics</b>	√	√	√	√	√	√	√	√	√	√
<b>CC 13: Developmental Biology</b>	√	√	√	√	√	√	√	√	√	√
<b>CC 14: Evolutionary Biology</b>	√	√	√	√	√	√	√	√	√	√
<b>DSE (A):– 5-1: Parasitology</b>	√	√	√	√	√	√	√	√	√	√
<b>DSE (A):– 5- 2: Biology of Insects</b>	√	√	√	√	√	√	√	√	√	√
<b>DSE (B):– 5- 1: Endocrinology</b>	√	√	√	√	√	√	√	√	√	√
<b>DSE (B):– 5- 2: Reproductive Biology</b>	√	√	√	√	√	√	√	√	√	√
<b>DSE (A):– 6- 1: Animal Cell Biotechnology</b>	√	√	√	√	√	√	√	√	√	√
<b>DSE (A):– 6-2: Animal Biotechnology</b>	√	√	√	√	√	√	√	√	√	√
<b>DSE (B):– 6- 1: Animal Behaviour and Chronobiology</b>	√	√	√	√	√	√	√	√	√	√
<b>DSE (B):– 6- 2: Fish and Fisheries</b>	√	√	√	√	√	√	√	√	√	√
<b>SEC A-3-1: Apiculture</b>	√	√	√	√	√	√	√	√	√	√
<b>SEC A-3-2: Sericulture</b>	√	√	√	√	√	√	√	√	√	√
<b>SEC A-4-1: Aquarium Fishery</b>	√	√	√	√	√	√	√	√	√	√
<b>SEC A-4-2: Medical Diagnosis</b>	√	√	√	√	√	√	√	√	√	√

**CC: Core Course**

**DSE: Discipline Specific Electives**

**SEC: Skill Enhancement Course**

**Programme Outcome (PO)**  
**for Bachelor of Science (B.Sc.) (Gen)**

- PO A : Imparting Knowledge and Skills-** Apply the knowledge to solve complex problems and development of scientific temper.
- PO B : Design or Development of Problem analysis and solutions-** Identify, formulate, review and analyze complex problems reaching substantiated conclusions using principles learned.
- PO C : Modern Tool and Software usage-** Create, select and apply appropriate techniques, resources, and modern technology, IT tools and software.
- PO D : Socio-Cultural Awareness-** Demonstrate an understanding of comprehensive systemic analysis across both physical and behavioural dimensions involving society, environment, and the economy.
- PO E : Communication Skills-** Communicate effectively on scientific and technological progress with society at large and able to write effective reports and documentation.
- PO F : Environment and Sustainability-** Understand the basic sustainability concepts of homeostasis, carrying-capacity, recycling, evolutionary processes, socio-political adaptation, climate change, ecosystem services, and environmental justice and understand the relationships among them.
- PO G : Programming Skills-** Develop programming skills to solve real life problems using mathematical tools like modelling.
- PO H : Moral and Ethical Learning-** Imparting moral and ethical values to shape students into responsible citizens in the society.
- PO I : Self Learning Exercise-** Students are encouraged to self-learning through project works, co-curricular activities, industrial exposures and field trainings.
- PO J : Experiential Learning-** Engage students to “learn by doing” and by reflecting on the experience.