CANARA COLLEGE

Managed by Canara High School Association, Mangaluru
Re-accredited by NAAC with 3.21 CGPA at 'A' Grade (Cycle IV - 2022)
Recognized under Section 2(f) and 12(B) of U.G.C. Act, 1956 & Affiliated to Mangalore University
Mahatma Gandhi Road, Kodialbail, Mangaluru – 575 003, D. K. District, Karnataka, India

BACHELOR OF SCIENCE (B.Sc.)

(Basic / Honors Degree)

PEOs, POs, PSOs & GAs

OUTCOME BASED EDUCATION

In accordance with
National Education Policy (NEP) 2020 Scheme
(Effective from 2021-22 Batch onwards)

BACHELOR OF SCIENCE (B.Sc.) PROGRAMME
(Basic / Honors Degree)

Programme Educational Objectives (PEOs) :

The three / four years B.Sc. (Basic / Honors) Degree programme intends to attain the following Programme Educational Objectives :

PEO 1	Develop scientific temperament and attitude among the science graduates.
PEO 2	Understand the core fundamentals of basic sciences.
PEO 3	Apply the acquired scientific knowledge and the applications of basic sciences to community.
PEO 4	Apply ethical principles and commit to professional ethics and responsibilities and norms of the scientific practice.
PEO 5	Develop skills in handling scientific instruments, planning and performing in laboratory experiments.
PEO 6	Empower to appear for various competitive examinations or choose the post graduate programme of their choice and then pursue research in their respective fields.
PEO 7	Enable the learners to perform the jobs in diverse fields such as science, engineering, industries, survey, education, banking, development-planning, business, public service, self-business, etc. efficiently.

Programme Outcomes (POs) :

Students of B.Sc. (Basic / Honors) Degree Programme at the time of graduation will be able to demonstrate the following attributes :

PO 1	**Scientific Temperament :** Inculcate scientific attitude in the minds of learners towards Basic Sciences.
PO 2	**Disciplinary Knowledge :** Apply the scientific knowledge of Basic Sciences for the attainment of solutions to the problems that come across in our day-to-day life or activities.
PO 3	**Problem Solving and Analytical Skills :** Develop the ability to think rationally, analyze situations and solve problems adequately.
PO 4	**Environment and Sustainability :** • Understand the issues of environmental contexts and sustainable development. • Understand the relationship of man with the environment and help them change his attitude for more positive, proactive, eco-friendly and sustainable lifestyles.
PO 5	**Ethical, Social and Professional Understanding :** • Commitment to principles, codes of conduct and social responsibility in order to behave consistently with personal respect. • Acquire the responsibility to contribute for the personal development and for the development of the community. • Respect the ethical values, social responsibilities and diversity.
PO 6	**Individual and Team Work :** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 7	**Life-Long Learning :** 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.

Programme Specific Outcomes (PSOs) :

Students of B.Sc. (Basic / Honors) Degree Programme at the time of graduation will be able to demonstrate the following attributes :

B.Sc. (Physics)	
PO 1	**Discipline knowledge :** Knowledge of science and ability to apply to relevant areas.
PO 2	**Problem solving :** Execute a solution process using first principles of science to solve problems related to respective discipline.
PO 3	**Modern tool usage :** Use a modern scientific, engineering and IT tool or technique for solving problems in the areas of their discipline.
PO 4	**Ethics :** Apply the professional ethics and norms in respective discipline.
PO 5	**Individual and teamwork :** Work effectively as an individual as a team member in a multidisciplinary team.
PO 6	**Communication :** Communicate effectively with the stake holders, and give and receive clear instructions.

Programme Specific Outcomes (PSOs) :

Students of B.Sc. (Basic / Honors) Degree Programme at the time of graduation will be able to :

B.Sc. (Chemistry)	
PO 1	Create enthusiasm among students for chemistry and its application in various fields of life.
PO 2	Provide students with broad and balanced knowledge and understanding of key concepts in chemistry
PO 3	Develop in students a range of practical skills so that they can understand and assess risks and work safely measures to be followed in the laboratory.
PO 4	Develop in students the ability to apply standard methodology to the solution of problems in chemistry
PO 5	Provide students with knowledge and skill towards employment or higher education in the field of chemistry or multi-disciplinary areas involving chemistry.
PO 6	Provide students with the ability to plan and carry out experiments independently and assess the significance of outcomes and to cater to the demands of chemical industries of well-trained graduates.
PO 7	Develop in students the ability to adapt and apply methodology to the solution of unfamiliar types of problems.
PO 8	Instill critical awareness of advances at the forefront of chemical sciences, to prepare students effectively for professional employment or research degrees in chemical sciences and to develop an independent and responsible work ethics.

Programme Specific Outcomes (PSOs) :

Students of B.Sc. (Basic / Honors) Degree Programme at the time of graduation will be able to demonstrate the following attributes :

B.Sc. (Mathematics)	
PO 1	**Disciplinary Knowledge :** Bachelor degree in Mathematics is the culmination of in-depth knowledge of Algebra, Calculus, Geometry, differential equations and several branches of Pure and Applied Mathematics. This also leads to study the related areas such as Computer Science and other allied subjects.
PO 2	**Communication Skills :** Ability to communicate various mathematical concepts effectively using examples and their geometrical visualization. The skills and knowledge gained in this programme will lead to the proficiency in analytical reasoning which can be used for modeling and solving real-life problems.
PO 3	**Critical Thinking and Analytical Reasoning :** The students undergoing the programme acquire the ability of critical thinking and logical reasoning and capability of recognizing and distinguishing the various aspects of real-life problems.
PO 4	**Problem Solving :** The Mathematical knowledge gained by the students through the programme develop an ability to analyze the problems, identify and define appropriate computing requirements for its solutions. This programme enhances students overall development and also equip them with mathematical modeling ability, problem solving skills.
PO 5	**Research related Skills :** Students completing the programme will develop the capability of inquiring about appropriate questions relating to the Mathematical concepts in different areas of Mathematics.
PO 6	**Information / Digital Literacy :** The completion of the programme will enable the learner to use appropriate software to solve system of algebraic equation and differential equations.
PO 7	**Self-directed Learning :** Students completing the programme will develop an ability of working independently and to make an in-depth study of various notions of Mathematics.
PO 8	**Moral and Ethical Awareness / Reasoning :** The student completing the programme will develop an ability to identify unethical behavior such as fabrication, falsification or misinterpretation of data and adopting objectives, unbiased and truthful actions in all aspects of life, in general and Mathematical studies, in particular.
PO 9	**Lifelong Learning :** The programme provides self-directed learning and lifelong learning skills. The programme helps the learner to think independently and develop algorithms and computational skills for solving real-world problems.
PO 10	**Pursue Advanced Studies :** Ability to pursue advanced studies and research in pure and applied Mathematical Sciences.

Programme Specific Outcomes (PSOs) :

Students of B.Sc. (Basic / Honors) Degree Programme at the time of graduation will be able to demonstrate the following attributes :

B.Sc. (Botany)	
PO 1	**Conceptual Knowledge :** Develop a conceptual understanding of principles and importance of Botany. Acquire knowledge of structural, functional and ecological diversity of plants.
PO 2	**Scientific Knowledge :** Apply the knowledge of basic science, life sciences and fundamental process of plants to study and analyze any plant form.
PO 3	**Scientific Temperament :** Aware of tools and techniques in plant sciences; develops scientific temperament, critical thinking, reasoning ability and research attitude.
PO 4	**Practical Skills :** Gain practical skills in the field and laboratory experiments.
PO 5	**Environment and Sustainability :** Understand the impact of the plant diversity in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 6	**Problem Analysis :** Develop the ability to think rationally, analyze situations and solve problems adequately.
PO 7	**Self-directed and Life-long learning :** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of plant study.
PO 8	**Ethics :** Apply ethical principles and commit to environmental ethics and responsibilities and norms of the biodiversity conservation.

Programme Specific Outcomes (PSOs) :

Students of B.Sc. (Basic / Honors) Degree Programme at the time of graduation will be able to demonstrate the following attributes :

B.Sc. (Computer Science)	
PO 1	**Critical Thinking :** Apply knowledge of Computer Science to identify, analyze problems and to provide effective solution in the area of computing.
PO 2	**Analytical Skill :** Ability to design, develop algorithms and provide software solutions to cater the industrial needs.
PO 3	**Problem Solving :** Acquire the ability to resolve the real-time problem with good attitude that are ethical, environmentally responsible and to innovate unceasingly for social benefits as they progress through the programme.
PO 4	**Advanced Studies :** Develop ability to pursue advanced studies and research in computer science.
PO 5	**Employability Skills :** Inculcate skills to excel in the fields of Information Technology and its enabled services, Government and Private sectors, Teaching and Research.
PO 6	**Self-directed and Life-long Learning :** Engaged in lifelong learning to equip them to the changing environment and be prepared to take-up mastering programmes.

Programme Specific Outcomes (PSOs) :

Students of B.Sc. (Basic / Honors) Degree Programme at the time of graduation will be able to demonstrate the following attributes :

B.Sc. (Zoology)	
PO 1	**Disciplinary Knowledge :** Capable of demonstrating - i. Comprehensive knowledge of major concepts, theoretical principles and experimental findings in Zoology and its different subfields including biodiversity, anatomy, physiology, biochemistry, biotechnology, ecology, evolutionary biology, cell biology, molecular biology, immunology and genetics, and some of the other applied areas of study such as wildlife conservation and management, apiculture, sericulture, neurosciences, aquatic biology, fish and fisheries sciences, bioinformatics and research methods. ii. Interdisciplinary knowledge of allied biological sciences, environmental science and chemical science. iii. Learning of the various techniques, instruments, computational software used for analysis of animal's forms and functions.
PO 2	**Effective Communicator :** Capability to convey the intricate Zoological information effectively and efficiently.
PO 3	**Critical thinker and Problem solver:** Ability to rationally analyze and solve the problems related to animal sciences without relying on assumptions and guess work.
PO 4	**Logical thinking and Reasoning :** Capability of seeking solutions and logically solving them by experimentation and data processing either manually or through software.
PO 5	**Team Spirit :** Ability to work effectively in a heterogeneous team.
PO 6	**Leadership Quality :** Ability to recognize and mobilize relevant resources essential for a project, and manage the project in a responsible way by following ethical scientific conduct and bio-safety protocols.
PO 7	**Digitally Literate :** Capable of using computers for biological simulation, computation and appropriate software for biostatistics, and employing search tools to locate, retrieve, and evaluate zoology-related data.
PO 8	**Ethical Awareness :** Avoiding unethical behavior such as fabrication, falsification or misrepresentation of data or committing plagiarism, as well as appreciate environmental and sustainability issues.
PO 9	**Lifelong Learners :** Capable of self-paced and self-directed learning aimed at personal and social development.

Graduate Attributes (GAs) :

GA 1	Academic Excellence
GA 2	Professional Efficiency
GA 3	Analytical and Problem Solving Skills
GA 4	Effective Communication Skills
GA 5	Leadership and Team Work
GA 6	Life-Long Learning
GA 7	Environmental Sensitivity and Social Engagement