

B.Sc. - Cardiac Technology

Programme Outcomes (POs)

- PO1. Develop understanding of human anatomy and physiology as it relates to health and disease
- PO2. Demonstrate knowledge of clinical procedures and diagnostic testing in various healthcare settings
- PO3. Acquire competency in medical terminology and documentation
- PO4. Communicate effectively with patients and healthcare professionals
- PO5. Demonstrate understanding of ethical and legal issues related to healthcare delivery
- PO6. Familiarize with healthcare management and healthcare delivery systems
- PO7. Critically analyze healthcare research and evidence-based practice
- PO8. Showcase competency in interprofessional collaboration and teamwork
- PO9. Develop lifelong learning and professional expertise to adapt to changing healthcare environments.

Programme Specific Outcomes (PSOs)

- PSO1. The program will provide students with a thorough understanding of the principles and techniques of cardiac technology, including anatomy and physiology of the heart, electrocardiography, and diagnostic procedures.
- PSO2. Students will learn about the importance of patient-centred care in cardiac technology and how to prioritize patient comfort and safety during procedures.
- PSO3. The program will provide students with exposure to the latest technology and equipment used in cardiac technology, allowing them to stay current and adapt to new developments in the field.
- PSO4. Students will learn how to interpret diagnostic results from various cardiac technologies, including electrocardiography, echocardiography, and other diagnostic tests.
- PSO5. Students will learn about the ethical and legal issues related to cardiac technology, including patient confidentiality, informed consent, and medical malpractice.
- PSO6. The program will emphasize the importance of interprofessional collaboration and teamwork in cardiac technology, preparing students to work effectively with other healthcare professionals in a clinical setting.

Course Outcomes

2021-2023

Semester	Subject Code	Subject	Course Outcomes
1	21BASANA101	Anatomy – I	<p>CO1: Understand the structure and function of the human body, including the organization of the various body systems (e.g., skeletal, muscular, cardiovascular, respiratory, digestive, urinary, and nervous).</p> <p>CO2: Acquire knowledge about the anatomy and physiology of the cell and tissues, including the different types of cells, tissues, and organs and their roles in maintaining homeostasis.</p> <p>CO3: Summarize the structure and function of the skeleton, including the bones, joints, and the musculoskeletal system.</p> <p>CO4: Learn about anatomy and physiology of the muscles, including the different types of muscles, the mechanisms of muscle contraction, and the functional relationships between the muscles and bones.</p>
1	21BASPHY102	Physiology – I	<p>CO1: Understand the fundamental principles of cell physiology, including membrane transport, cellular metabolism, and the regulation of cellular activities.</p> <p>CO2: Acquire knowledge about regulation of fluid, electrolyte, and acid-base balance in the body, including the mechanisms of osmoregulation and the role of the kidneys.</p> <p>CO3: Understand physiological mechanisms of cardiovascular function, including the regulation of blood pressure, blood flow, and heart rate.</p> <p>CO4: Understand physiological mechanisms of respiratory function, including the control of breathing, gas exchange, and acid-base balance.</p> <p>CO5: Understand the physiological mechanisms of digestive function, including the regulation of digestive secretions, motility, and nutrient absorption.</p>

Semester	Subject Code	Subject	Course Outcomes
1	21BASPAT103	Pathology-[Clinical pathology, Hematology & Blood –Banking – I	<p>CO1: To understand the various techniques in Diagnostic pathology</p> <p>CO2: To be able to handle, process and utilise various cytological, histopathological and clinical pathology samples for appropriate diagnosis.</p> <p>CO3: To appropriately manage Biomedical waste and understand universal precautions</p> <p>CO4: Ability to interpret laboratory test results and diagnose diseases based on these results.</p> <p>CO5: Knowledge of the ethical, legal, and professional considerations involved in Clinical Pathology practice.</p>
1	21BASCT1D01	Introduction to Cardiac Care Technology– I	<p>CO1: To understand and get familiarised to non-invasive diagnostic modalities in cardiac care - ECG and TMT</p> <p>CO2: To learn the basic instrumentation and Principles of Electrocardiography.</p> <p>CO3: To understand the genesis of waveform in ECG.</p> <p>CO4: To acquire knowledge to identify abnormalities such as arrhythmia, axis deviation in ECG</p>
1	21MENVIOVE2	Environment Studies	<p>CO1: Demonstrate a basic understanding of the principles of environmental science, including key environmental issues, the impact of human activities on the environment, and strategies for promoting sustainability.</p> <p>CO2: To apply critical thinking and analytical skills to evaluate environmental problems and propose evidence-based solutions</p> <p>CO3: Understand environmental laws and regulations, as well as the legal frameworks for addressing environmental problems</p> <p>CO4: To assess the role of environmental movements in shaping environmental policy and practice in India, and propose strategies for advancing environmental justice and sustainability in the country.</p> <p>CO5: To evaluate and address ethical and logistical challenges associated with conducting fieldwork in environmental studies, and propose strategies for improving scientific integrity and social responsibility in environmental research.</p>

Semester	Subject Code	Subject	Course Outcomes
1	21ENG1L02	English– I	CO1: Demonstrate a coherent and systematic knowledge of the field of English literature showing an understanding of current theoretical and literary developments in relation to the specific field of English studies. CO2: Demonstrate a set of basic skills in literary communication and explication of literary practices and process with clarity.

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Semester	Subject Code	Subject	Course Outcomes
2	21BASANA201	Anatomy – II	CO1: Understand of the anatomy and function of the cardiovascular, respiratory, digestive, and urinary systems. CO2: Acquire the knowledge of the anatomy and function of the endocrine and reproductive systems. CO3: Understand of the anatomy and function of the nervous system, including the brain and spinal cord. CO4: Acquire the Knowledge of the anatomy and function of the musculoskeletal system, including the bones, joints, and muscles. CO5: Apply anatomical concepts and principles to the diagnosis and treatment of medical conditions. CO6: Acquire knowledge of the interrelationships between different body systems and how they work together to maintain homeostasis.

Semester	Subject Code	Subject	Course Outcomes
2	21BASPBY202	Physiology – II	<p>CO1: Understand the physiological principles and mechanisms that regulate the functions of the cardiovascular, respiratory, digestive, and urinary systems.</p> <p>CO2: Acquire knowledge of the physiological mechanisms that regulate the endocrine and reproductive systems.</p> <p>CO3: Understand the neural and muscular mechanisms that regulate movement and coordination.</p> <p>CO4: Acquire the knowledge of the physiological processes that regulate body temperature, fluid balance, and electrolyte balance.</p> <p>CO5: Apply physiological concepts and principles to the diagnosis and treatment of medical conditions.</p> <p>CO6: Acquire knowledge of the interrelationships between different body systems and how they work together to maintain homeostasis.</p>
2	21BASPAT203	Pathology-[Clinical pathology, Hematology & Blood –Banking – II	<p>CO1: Understanding of the normal and abnormal haematopoiesis and its regulation.</p> <p>CO2: Knowledge of the various blood cell types, their functions, and disorders affecting them.</p> <p>CO3: Understanding of the techniques used for the diagnosis and management of blood disorders such as thrombotic disorders.</p> <p>CO4: Knowledge of blood group systems, blood typing, cross-matching and compatibility testing</p> <p>CO5: Application of the principles and techniques involved in blood transfusion and transfusion reactions.</p> <p>CO6: Understanding of the quality control and standard operating procedures in Haematology and Blood Banking.</p>

Semester	Subject Code	Subject	Course Outcomes
2	21BASCT2D01	Introduction to Cardiac Care Technology– II	<p>CO1: To learn principles of echocardiography techniques including the Principles of ultrasound, various modes used to diagnose cardiac abnormalities.</p> <p>CO2: To be familiarized with instrumentation, ultrasound machine set up, selection of Transducer.</p> <p>CO3: Introduction to Doppler echocardiography, doppler principles and doppler effect</p> <p>CO4: To learn the placement of the transducer to obtain the standard</p> <p>CO5: To understand the techniques of contrast echocardiography and its clinical uses</p>
2	21ENG2L02	English – II	<p>CO1: Understanding of major literary works and their cultural, historical, and philosophical contexts</p> <p>CO2: Understanding of the relationship between literature and social, political, and cultural issues, and the ways in which literature can be used to critique and challenge dominant ideologies.</p> <p>CO3: Exposure to a variety of cultural perspectives and the development of an appreciation for diversity and inclusivity.</p>
2	21BASANA201L	Practical: Anatomy	<p>CO1: Understand the basic principles body systems in the field of medical diagnostics.</p> <p>CO2: Gain hands-on experience with various functions used in anatomy.</p> <p>CO3: Develop the ability to analyze and interpret clinical findings in order to correlate with theoretical background.</p> <p>CO4: Acquire an understanding of the ethical and legal considerations involved in diagnostics.</p> <p>CO5: Develop skills in the design and implementation of the fundamentals of various body systems involved in clinical aspects.</p>

Semester	Subject Code	Subject	Course Outcomes
2	21BASPHY202L	Practical: Physiology-II	<p>CO1: Understand the basic principles and applications of physiological systems in the field of medical diagnostics.</p> <p>CO2: Gain hands-on experience with various instruments used in physiology.</p> <p>CO3: Develop the ability to analyze and interpret physiological data in order to correlate with theoretical background.</p> <p>CO4: Acquire an understanding of the ethical and legal considerations involved in diagnostics.</p> <p>CO5: Develop skills in the design and implementation of the fundamentals of various body systems involved in clinical aspects.</p>

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Semester	Subject Code	Subject	Course Outcomes
3	21BASPHY202L	Practical: Physiology-II	<p>CO1: Understand the basic principles and applications of physiological systems in the field of medical diagnostics.</p> <p>CO2: Gain hands-on experience with various instruments used in physiology.</p> <p>CO3: Develop the ability to analyze and interpret physiological data in order to correlate with theoretical background.</p> <p>CO4: Acquire an understanding of the ethical and legal considerations involved in diagnostics.</p> <p>CO5: Develop skills in the design and implementation of the fundamentals of various body systems involved in clinical aspects.</p>

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3	21BASBIO301L	PRACTICAL BIOCHEMISTRY	<p>CO1: Knowledge of the theory and principles underlying biochemistry experiments and the ability to apply this knowledge to analyze data and interpret results.</p> <p>CO2: Development of critical thinking and problem-solving skills through the design and execution of independent laboratory projects.</p> <p>CO3: Acquisition of skills in laboratory safety, including the proper handling of hazardous chemicals and materials.</p>
3	21BASMIC302	Microbiology – I	<p>CO1: Understand the diversity of microorganisms and their role in the environment, human health, and industrial processes.</p> <p>CO2: Understand the basic structures and functions of microorganisms, including their cellular and molecular biology.</p> <p>CO3: Apply the methods used for the isolation, cultivation, and identification of microorganisms.</p> <p>CO4: Learn about the interactions between microorganisms and their hosts, including the mechanisms of pathogenesis and the host immune response.</p> <p>CO5: Acquire knowledge about the principles and applications of sterilization, disinfection, and infection control.</p>
3	21BASCT3D03	Cardiac Care Technology – Clinical	<p>CO1 : To study the clinical features of valvular heart disease and their management techniques including valvuloplasty and valve surgery.</p> <p>CO2: To understand the pathophysiology of coronary artery disease, mechanism of myocardial infarction and an outline of the percutaneous intervention.</p> <p>CO3: To learn about management of myocardial and pericardial diseases including various types of cardiomyopathies, pericarditis and cardiac tamponade.</p> <p>CO4: Outline about the electrical disturbances of the heart and radiofrequency ablation technique</p>

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3	21ENTPDG01	Entrepreneurship Development	<p>CO1: Outline the function of the entrepreneur in the successful, commercial application of innovations and recall the different opportunities and successful growth stories.</p> <p>CO2: Learn how to start an enterprise and design business plans that are suitable for funding by considering all dimensions of business.</p> <p>CO3: Prioritize personal attributes that enable best use of entrepreneurial opportunities</p> <p>CO4: Examine Economic conditions with higher level knowledge and understanding of contemporary trends in e-commerce and business finance.</p> <p>CO5: Explore entrepreneurial leadership and management style.</p>
3	21BASMED3S02	Medicine Relevant to Specialization	<p>CO1: Knowledge of the causes, mechanisms, and effects of diseases, as well as the basic principles of disease diagnosis and treatment.</p> <p>CO2: Development of clinical skills, including physical examination, patient assessment, and diagnosis.</p> <p>CO3: Understanding of the actions and interactions of drugs on the human body, as well as the principles of drug therapy and drug interactions.</p> <p>CO4: Ability to provide high-quality patient care, including the management of acute and chronic illnesses and the development of treatment plans.</p> <p>CO5: Understanding of ethical principles and standards of professional practice in the field of medicine.</p>

Semester	Subject Code	Subject	Course Outcomes
3	21CENG3A02	Communicative English	<p>CO1: To enhance the understanding of LSRW skills and various approaches to language.</p> <p>CO2: Providing an in-depth academic exposure about various forms of communication to enable students to be better speakers and users of language.</p> <p>CO3: Demonstrate a coherent and systematic knowledge of the field of communication through understanding of current linguistic and literary developments.</p> <p>CO4: Demonstrate a set of basic skills in literary communication and explication of literary practices and process with clarity.</p> <p>CO5: Write analytically in a variety of formats, including essays, speeches, and reflective writings.</p>

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4	Biochemistry - II	<p>CO1: Understand the metabolic pathways and regulation</p> <p>CO2: Acquire Knowledge of the structure and function of enzymes</p> <p>CO3: Understand the biochemistry of carbohydrates, lipids, and nucleic acids</p> <p>CO4: Acquire Knowledge of the structure and function of proteins</p>
4	Microbiology - II	<p>CO1: Develop a comprehensive understanding of the diversity of microorganisms and their impact on human health and the environment.</p> <p>Co2: Understand the basic concepts of microbial pathogenesis, including mechanisms of infection, host defenses, and treatment strategies.</p> <p>Co3: Develop skills in identifying, isolating, and characterizing different types of microorganisms, including bacteria, viruses, fungi, and parasites.</p> <p>CO4: Understand the principles of antimicrobial therapy, including the selection and use of antibiotics and other antimicrobial agents.</p> <p>CO5: Develop critical thinking skills and the ability to apply knowledge and laboratory techniques to solve problems related to microbiology.</p>

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4	Cardiac Care Technology – Advanced	<p>CO1: To know the significant role of early diagnosis in Congenital heart defects using Echocardiography</p> <p>CO2: To develop the skill to analyse complex case studies.</p> <p>CO3: To learn about the management of complications during an interventional procedure in cath lab.</p> <p>CO4: To learn 3D echocardiography and its clinical application</p>
4	Database Management	<p>CO1: Provide the knowledge of Hospital Management system</p> <p>CO2: Determine the ability to archive data, manage and retrieve the necessary Hospital Management data</p> <p>CO3: Create different visual representation of data</p> <p>CO4: acquire knowledge of front end and back end of internet</p> <p>CO5: Apply programming fundamentals using programming tools.</p>
4	Indian Constitution	<p>CO1: learn and understand the Indian Constitution and follow as a citizen.</p> <p>CO2: To Remember, Understand and Apply the Indian Constitution and also citizen following the constitution within the framework.</p> <p>CO3: To understand the concept of CM and State Governor, PM and President, appointment of Supreme Court, High Court and Consumer Court - Judge's.</p> <p>CO4: To understand the existing houses and functioning system of it.</p>
4	Practical: Biochemistry	<p>CO1: Develop a comprehensive understanding of the fundamental principles and techniques of biochemistry.</p> <p>CO2: Gain hands-on experience with a variety of biochemical techniques, including protein purification, enzyme kinetics, spectrophotometry, and chromatography.</p> <p>CO3: Understand the structure and function of biological macromolecules, including proteins, nucleic acids, and lipids.</p> <p>CO4: Study the metabolism of carbohydrates, lipids, and amino acids and the regulation of metabolic pathways.</p> <p>CO5: Develop the ability to analyze and interpret biochemical data</p>
4	Practical: Microbiology	<p>CO1: Understand the microbiology laboratory techniques and procedures, such as staining, cultivation, and isolation of microorganisms.</p> <p>CO2: Identify and characterize different microorganisms using a variety of laboratory techniques.</p> <p>CO3: Exposure to state-of-the-art microbiology techniques and equipment, as well as current research in the field.</p> <p>CO4: Develop critical thinking and problem-solving skills through the design and execution of independent laboratory projects.</p> <p>CO5: Enable to communicate scientific information effectively, both orally and in writing.</p>