PROGRAM OUTCOME (POs)	
Course Code	**B.Sc. PHYSICIAN ASSISTANT IN EMERGENCY & TRAUMA CARE**
PO1	**Clinical Proficiency** - Demonstrate advanced knowledge and technical skills in operation theatre procedures, anesthesia techniques, and perioperative care.
PO2	**Patient Safety and Care -** Apply principles of patient safety and ethical standards in the management of anesthesia and operation theatre environments, ensuring optimal care and minimizing risks.
PO3	**Communication and Collaboration -** Exhibit effective communication skills to collaborate with surgical teams, anesthesiologists, and other healthcare professionals, ensuring cohesive patient care.
PO4	**Critical Thinking and Problem-Solving -** Utilize critical thinking and problem-solving abilities to assess and manage complex clinical situations in anesthesia and surgery, adapting to dynamic environments.
PO5	**Professionalism and Ethics -** Uphold professional ethics, demonstrate responsibility, and commit to continuous learning in the field of operation theatre and anesthesia technology.
PO6	**Leadership and Management -** Develop leadership and management skills to coordinate and oversee operation theatre activities, manage resources, and ensure smooth workflow.
PO 7	**Technology Integration -** Operate and maintain anesthesia equipment, surgical instruments, and other advanced medical technologies, ensuring their proper use in clinical settings.
PO8	**Holistic Development -** Integrate a holistic approach to patient care, considering the physical, psychological, and social aspects of health to ensure comprehensive and compassionate treatment.

Course Outcomes (COs)	
Course Code	**B.Sc. PHYSICIAN ASSISTANT IN EMERGENCY & TRAUMA CARE**
SEMESTER I	
BPA 101 L	**Human Anatomy Part I**
CO1	Define basic technical terminology and language associated with medical anatomy
CO2	Identify and describe the gross anatomy of various tissues and organs in the human body along with Skeletal and Muscular Systems
CO3	Understand and demonstrate the anatomy of Respiratory system, Circulatory system, Digestive system and Excretory system with it's clinical application
BPA 102 L	**Human Physiology Part I**
CO1	Describe basic physiological principles involved in normal funtioning of the human body and thier applications in comprehending the pathophysiology of various diseases.
CO2	To understand the basic mechanism, operation and regulation of different organ systems such as Cardiovascular system, Digestive system, Respiratory system and Muscle-Nerve physiology.
CO3	Ability to identify techniques to evaluate the funtioning of organ systems and interpret the results as normal or abnormal.
BPA 103 L	**General Biochemistry & Nutrition**
CO1	Understand the fundamental principles of biochemistry, including the chemistry and functions of biomolecules such as carbohydrates, proteins, lipids and nucleic acids.
CO2	Gain insights into the principles of bioenergetics and enzymology in human body.
CO3	Undersand basics of collection, handling and processing analysis of blood and urine samples for clinical diagnostics.
BPA 104 L	**Introduction to National Health Care System (Multidisciplinary/Interdisciplinary)**

CO1	Understand the measures of the health services and high-quality health care
CO2	Gain Basic insight into the main features of Indian health care delivery system and how it compares with the other systems of the world.
CO3	Introduction to Background objectives, action plan, targets, operations,in various National Heath Programmes.
CO4	Introduction the AYUSH System of medicines.
BPA 105 P	**Community Engagement and Clinical Visit (Including related practicals to the Parent course)**
CO1	Understand the role of health professional in community
CO2	Personality Development
AEC 001 L	**English and Communication Skills**
CO1	Develop ability to read, write and speak better in English language
CO2	Grow personally and professionally to develop confidence in the field of healthcare.
AEC 002 L	**Environmental Sciences**
CO1	Understand and define terminology commonly used in enviromental sciences
CO2	Understand the concepts of ecosystems, biodiversity and its conservation
CO3	Understand the relationship between humans and enviroment
CO4	Discuss the factors affecting the availability of natural resources, their conservation and management.
CO5	Discuss the goals, targets, challenges and global strategies for sustainable development
SEMESTER II	
BPA 106 L	**Human Anatomy Part II**
CO1	Understand and demonstrate the anatomy of Reproductive system, Endocrine system, Nervous system, Sensory system and Lymphatic system with it's clinical application
BPA 107 L	**Human Physiology Part II**
CO1	Understand the basic physiological fucntions of Special senses and Skin,.
CO2	To understand the basic mechanism, operation and regulation of different systems such as Nervous system, Endocrine system, Reproductive system and Excretory system
CO3	Ability to identify techniques to examination of the physiological funtioning of sensory and motor systems and interpret the results as normal or abnormal.
BPA 108 L	**General Microbiology**
CO1	Understanding the Basic principles of Microbiology with General Methods for recovery, identification of pathogens, culture techniques, procedures, antibiotic testing and sterilization techniques.
CO2	Understand the applications of universal safety precautions.
CO3	Adept knowledge about the systemic bacteriology including morphology, species, lab diagnosis, isolation and identification.
CO4	Basic knowledge of pathogenic diseases and their clinical features

BPA 109 L	**Basic Pathology & Hematology**
CO1	Know the basic concepts in hematology and clinical pathology
CO2	Ability to collect blood and urine sample under guidance
CO3	Understanding types of anemias and basics of leukemias
BPA 110 L	**Introduction to Quality and Patient Safety (Multidisciplinary / Interdisciplinary)**
CO1	Understand the basic concepts of Quality in Health Care System and develop skills to implement sustainable quality assurance programs in the health system.
CO2	Understand the basics of emergency care and life support skills.
CO3	Understanding of the concepts for infection prevention and control.
CO4	Knowledge on the principles of on-site disaster management and prevent harm to workers, property, the environment and the general public.
CO5	Ability to apply healthcare quality improvement and patient safety principles, concepts, and methods at the micro, meso and macro system levels.
BPT 111 P	**Community Engagement and Clinical Visit (Including related practicals to the Parent course)**
CO1	Understand the role of health professional in community
CO2	Personality Development
SEC 001 L	**Medical Bioethics & IPR**
CO1	Ability to recognise and understand ethical concerns in research and healthcare sector.
CO2	Adapt skills to rationally justify decisions by understanding the complexity and multi - dimensionality of medical or clinical ethical concerns.
CO3	Gain awareness about significance of patent, copyright, plagarism and their applications in legal problems
SEC 002 L	**Human Rights & Professional Values**
CO1	Acquire conceptual clarity and develop respect for norms and values of freedom, equality, fraternity and justice
CO2	Awareness of civil society organizations and movements promoting human rights
CO3	Understand the difference between values of human rights and their duties
SEMESTER III	
BPA 112 L	**Genral Pharmacology**
CO1	Students should be able to classify drugs into their respective categories (e.g., antihypertensives, antibiotics, analgesics) and understand their mechanisms of action at the molecular, cellular, and systemic levels.
CO2	Understanding the principles of pharmacokinetics (absorption, distribution, metabolism, excretion) and pharmacodynamics (the drug's effects on the body) is crucial. Students should be able to apply these principles to predict drug behavior and effects.
CO3	Students should be able to apply their knowledge of pharmacology to select appropriate medications for various medical conditions
CO4	Students should develop skills to educate patients about their medications, including how to take them correctly, potential side effects, and what to do if they experience issues.
BPA 113 L	**Clinical Microbiology**

CO1	Students should be able to identify and classify various microorganisms (bacteria, viruses, fungi, and parasites) based on their morphology, growth characteristics, and staining properties.
CO2	Understanding how different microorganisms cause disease, including their mechanisms of pathogenesis, virulence factors, and the body's immune response.
CO3	Understanding principles of infection control, including sterilization, disinfection, and practices to prevent the spread of infections in healthcare settings.
BPA 114 L	**Obstetrics & Gynecology**
CO1	Conduct thorough assessments of female patients, including obtaining accurate obstetric and gynecological histories, performing physical exams, and recognizing normal and abnormal findings.
CO2	Understand and manage the various stages of pregnancy, including prenatal care, labor and delivery, and postpartum care. This includes recognizing complications such as preeclampsia, gestational diabetes, and fetal distress.Diagnose and treat common gynecological conditions such as menstrual disorders, polycystic ovary syndrome (PCOS), endometriosis, and pelvic inflammatory disease (PID). Manage contraceptive options and sexual health issues.
CO3	Recognize and manage obstetric emergencies such as postpartum hemorrhage, shoulder dystocia, and ectopic pregnancy. Be prepared to provide immediate care and stabilize patients in urgent situations.
BPA 115 L	**Clinical Medicine I**
CO1	Perform thorough patient histories and physical examinations, including the ability to recognize normal and abnormal findings across different body systems such as Respiratory, Cardiac, Skeletal and Muscular Integumentary System.
CO2	Develop skills in formulating differential diagnoses based on patient presentations, clinical findings, and diagnostic test results.
CO3	Diagnose and manage a wide range of acute and chronic medical conditions, including common illnesses, emergencies, and long-term health issues. Order, interpret, and use diagnostic tests (e.g., blood tests, imaging studies) effectively to guide diagnosis and treatment plans.
CO4	Monitor patient progress, adjust treatment plans as needed, and ensure continuity of care through regular follow-ups and reassessments.
GEC 001 L	**Pursuit of Inner Self Excellence (POIS)**
CO1	Students will become self-dependent, more debility for their study and career related matter ecisive and develop intuitive
CO2	Student's ability to present their ideas will be developed.
CO3	Enhanced communication skills, public speaking & improved Presentation ability.
CO4	Students will be able to explore their inner potential and inner ability to become a successful researcher or technician & hence become more focused.
CO5	Students will observe significant reduction in stress level.
CO6	With the development of personal attributes like Empathy, Compassion, Service, Love & brotherhood, students will serve the society and industry in better way with teamwork and thus grow professionally.
GEC 002 L	**Organizational Behavior**
CO1	Describe and apply motivation theories to team and organizational scenarios in order achieve a team's or an organization's goals and objectives.
CO2	Explain the effect of personality, attitudes, perceptions and attributions on their own and other's behaviors in team and organizational settings.
CO3	Explain types of teams and apply team development, team effectiveness, and group decision making models and techniques.
SEMESTER IV	
BPA 117 L	**General Surgery & Trauma**
CO1	Be prepared to respond to surgical and trauma emergencies, including the ability to perform emergency procedures and manage acute crises effectively.
CO2	Understand and apply fundamental principles of general surgery, including preoperative preparation, intraoperative techniques, and postoperative care.Assist in a variety of surgical procedures, including understanding the indications, risks, and benefits of common surgeries
CO3	Perform thorough assessments of trauma patients, including the rapid evaluation and stabilization of life-threatening conditions. Apply the principles of trauma care, including the use of the Advanced Trauma Life Support (ATLS) guidelines, to manage trauma patients effectively.
CO4	Perform and manage wound care, including cleaning, debridement, suturing, and dressing changes.Recognize and manage complications related to wounds and surgical sites, such as infections, dehiscence, and necrosis.Manage postoperative care, including monitoring for complications, pain management, and patient education on recovery and rehabilitation.
BPA 118 L	**Anesthesiology**

CO1	Gain knowledge of different types of anesthetic agents (general, regional, and local), including their pharmacology, mechanisms of action, and potential side effects.Learn to administer various forms of anesthesia, including intravenous agents and inhaled anesthetics, under supervision. Understand techniques for achieving effective anesthesia and managing anesthesia delivery.Handling all instruments.
CO2	Monitor and manage patients' vital signs and anesthesia levels during procedures. Be prepared to respond to intraoperative complications and adjust anesthesia as needed.Provide postoperative care, including monitoring patients in the recovery room, managing pain, and addressing any complications related to anesthesia.
CO3	Collaborate with anesthesiologists, surgeons, and other healthcare professionals to ensure coordinated and effective patient care.Be prepared to respond to anesthesia-related emergencies, including managing allergic reactions, overdoses, and other critical situations effectively.
BPA 119 L	**Pediatrics & Geriatrics**
CO1	Diagnose and manage common pediatric conditions such as respiratory infections, gastrointestinal issues, and developmental disorders. Provide evidence-based treatment and follow-up care.Recognize and manage acute pediatric emergencies, such as asthma exacerbations, febrile seizures, and trauma. Perform emergency interventions and stabilize critically ill or injured children.
CO2	Diagnose and manage chronic conditions commonly affecting older adults, such as diabetes, hypertension, and arthritis. Develop and implement comprehensive care plans tailored to the needs of elderly patients.Understand the normal physiological changes associated with aging and how they impact health and disease in older adults. Recognize atypical presentations of common conditions in this population.
BPA 120 L	**Clinical Medicine II**
CO1	Perform thorough patient histories and physical examinations, including the ability to recognize normal and abnormal findings across different body systems such as Neurological, Abdominal, Urinary and Reproductive System.
CO2	Develop skills in formulating differential diagnoses based on patient presentations, clinical findings, and diagnostic test results.
CO3	Diagnose and manage a wide range of acute and chronic medical conditions, including common illnesses, emergencies, and long-term health issues.Order, interpret, and use diagnostic tests (e.g., blood tests, imaging studies) effectively to guide diagnosis and treatment plans.
CO4	Monitor patient progress, adjust treatment plans as needed, and ensure continuity of care through regular follow-ups and reassessments.
AEC 003 L	**Computers and Applications**
CO1	Introduction to Hardware and processing of computers and storage devices.
CO2	Adept knowledge of computer software and applications such as Microsoft office (Word, Excel and Power Point)
CO3	Application of operating systems, computer networks & internet in Health Care Settings.
AEC 004 L	**Good Clinical Laboratory Practice and Research Skills**
CO1	Proficiency an adept knowledge of Good Clinical Laboratory Practice (GCLP), ethical principles and guidelines to ensure patient rights and welfare in clinical research.
CO2	Understand the importance of Ethical Guidelines and Good Documentation Practices (GDP) in conducting Clinical Research.
CO3	Effectively understand the Basics of Biostatistics, Research Study Designing, Methodology, Implementation and Grant Application.
SEMESTER V	
BPA 122 L	**Cardiology**
CO1	Understand the anatomy and physiology of the cardiovascular system, including the heart, blood vessels, and the conduction system. Recognize how these structures function normally and how they are affected by disease.Diagnose common cardiovascular conditions such as hypertension, coronary artery disease, heart failure, arrhythmias, and valvular heart diseases. Utilize patient history, physical examination, and diagnostic tests effectively.
CO2	Interpret diagnostic tests relevant to cardiology, including electrocardiograms (ECGs), echocardiograms, stress tests, and cardiac biomarkers. Understand the indications, results, and limitations of these tests.
CO3	Recognize and manage cardiovascular emergencies such as acute coronary syndrome (ACS), myocardial infarction, stroke, and hypertensive crises. Provide appropriate interventions and stabilize patients in critical situations.Be prepared to respond to cardiovascular emergencies with appropriate interventions, including performing advanced cardiac life support (ACLS) and managing acute cardiovascular crises.
BPA 123 L	**Nephrology**
CO1	Understand the anatomy and physiology of the kidneys and urinary tract, including their role in fluid and electrolyte balance, acid-base regulation, and waste elimination.Diagnose common renal conditions such as chronic kidney disease (CKD), acute kidney injury (AKI), glomerulonephritis, nephrolithiasis, and urinary tract infections (UTIs). Use patient history, physical examination, and diagnostic tests effectively.
CO2	Interpret diagnostic tests relevant to nephrology, including urinalysis, serum electrolytes, renal function tests (e.g., serum creatinine, blood urea nitrogen), and imaging studies (e.g., ultrasound, CT scan). Understand indications and limitations of these tests.

CO3	Develop and implement management plans for renal conditions, including pharmacological treatments, dietary modifications, and interventions such as dialysis or renal replacement therapy.Manage fluid and electrolyte imbalances, including hyperkalemia, hyponatremia, and metabolic acidosis or alkalosis. Understand the treatment strategies for correcting these imbalances.
BPA 124 L	**Pulmonology**
CO1	Gain a comprehensive understanding of the anatomy and physiology of the respiratory system.Learn about the mechanics of breathing, gas exchange, and pulmonary circulation.
CO2	Develop skills to recognize and diagnose common and complex respiratory conditions such as asthma, chronic obstructive pulmonary disease (COPD), pneumonia, bronchitis, interstitial lung disease, and pulmonary embolism.
CO3	Utilize diagnostic tools and tests, including chest X-rays, CT scans, pulmonary function tests, and arterial blood gases.Learn about pharmacologic treatments (e.g., bronchodilators, corticosteroids, antibiotics) and non-pharmacologic interventions (e.g., oxygen therapy, pulmonary rehabilitation).
CO4	Practice techniques for managing acute respiratory distress and emergencies, such as intubation and mechanical ventilation.
DSE 001 L	**Basics of Clinical Skill Learning**
CO1	Ability to Measure Vital Signs, do basic physical Examination of the patients, NG tube basics, Administration of Medicines
CO2	Understand about Asepsis, and the Cleanliness related to asepsis and on mobility of the patients
DSE 002 L	**Hospital Operation Management**
CO1	Understand and apply the knowledge of Medico-Legal regulations and Medical Ethics in Healthcare System.
CO2	Ability to utilize Hospital Information system in Hospital services.
CO3	Understand the operation management of Equipment's and medical records in Health Care services.
SEMESTER VI	
BPA 126 L	**Neurology**
CO1	Understand the anatomy and physiology of the central and peripheral nervous systems.Learn the pathophysiology of various neurological disorders.
CO2	Develop the ability to perform and interpret neurological examinations, including assessing cranial nerves, motor and sensory functions, coordination, and gait.
CO3	Utilize diagnostic tools and tests such as CT scans, MRIs, EEGs, lumbar punctures, and neuropsychological tests to diagnose neurological conditions.
CO4	Manage acute neurological emergencies such as seizures, stroke, and traumatic brain injury.
BPA 127 L	**Orthopedics**
CO1	Understand the anatomy of bones, joints, muscles, tendons, and ligaments.Learn the physiological mechanisms underlying musculoskeletal function and common pathologies.
CO2	Develop the ability to perform thorough orthopedic evaluations, including assessing range of motion, strength, and stability of joints and muscles.Formulate and implement evidence-based treatment plans for various orthopedic conditions, including fractures, dislocations, sprains, strains, arthritis, and degenerative joint diseases.
CO3	Utilize diagnostic tools and tests such as X-rays, MRIs, CT scans, and joint fluid analysis to diagnose musculoskeletal conditions.
CO4	Able to apply cast , slab, plaster ,slings ect.
BPA 128 L	**Emergency Medicine**
CO1	Understand the principles and practices of emergency medicine, including the management of acute and life-threatening conditions.Learn the common presentations of emergency conditions and the initial assessment and stabilization protocols.
CO2	Develop skills to perform rapid and accurate assessments of patients presenting with a wide range of emergencies, including trauma, cardiac events, respiratory distress, and neurological emergencies.Utilize diagnostic tools and tests, such as ECGs, imaging studies, and laboratory tests, to aid in quick diagnosis and treatment decisions.
CO3	Gain proficiency in performing critical emergency procedures, such as intubation, chest tube insertion, central line placement, and advanced cardiac life support (ACLS) techniques.Learn to manage and execute life-saving interventions effectively, including medication administration, fluid resuscitation, and wound care.
CO4	Develop treatment plans for various emergency situations with physicians, including trauma, cardiac arrest, stroke, severe infections, and toxic exposures.
CO5	Understand the principles of triage and prioritize care based on the severity of conditions.
CO6	Master techniques for stabilizing patients and preparing them for transfer to specialized care.
CO7	Understand protocols for effective communication and documentation during patient handoffs.
CO8	Be aware of legal considerations, including documentation, patient confidentiality, and adherence to emergency care protocols.