

B.Sc. PHYSICIAN ASSOCIATE PROGRAM

Curriculum & Syllabus — BOS Submission Format

(Aligned with NCAHP Curriculum Framework)

SECTION 1 — PROGRAM TITLE

Programme Name: Bachelor Physician Associate Studies (BPA)
Programme Duration: 4 Years (3 Years Academic + 1 Year Internship)
Pattern: Semester System (Competency Based Curriculum)
Total Semesters: 8
Regulatory Alignment: National Commission for Allied and Healthcare Professions (NCAHP)

School of Allied Health Sciences

VISION

The Allied Health Sciences aims to produce an individual, who has broad prospective of healthcare and brings innovation, critical thinking, and lifelong learning skills into health care settings.

MISSION

1.Develop & transmit knowledge of diverse aspects of health care delivery & health research.

2. To develop quality, bench marks information, dissemination, documentation, publication, communication and soft skills, feedback systems.
3. Provide technical & skill based quality training to the students in the field of medical technology.
4. Strive for excellence in the scientific, professional and humanistic aspects of their chosen discipline.

B.Sc Physician Assistant(School of Allied Health Sciences)

Vision

To become a leading Department of Physician Assistant Studies recognized for excellence in education, compassionate patient care, community engagement, and innovation in healthcare delivery — producing highly competent, ethical, and service-oriented physician assistants who improve access to quality healthcare locally and globally.

Mission Statements

1. **Deliver Excellence in Education**
   To provide a rigorous, evidence-based academic and clinical training program that equips students with the knowledge, clinical skills, and critical thinking abilities required for high-quality patient care.

2. **Promote Ethical and Compassionate Practice**
   To cultivate physician assistants who uphold professionalism, integrity, cultural sensitivity, and patient-centered care in all healthcare settings.

3. **Strengthen Community Health**
   To engage in community outreach and service initiatives that improve healthcare access and address the needs of underserved and vulnerable populations.

4. **Encourage Research and Lifelong Learning**
   To foster a culture of inquiry, innovation, and continuous professional development that advances medical knowledge and supports lifelong learning.

5. **Support Interprofessional Collaboration**
   To prepare graduates to work effectively within multidisciplinary healthcare teams, enhancing coordinated care and improving patient outcomes.

Programme Outcomes

PO1:Work effectively with physicians and other health care professionals to provide patient-centered care

PO2:Demonstrate compassionate and respectful behaviour when interacting with patients and their families

PO3:Obtain essential and accurate information about their patients

PO4:Make decisions about diagnostic and therapeutic interventions based on patient information and preferences, current scientific evidence, and informed clinical judgment

PO5:Develop and implement patient management plans

PO6: Provide counsel and educate patients and their families

PO7: Perform medical and surgical procedures essential to their area of practice

PO8: Provide health care services and education aimed at disease prevention and health maintenance

PO9: Use information technology to support patient care decisions and patient education

SECTION 2 — ELIGIBILITY & ADMISSION CRITERIA

(University Regulations retained — aligned with NCAHP minimum standards)

Minimum Qualification for Admission

- Candidate must have passed **10+2 or equivalent** from a recognized board
- Mandatory subjects:
    - Physics
    - Chemistry
    - Biology
- Minimum aggregate marks: **50% in all the above mentioned subjects**
- English must be a subject of study at 10+2 level

Age Requirement

- Minimum age: **17 years at time of admission up until 40 years as maximum**

Medical Fitness

- Candidate must be medically fit and produce fitness certificate

Admission Procedure

- Admission shall be based on:
    - University admission policy / entrance test / merit list

- Reservation norms as per Government rules

Lateral Entry

- Not permitted unless specifically approved by university & regulatory authority

SECTION 3 — ATTENDANCE & EXAM ELIGIBILITY

Minimum Attendance Requirement

- A candidate shall be permitted to appear for the End Semester Examination only if he/she has secured:

Minimum 75% attendance in Theory
Minimum 80% attendance in Practical / Clinical postings

- Attendance shall be calculated **separately for each subject** (theory and practical).
- Students falling short of attendance shall **not be permitted** to appear for the End Semester Examination.
- Condonation of shortage of attendance may be granted only as per University rules and statutory limits.

SECTION 4 — INTERNAL ASSESSMENT ELIGIBILITY

- Continuous Internal Assessment (CIA) shall include:
  - Sessional tests
  - Assignments
  - Practical records
  - Skill assessments

    - Seminars / presentations
- A student must obtain:

Minimum 50% marks in Internal Assessment
to be eligible to appear for the End Semester Examination.

SECTION 5 — PASS CRITERIA

Theory Examination

- Minimum marks to pass in Theory:

50% in End Semester University Examination
AND
50% aggregate (Internal + University exam)

Both conditions must be satisfied.

Practical / Clinical Examination

- Minimum marks to pass in Practical / Clinical:

50% in Practical University Examination
AND
50% aggregate (Internal + Practical exam)

- Passing Practical and Theory components is **mandatory separately**.

SECTION 6 — SEPARATE PASS REQUIREMENT

- A candidate must pass:
    - Theory
    - Practical / Clinical
    - Viva voce (where applicable)

separately in each subject.

Failure in one component requires reappearance in that component only (as per university supplementary rules).

SECTION 8 — PROGRAM STRUCTURE

Phase	Duration	Components
Academic Phase	Semester I–VI	Theory + Practical + Clinical
Internship	Semester VII–VIII	Full-time Clinical Rotatory Internship

CBCS

Semester 1

Code	Subject	Theory Hours (Sem)	Practical Hours (Sem)	Total Hours (Sem)	Theory Credits	Practical Credits	Total Credits	Weekly Theory Hours	Weekly Practical Hours	Internal assessment	External University Theory	External University Practical/ Viva	Total
26BPA 101	Anatomy I	50	50	100	3	2	5	3	4	25	50	25	100
26BPA 102	Physiology I	50	60	110	3	2	5	3	4	25	50	25	100
26BPA 103	Biochemistry and Molecular Biology - I	40	50	90	3	2	5	3	4	25	50	25	100
26BPA 104	Microbiology-I	40	50	90	3	2	5	3	4	25	50	25	100
26BPA 105	Introduction to Healthcare Delivery System in India and Community Orientation-I	50	40	90	4	0	4	4	0	100	-	-	100
26BPA 106	Professionalism, Communication, and Soft Skills	40	50	90	3	0	3	3	1	100	-	-	100

Semester 2

Code	Subject	Theory Hours (Sem)	Practical Hours (Sem)	Total Hours (Sem)	Theory Credits	Practical Credits	Total Credits	Weekly Theory Hours	Weekly Practical Hours	Internal assessment	External University Theory	External University Practical/ Viva	Total
26BPA 201	Anatomy II	50	70	120	3	2	5	3	5	25	50	25	100
26BPA 202	Physiology II	50	70	120	3	2	5	3	5	25	50	25	100
26BPA 203	Biochemistry and Molecular Biology-II	50	30	80	3	1	4	3	2	25	50	25	100
26BPA 204	Medical Microbiology	60	40	100	4	1	5	4	3	25	50	25	100
26BPA 205	Introduction to Computers and Professionalism	40	60	100	3	2	5	3	4	50	-	50	100
26BPA 206	Community Orientation-II/Clinical Skills	20	30	50	1	1	2	1	2	100	-	-	100

SECTION 9 — SEMESTER-WISE CURRICULUM TABLE

(NCAHP ALIGNED)

SEMESTER I — CURRICULUM TABLE

Code	Subject	Theory Units (5-Unit Structure)	Practical / Skills Components
26BPA 101	Professionalism I	Profession & PA role; Professional values; Behaviour & ethics; Code of conduct; Teamwork & culture	Case discussions, ethics scenarios, team exercises
26BPA 102	Anatomy I	General anatomy; Cell & tissues; Musculoskeletal basics; Body cavities; Applied anatomy	Osteology, specimen study, surface anatomy, imaging correlation
26BPA 103	Physiology I	Cell & homeostasis; Blood; CVS; Respiratory; Renal & GI	Hematology experiments, BP recording, spirometry demos
26BPA 104	Biochemistry I	Biomolecules; Enzymes; Carb metabolism; Lipid/protein metabolism; Molecular biology	Qualitative tests, enzyme assays, urine analysis
26BPA 105	Intro Microbiology	Basics; Bacteriology; Virology; Mycology & parasites; Immunity	Microscopy, staining, sterilization methods
26BPA 106	Healthcare Delivery System	Health system structure; National programs; AYUSH; Indian health scenario; Demography	Field exposure, PHC visit, program mapping
26BPA 107	Functional English & Soft Skills	Grammar; Reading; Writing; Professional writing; Soft skills	Communication drills, presentations
26BPA 108	Community Orientation I	Public health basics; Social determinants; Health promotion; Prevention; Indicators	Community survey, health education activity

SEMESTER II — CURRICULUM TABLE

Code	Subject	Theory Units	Practical / Skills
26BPA201	Professionalism II	Advanced values; Ethical decisions; Bias & equity; Accountability; Cultural competence	Ethics workshops, role plays

Code	Subject	Theory Units	Practical / Skills
26BPA202	Anatomy II	Musculoskeletal; Nervous system; CVS; Thorax & abdomen; Urogenital & endocrine	Dissection demos, neuro models, organ specimens
26BPA203	Physiology II	Neurophysiology; Muscle; Endocrine; Reproductive; Integrated physiology	Nerve-muscle experiments, reflex testing
26BPA204	Biochemistry II	Advanced metabolism; Hormonal biochem; Clinical biochem; Organ tests; Molecular diagnostics	LFT/RFT interpretation, lab panels
26BPA205	Medical Microbiology	Systemic bacteriology; Virology; Mycology; Parasitology; Clinical micro	Culture methods, antibiogram demo
26BPA206	Introduction to Computers	Computer basics; MS Office; Medical informatics; EHR; Data security	EHR practice, medical documentation
26BPA207	Community Orientation II / Clinical Skills	Community assessment; Screening; Field epidemiology; Health education; Reporting	Screening camps, survey tools

SEMESTER III — CURRICULUM TABLE

Code	Subject	Theory Units (5-Unit Structure)	Practical / Clinical Components
26BPA301	Pathology	General pathology; Hematology; Systemic pathology; Basic histopathology; Clinical correlations	Hematology lab tests, peripheral smear study, anemia workup, slide identification, lab report interpretation
26BPA302	General Medicine I	Clinical methods; Cardiovascular diseases; Respiratory diseases; GI disorders; Infectious diseases	History taking, general physical exam, systemic examination (CVS/RS/Abdomen), case sheet writing
26BPA303	Pharmacology I	General pharmacology; ANS drugs; CVS drugs; Respiratory drugs; GI drugs	Prescription writing, dose calculation, drug chart review, ADR identification exercises
26BPA304	ENT, Ophthalmology & Dermatology	ENT disorders; Eye disorders; Skin diseases; Diagnostic methods; Basic procedures	ENT instrument identification, eye exam basics, visual acuity testing, otoscopy demo, skin lesion identification

Code	Subject	Theory Units (5-Unit Structure)	Practical / Clinical Components
26BPA305	Basic Surgery	Principles of surgery; Wound care; Infection control; Shock & trauma basics; Surgical safety	Sterile technique demo, dressing techniques, suturing demo, bandaging, basic surgical instruments handling
26BPA306	Community Engagement / Clinical Exposure	Disease surveillance; Prevention strategies; Screening concepts; Outreach methods; Health reporting	Community posting, screening camp participation, survey data collection, health education activity

SEMESTER IV — CURRICULUM TABLE

Subject	Theory Units	Practical
General Medicine II	Endocrine; Neuro; Renal; Rheumatology; Emergencies	Case workup
Surgery II	GI surgery; Urology; Orthopedics; Anesthesia basics; OT protocol	OT exposure
Pharmacology II	Chemotherapy; Endocrine drugs; CNS drugs; Emergency drugs; Rational use	Drug charting
Psychology	Behaviour; Mental health; Stress; Counseling; Patient psychology	Counseling practice
Medical Communication	Clinical communication; Breaking bad news; Documentation; Consent; Conflict handling	Simulated interviews
Community Medicine & Research I	Epidemiology; Biostatistics; Study design; Screening; Data collection	Mini projects

SEMESTER V — CURRICULUM TABLE

Subject	Theory Units	Clinical
Emergency Medicine	BLS/ACLS; Trauma; Poisoning; Shock; ER protocols	ER posting
Paediatrics	Growth; Common diseases; Neonatal care; Nutrition; Immunization	Pediatric ward

Subject	Theory Units	Clinical
Healthcare Management	Hospital systems; Quality; Safety; NABH; Records	Admin exposure
Medical Ethics & Law	Consent; Negligence; Legal cases; Documentation; Patient rights	Case review
Clinical Posting I	Integrated clinical rotation	Logbook

SEMESTER VI — CURRICULUM TABLE

Subject	Theory Units	Clinical
NCD	Diabetes; HTN; CVD; Cancer screening; Lifestyle	NCD clinic
Geriatrics	Aging; Geriatric syndromes; Polypharmacy; Rehab; Palliative	Geriatric care
OBG	Antenatal; Labor; Postnatal; Gyn disorders; Family planning	OBG posting
Critical Care	ICU basics; Ventilation; Monitoring; Sepsis; Protocols	ICU exposure
Community Medicine & Research II	Advanced epidemiology; Program evaluation; Research project; Report writing; Presentation	Project work

SEMESTER VII–VIII — INTERNSHIP

Phase	Rotations
Internship I	General Medicine, Emergency
Internship II	Surgery, OBG, Pediatrics, ICU, Community, Electives

SEMESTER I — DETAILED THEORY SYLLABUS (5-UNIT FORMAT)

26BPA 101 — PROFESSIONALISM (Theory)

Unit I — Profession & Professional Identity

- Meaning of profession vs vocation

- Characteristics of a healthcare profession
- Role of Physician Associate in Indian healthcare system
- Scope of PA practice
- Professional identity formation
- Social accountability in healthcare

Unit II — Core Professional Values

- Integrity and honesty
- Objectivity in clinical decisions
- Empathy and compassion
- Professional competence & due care
- Confidentiality principles
- Ethical vs moral values

Unit III — Professional Behaviour

- Professional attitude in clinical settings
- Respectful patient interaction
- Bias recognition and control
- Equal treatment of patients
- Respect for diversity
- Boundary maintenance

Unit IV — Code of Conduct & Accountability

- Code of conduct for healthcare professionals
- Professional accountability
- Responsibility in delegated care
- Documentation responsibility
- Types of misconduct
- Consequences of unethical practice

Unit V — Teamwork & Cultural Competence

- Interprofessional collaboration
- Team roles in healthcare
- Communication within teams
- Cultural sensitivity in care

- Cultural barriers in treatment
- Respectful cross-cultural care

26BPA 102 — ANATOMY I (Theory)

Unit I — General Anatomy & Terminology

- Definition and branches of anatomy
- Gross, regional, systemic, microscopic anatomy
- Anatomical terminology
- Anatomical position
- Planes and axes
- Directional terms
- Surface landmarks
- Introduction to imaging anatomy

Unit II — Cell, Tissue & Embryology

- Cell structure and organelles
- Cell membrane transport
- Types of tissues — epithelial, connective, muscle, nerve
- Basic histological organization
- Fertilization
- Early embryonic development
- Germ layers and derivatives
- Congenital anomaly concept

Unit III — Musculoskeletal Basics

- Bone structure and composition
- Classification of bones
- Bone growth and ossification
- Types of joints
- Joint movements
- Skeletal muscle structure
- Muscle types and functions

Unit IV — Body Cavities & Organ Layout

- Thoracic cavity — divisions and contents
- Pleura and lungs overview
- Mediastinum basics
- Abdominal cavity divisions
- Peritoneum concept
- Major abdominal organs — overview

Unit V — Applied & Clinical Anatomy

- Anatomical basis of venipuncture
- Intramuscular injection sites
- Lumbar puncture landmarks
- Catheterization anatomy
- Surface anatomy for procedures
- Imaging correlation (X-ray basics)

PRACTICAL

Unit I — Osteology & Surface Anatomy

- Identification of major bones
- Side determination
- Anatomical landmarks
- Surface marking of major structures

Unit II — Specimen & Model Study

- Study of organ specimens
- Anatomical models — thorax & abdomen
- Body cavities demonstration

Unit III — Histology Basics

- Identification of basic tissues
- Epithelial types
- Connective tissue slides
- Muscle & nerve tissue slides

Unit IV — Radiological Anatomy

- Basic X-ray anatomy

- CT/MRI orientation
- Normal anatomical shadows

Unit V — Applied Anatomy Skills

- IM injection sites
- Venipuncture sites
- Lumbar puncture landmarks
- Catheterization landmarks

26BPA 103 — PHYSIOLOGY I (Theory)

Unit I — Cell Physiology & Homeostasis

- Cell functions
- Transport mechanisms — diffusion, active transport
- Resting membrane potential
- Body fluid compartments
- Acid–base basics
- Homeostasis mechanisms

Unit II — Blood

- Composition of blood
- RBC structure and function
- Hemoglobin
- Erythropoiesis
- WBC types and functions
- Platelets
- Hemostasis steps
- Blood groups

Unit III — Cardiovascular Physiology

- Cardiac muscle properties
- Cardiac cycle
- Heart sounds
- Cardiac output

- Blood pressure regulation
- Microcirculation
- Shock basics (intro level)

Unit IV — Respiratory Physiology

- Mechanics of breathing
- Lung volumes and capacities
- Gas exchange
- Oxygen transport
- CO_2 transport
- Neural control of respiration

Unit V — Renal & Digestive Physiology

- Nephron structure
- Glomerular filtration
- Tubular reabsorption
- Urine formation
- GI motility
- Digestion of carbohydrates, proteins, fats
- Absorption mechanisms

PRACTICAL

Unit I — Hematology Experiments

- Hemoglobin estimation
- RBC count
- WBC count
- Blood grouping

Unit II — Cardiovascular Experiments

- Pulse recording
- Blood pressure measurement
- Heart sound identification

Unit III — Respiratory Experiments

- Lung volumes demo

- Spirometry demo
- Respiratory rate recording

Unit IV — Clinical Physiology

- BMI calculation
- Body temperature recording
- Clinical charts

Unit V — Data Recording & Interpretation

- Normal value charts
- Result interpretation
- Physiology lab records

26BPA 104 — BIOCHEMISTRY & MOLECULAR BIOLOGY I

Unit I — Biomolecules

- Carbohydrates classification
- Monosaccharides & polysaccharides
- Lipid classes
- Fatty acids
- Proteins structure levels
- Amino acids
- Nucleotides

Unit II — Enzymes

- Enzyme classification
- Active site
- Enzyme kinetics
- Michaelis–Menten concept
- Enzyme inhibition
- Clinical enzyme use

Unit III — Carbohydrate Metabolism

- Glycolysis
- TCA cycle

- Electron transport chain
- Glycogenesis
- Glycogenolysis
- Gluconeogenesis overview

Unit IV — Lipid & Protein Metabolism

- Beta oxidation
- Ketone bodies
- Cholesterol metabolism
- Protein digestion
- Urea cycle basics

Unit V — Molecular Biology Basics

- DNA structure
- RNA types
- Replication
- Transcription
- Translation
- Genetic code basics

PRACTICAL

Unit I — Qualitative Analysis

- Carbohydrate tests
- Protein tests
- Lipid tests

Unit II — Urine Analysis

- Physical examination
- Chemical tests
- Abnormal constituents

Unit III — Enzyme Demonstrations

- Enzyme activity demo
- Reaction factors

Unit IV — Clinical Biochemistry Basics

- Blood glucose demo
- Sample handling

Unit V — Lab Safety & QA

- Lab precautions
- Reagent handling
- Waste disposal

26BPA 105 — INTRODUCTION TO MICROBIOLOGY

Unit I — Basics

- Scope of microbiology
- Classification of microbes
- Microscopy types
- Staining methods overview

Unit II — Bacteriology

- Bacterial structure
- Growth phases
- Culture methods
- Sterilization methods
- Disinfection methods

Unit III — Virology

- Virus structure
- DNA vs RNA viruses
- Viral replication
- Common viral diseases (overview)

Unit IV — Mycology & Parasitology

- Fungal structure
- Pathogenic fungi
- Protozoa basics
- Helminths basics

Unit V — Infection & Immunity

- Host–pathogen interaction
- Innate immunity
- Adaptive immunity
- Vaccines
- Infection control principles

PRACTICAL

Unit I — Microscopy

- Microscope handling
- Slide preparation

Unit II — Staining

- Gram staining
- Simple staining

Unit III — Sterilization

- Autoclave demo
- Disinfection methods

Unit IV — Culture Basics

- Media types
- Culture plates demo

Unit V — Infection Control

- PPE use
- Hand hygiene protocol

26BPA 106 — HEALTHCARE DELIVERY SYSTEM IN INDIA

Unit I — Health System Structure

- Levels of healthcare
- Primary, secondary, tertiary care
- Public vs private sector

Unit II — National Health Programs

- Major national programs
- Program goals
- Disease control initiatives

Unit III — AYUSH Systems

- Ayurveda
- Yoga & Naturopathy
- Unani
- Siddha
- Homeopathy
- Medical pluralism

Unit IV — Indian Health Scenario

- Past & present trends
- Current challenges
- Future directions

Unit V — Demography & Vital Statistics

- Demographic indicators
- Vital events
- Census
- Health indicators
- Policy relevance

PRACTICAL

Unit I — PHC Visit

Unit II — Health Program Mapping

Unit III — Health Indicator Collection

Unit IV — Facility Survey

Unit V — Report Preparation

26BPA 107 — FUNCTIONAL ENGLISH & SOFT SKILLS

Unit I — Grammar Review

- Parts of speech
- Tenses
- Sentence structure

Unit II — Reading & Listening

- Technical reading
- Listening comprehension
- Note taking

Unit III — Writing Skills

- Sentence construction
- Paragraph writing
- Precis writing
- Paraphrasing

Unit IV — Professional Writing

- Letter writing
- Essay writing
- Medical description writing

Unit V — Soft Skills

- Communication skills
- Interpersonal skills
- Time management
- Professional etiquette
- Bedside manners

PRACTICAL

Unit I — Spoken Communication

Unit II — Medical Conversation

Unit III — Presentation Skills

Unit IV — Case Description

Unit V — Professional Interaction

26BPA 108 — COMMUNITY ORIENTATION I

Unit I — Public Health Basics

- Definition
- Core functions
- Public health vs clinical care

Unit II — Social Determinants

- Socioeconomic factors
- Education
- Housing
- Access to care

Unit III — Health Promotion

- Prevention levels
- Vaccination
- Screening

Unit IV — Disease Prevention

- Lifestyle modification
- Risk reduction

Unit V — Health Indicators

- IMR, MMR
- Morbidity rates
- Mortality rates
- Access indicators

PRACTICAL

Unit I — Community Survey

Unit II — Household Visit

Unit III — Health Education Activity

Unit IV — Screening Demo

Unit V — Field Report

SEMESTER II — DETAILED THEORY SYLLABUS (5-UNIT FORMAT)

26BPA 201 — PROFESSIONALISM II

Unit I — Advanced Professional Values

- Review of core professional values
- Professional integrity in clinical decisions
- Responsibility in delegated care
- Maintaining competence
- Lifelong learning in healthcare
- Professional reputation and trust

Unit II — Ethical Decision Making

- Ethical principles — autonomy, beneficence, non-maleficence, justice
- Ethical decision models
- Clinical ethical dilemmas
- Decision making in resource limitation
- End-of-life ethical issues
- Shared decision making

Unit III — Bias, Equity & Respect in Care

- Types of bias in healthcare
- Recognizing implicit bias
- Impact of bias on patient outcomes
- Equity vs equality in care
- Respect for vulnerable populations
- Gender & social sensitivity

Unit IV — Accountability & Misconduct

- Professional accountability framework
- Negligence vs error
- Types of professional misconduct
- Duty of care
- Documentation responsibility
- Reporting unsafe practice

Unit V — Cultural Competence & Team Practice

- Cultural competence principles
- Cross-cultural communication
- Culture and health beliefs
- Working in interprofessional teams
- Conflict resolution in teams
- Respectful collaborative care

26BPA 202 — ANATOMY II

Unit I — Musculoskeletal System (Regional)

- Upper limb — bones, joints, muscles
- Lower limb — bones, joints, muscles
- Major neurovascular bundles
- Functional anatomy of movements
- Surface anatomy landmarks
- Applied anatomy of common injuries

Unit II — Nervous System

- Organization of nervous system
- Brain — major parts & functions
- Spinal cord structure
- Cranial nerves overview
- Peripheral nerves
- Meninges & CSF
- Functional localization basics

Unit III — Cardiovascular System

- Heart chambers & valves
- Conducting system
- Coronary circulation
- Major arteries & veins
- Great vessels
- Portal circulation

- Applied cardiac anatomy

Unit IV — Thoracic & Abdominal Organs

- Respiratory tract anatomy
- Lung lobes & segments
- Tracheobronchial tree
- GI tract anatomy
- Liver, pancreas, spleen
- Peritoneum & mesentery

Unit V — Urogenital & Endocrine Systems

- Kidney & ureter anatomy
- Urinary bladder & urethra
- Male reproductive organs
- Female reproductive organs
- Major endocrine glands
- Applied pelvic anatomy

PRACTICAL

Unit I — Regional Anatomy Models

- Limb models
- Neuro models

Unit II — Organ Specimens

- Heart
- Brain
- Lungs
- Kidney

Unit III — Neuro Anatomy Demo

- Cranial nerves models
- Spinal cord sections

Unit IV — Imaging Correlation

- CT brain basics
- Chest X-ray reading

Unit V — Applied Anatomy

- Surface marking
- Clinical anatomy correlation

26BPA 203 — PHYSIOLOGY II

Unit I — Neurophysiology

- Neuron structure & function
- Synaptic transmission
- Sensory pathways
- Motor pathways
- Reflexes
- Pain physiology
- Higher functions overview

Unit II — Muscle Physiology

- Skeletal muscle contraction
- Neuromuscular junction
- Smooth muscle
- Cardiac muscle differences
- Muscle fatigue
- Motor units

Unit III — Endocrine Physiology

- Hormone classification
- Mechanism of hormone action
- Pituitary hormones
- Thyroid physiology
- Adrenal hormones
- Pancreatic hormones
- Calcium regulation

Unit IV — Reproductive Physiology

- Male reproductive functions
- Spermatogenesis
- Female reproductive cycle
- Ovarian hormones
- Menstrual cycle
- Pregnancy physiology basics
- Lactation physiology

Unit V — Integrated & Applied Physiology

- Exercise physiology
- Stress response
- Temperature regulation
- Sleep physiology
- Circadian rhythm
- Physiological adaptations

PRACTICAL

Unit I — Neurophysiology Tests

- Reflex testing
- Sensory testing

Unit II — Muscle Physiology

- Muscle fatigue demo
- Ergography demo

Unit III — Endocrine Charts

- Hormone charts
- Clinical correlation

Unit IV — Reproductive Physiology Charts

- Cycle charts
- Hormonal patterns

Unit V — Integrated Physiology

- Exercise response recording

26BPA 204 — BIOCHEMISTRY II

Unit I — Advanced Carbohydrate & Lipid Metabolism

- Regulation of glycolysis & gluconeogenesis
- Glycogen storage diseases
- Lipoprotein metabolism
- Cholesterol synthesis & regulation
- Metabolic integration

Unit II — Hormonal Biochemistry

- Hormone synthesis pathways
- Steroid biochemistry
- Peptide hormones
- Second messengers
- Signal transduction pathways

Unit III — Clinical Biochemistry

- Plasma proteins
- Acute phase reactants
- Cardiac markers
- Tumor markers (intro)
- Electrolytes & balance

Unit IV — Organ Function Tests

- Liver function tests
- Renal function tests
- Thyroid function tests
- Pancreatic markers
- Interpretation principles

Unit V — Molecular & Diagnostic Biochemistry

- PCR principle
- Molecular probes
- Genetic mutations basics
- Biomarkers

- Lab quality control basics

PRACTICAL

Unit I — Blood Chemistry Tests

Unit II — LFT/RFT Panels

Unit III — Lipid Profile Demo

Unit IV — Clinical Panel Interpretation

Unit V — Lab QA/QC

26BPA 205 — MEDICAL MICROBIOLOGY

Unit I — Systemic Bacteriology

- Gram positive pathogens
- Gram negative pathogens
- Aerobic & anaerobic bacteria
- Transmission routes
- Lab identification basics

Unit II — Virology

- Medically important viruses
- Respiratory viruses
- Hepatitis viruses
- Herpes viruses
- HIV basics
- Viral diagnostics overview

Unit III — Mycology

- Pathogenic fungi
- Superficial mycoses
- Systemic mycoses
- Opportunistic fungi
- Lab diagnosis basics

Unit IV — Parasitology

- Protozoa of medical importance
- Helminths
- Vector-borne parasites
- Life cycles (overview)
- Diagnostic samples

Unit V — Clinical Microbiology & Infection Control

- Sample collection principles
- Transport of specimens
- Culture & sensitivity
- Hospital acquired infections
- Biomedical waste management
- Infection control protocols

PRACTICAL

Unit I — Culture Methods

Unit II — Antibiotic Sensitivity

Unit III — Sample Collection

Unit IV — Pathogen ID Demo

Unit V — Lab Biosafety

26BPA 206 — INTRODUCTION TO COMPUTERS & MEDICAL INFORMATICS

Unit I — Computer Fundamentals

- Components of computer
- Hardware & software
- Operating systems
- Input/output devices
- File systems

Unit II — Office Applications

- Word processing
- Spreadsheets

- Presentations
- Medical report preparation
- Data tables & charts

Unit III — Medical Informatics

- Health informatics basics
- Digital health records
- Clinical data systems
- Coding basics (intro)

Unit IV — Electronic Health Records

- EHR structure
- Data entry standards
- Clinical documentation
- Data retrieval

Unit V — Data Security & Ethics

- Data privacy
- Cyber security basics
- Patient data protection
- Legal aspects of digital records

PRACTICAL

Unit I — MS Word Medical Reports

Unit II — Excel Patient Data

Unit III — PowerPoint Medical Presentation

Unit IV — EHR Entry Practice

Unit V — Data Security Practice

26BPA 207 — COMMUNITY ORIENTATION II / BASIC CLINICAL SKILLS (Theory Part)

Unit I — Community Assessment

- Community diagnosis
- Survey methods

- Sampling basics
- Household assessment

Unit II — Screening Programs

- Screening principles
- Sensitivity & specificity
- Mass screening
- Targeted screening

Unit III — Field Epidemiology Basics

- Disease occurrence measures
- Outbreak basics
- Surveillance methods

Unit IV — Health Education Methods

- IEC strategies
- Behavior change communication
- Community counseling

Unit V — Reporting & Documentation

- Field reporting formats
- Data recording
- Referral documentation
- Program reporting

PRACTICAL

Unit I — Screening Camp Participation

Unit II — Vital Signs Measurement

Unit III — BMI & Risk Assessment

Unit IV — Health Education Session

Unit V — Field Documentation

REFERENCE BOOKS (ALIGNED WITH NCAHP STANDARD LISTS)

1st and 2nd semester

Anatomy

- B.D. Chaurasia — Human Anatomy
- Gray’s Anatomy for Students
- Vishram Singh — Clinical Anatomy

Physiology

- Guyton & Hall — Textbook of Medical Physiology
- Ganong — Review of Medical Physiology

Biochemistry

- Harper’s Illustrated Biochemistry
- Satyanarayana — Biochemistry

Microbiology

- Ananthanarayan & Paniker — Microbiology
- Prescott — Microbiology

Pathology

- Robbins — Basic Pathology
- Harsh Mohan — Pathology

Pharmacology

- K.D. Tripathi — Pharmacology

Community Medicine

- Park — Preventive & Social Medicine

Communication / Professionalism

- Standard Medical Ethics Manuals
- WHO Communication Guides