



MALLA REDDY VISHWAVIDYAPEETH

SCHOOL OF ALLIED & HEALTHCARE SCIENCES AND TECHNOLOGY

Suraram X Roads, Jeedimetla,
Hyderabad-500055
Web: <https://mrvv.edu.in/>

**Program Bachelor of Science (B.Sc.)
Anaesthesia & Operation theatre technology
2025**

MALLA REDDY VISHWAVIDYAPEETH
SCHOOL OF ALLIED AND HEALTHCARE SCIENCES AND
TECHNOLOGY
Bachelors of Anaesthesia and Operation Theatre Technology

Vision

- To develop skilled anaesthesia and operation theatre technologists with strong clinical competence.
- To promote patient-centred, ethical, and safe perioperative healthcare practices.
- To advance knowledge and technical expertise in anaesthesia and operation theatre technology.
- To contribute to quality surgical, critical care, and emergency healthcare services.

Mission

- To provide comprehensive education in anaesthesia, operation theatre, and critical care technology.
- To train students in modern anaesthesia techniques, OT procedures, and biomedical equipment handling.
- To encourage research, innovation, and lifelong learning in perioperative sciences.
- To instil professional ethics, leadership qualities, teamwork, and effective communication skills.

Program Educational Objectives (PEOs)

- Graduates will excel as competent anaesthesia and operation theatre technologists in healthcare settings.
- They will demonstrate ethical practices, professionalism, and responsibility in patient care.
- They will adapt to evolving technologies in anaesthesia, surgery, and critical care.
- They will pursue higher education, research, leadership roles, and continuous professional development

Program Outcomes (POs)

- Apply knowledge of anatomy, physiology, anaesthesia, and surgical procedures effectively.
- Operate and maintain anaesthesia machines, OT equipment, monitors, and biomedical devices safely.
- Demonstrate critical thinking and problem-solving abilities in perioperative and emergency situations.
- Communicate effectively with patients, surgeons, anaesthesiologists, nurses, and healthcare teams.
- Follow infection control practices, patient safety standards, and ethical principles in clinical practice.
- Assist in anaesthesia administration, airway management, patient monitoring, and postoperative care competently.

Program Specific Outcomes (PSOs)

- Perform operation theatre preparation, sterilization, and surgical assistance procedures competently.
- Assist in general, regional, and local anaesthesia procedures effectively.
- Monitor patients before, during, and after surgical and anaesthesia procedures.
- Handle OT emergencies, critical care situations, and anaesthesia-related complications efficiently.
- Manage medical gas pipeline systems, CSSD procedures, and OT safety protocols.
- Demonstrate competency in handling advanced surgical and anaesthesia equipment including laparoscopic and monitoring systems.

Course Outcomes (COs)

- Perform operation theatre preparation, sterilization, and surgical assistance procedures competently.
- Assist in general, regional, and local anaesthesia procedures effectively.
- Monitor patients before, during, and after surgical and anaesthesia procedures.
- Handle OT emergencies, critical care situations, and anaesthesia-related complications efficiently.
- Manage medical gas pipeline systems, CSSD procedures, and OT safety protocols.
- Demonstrate competency in handling advanced surgical and anaesthesia equipment including laparoscopic and monitoring systems.

COURSE STRUCTURE**I year - I semester**

<u>S.NO</u>	SUBJECT CODE	SUBJECT	L	T	P	C	TOTAL HOURS /WEEK	Max.Marks		
								INT	EXT	TOTAL
1		Human Anatomy-I	4	-	-	4	4	30	70	100
2		Human Physiology -I	4	-	-	4	4	30	70	100
3		Medical Bio-chemistry-I	4	-	-	4	4	30	70	100
4		Sociology	2	-	-	2	2	30	70	100
5		English and Communication Skills	2	-	-	2	2	30	70	100
6		Basic Computers	1	-	1	2	3	30	70	100
7		Human Anatomy-I Practical	-	-	2	2	4	30	70	100
8		Human Physiology-I Practical	-	-	2	2	4	30	70	100
9		Environmental Awareness	2	-	-	2	2	100	-	100
TOTAL			19	-	5	24	28	340	560	900

I year II semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Total hours	Max.Marks		
								INT	EXT	TOTAL
1		Human Anatomy-II	4	-	-	4	4	30	70	100
2		Human Physiology –II	4	-	-	4	4	30	70	100
3		Basics of Biomedical sciences in surgery and Anaesthesia	2	-	2	4	6	30	70	100
4		Pathology	2	-	-	2	2	30	70	100
5		Microbiology	3	-	-	3	3	30	70	100
6		Human Anatomy–II Practical	-	-	2	2	4	30	70	100
7		Human Physiology–II Practical	-	-	1	1	2	30	70	100
9		Stress Management	1	-	-	1	1	100	-	100
TOTAL			16	-	5	21	26	470	630	1100

II year III semester

<u>S.NO</u>	SUBJECT CODE	SUBJECT	L	T	P	C	TOTAL HOURS	Max.Marks		
								INT	EXT	TOTAL
1		Haematology	2	-	-	2	2	30	70	100
2		Basic techniques of Anaesthesia	3	-	2	5	7	30	70	100
3		Basic concepts in Pharmacology	2	-	-	2	2	30	70	100
4		Basics of Surgical procedures	3	-	2	5	7	30	70	100
5		CSSD & Manifold Area.	2	-	2	4	6	30	70	100
6		Medical Law and Ethics	3	-	-	3	3	30	70	100
7		Soft Skills Development	2	-	-	2	2	100	-	100
TOTAL			17		6	23	29	280	420	700

II year IVsemester

S.NO	SUBJECTCODE	SUBJECT	L	T	P	C	TOTAL HOURS	Max.Marks		
								INT	EXT	TOTAL
1		Advanced Anaesthesia Techniques	4	-	2	6	8	30	70	100
2		Advanced Surgical Procedures	3	-	3	6	9	30	70	100
3		Basic Intensive Care	3	-	2	5	7	30	70	100
4		Clinical Medicine & Related Management	4	-	-	4	4	30	70	100
5		HealthandWell-being	1	-	-	1	1	100	-	100
TOTAL			15	-	7	22	29	220	280	500

III year-V semester

S.NO	SUBJECTCODE	SUBJECT	L	T	P	C	TOTAL HOURS	Max.Marks		
								INT	EXT	TOTAL
1		Specialized Anaesthesia 1	4	-	3	7	10	30	70	100
2		Specialized surgery 1	4	-	3	7	10	30	70	100
3		Recent Advances in Anaesthesia and Surgical fields	4	-	-	4	4	30	70	100
4		Community Medicine & Environmental Sciences	3	-	-	3	3	100	-	100
5		Inter personal Communication	2	-	-	2	2	100	-	100
TOTAL			17	-	6	23	29	290	210	500

III year–VI semester

S.NO	SUBJECTCODE	SUBJECT	L	T	P	C	TOTAL HOURS	Max.Marks		
								INT	EXT	TOTAL
1		Specialized Anaesthesia 2	4	-	2	6	8	30	70	100
2		Specialized Surgery 2	4	-	2	6	8	30	70	100
3		Specialized Anaesthesia& Surgery 3	4	-	2	6	8	30	70	100
4		Biostatistics And Research Methodology	3	-	-	3	3	30	70	100
5		Art of Being a Better Person	2	-	-	2	2	100		100
TOTAL			17		6	23	29	220	280	500

IV YEAR- VII Semester

Course Code	Course Title	L	P	C	L Hours/Sem	T/P Hours/Sem	Total Hours	INT	EXT	Total Marks
—	Internship	2	20	22	30	900	930	—	100	100
—	Project Work	—	06	06	—	270	270	—	100	100
Total		2	26	28	30	1170	1200	—	200	200

IV YEAR- VIII Semester

Course Code	Course Title	L	P	C	L Hours/Sem	T/P Hours/Sem	Total Hours	INT	EXT	Total Marks
—	Internship	2	20	22	30	900	930	—	100	100
—	Project Work	—	06	06	—	270	270	—	100	100
Total		2	26	28	30	1170	1200	—	200	200

1. Under Graduate Programme

Sl. No.	Course	Duration	Eligibility for admission
1	B.Sc. Anaesthesia and operation Theatre Technology	4 years	Intermediate Bi PC, 10+2 or equivalent

1.2. Medium of Instruction:

English shall be the medium of instruction for all subjects of study and for examinations.

1.3. Duration of the Course

Duration details are mentioned under clause no. 1.1 of this booklet.

1.4 Examination Regulations

1.4.1 Attendance: 75% of attendance (physical presence) is mandatory.

Medical leave or other types of sanctioned leaves will not be counted as physical presence.

Attendance will be counted from the date of commencement of the session to the last day of the closing of attendance before the final examination.

1.4.2 Internal Assessments:

a) Regular periodic assessment shall be conducted throughout the course. In each semester there will be two one-hour internal assessments (10 marks each) and a continuous assessment (10 marks). Thus, a total of 30 marks for the internal exam. (i.e., weightage for internal assessment shall be 30% of the total marks in each subject).

b) Exam pattern for internal assessment in each semester will be

(a) Essay question 1 no. (5 marks)

(b) Short questions 1 no. (2 marks)

(c) Very short question 3 nos. (each carries 1 mark i.e., $1 \times 3 = 3$ marks)

Thus, a total of 10 marks for one internal assessment

Two such internal examinations will be conducted.

(b) Continuous assessment of the student will be done. Students' overall attendance, performance in class, behaviour of the student, extra-curricular activities etc will be assessed. Continuous assessment carries 10 marks.

(d) Thus, a total of 30 marks for the internal examination. ($10 + 10 + 10 = 30$ marks). A candidate should secure a minimum of 40% marks in the internal assessment in each subject to be eligible to appear for the University examination

(e) For value added courses, only internal examination will be conducted. The minimum pass is

40% marks.

(f) For project both internal and external examination will be conducted.

1.4.3 University Examinations (External):

a) University Examination shall be conducted at the end of every semester.

b) A candidate who satisfies the requirement of attendance and internal assessment marks, as stipulated by the University shall be eligible to appear for the University Examination.

c) Examination will be of 3 hours duration (for theory). The question pattern for those subjects without practical examination (70 marks) will be (a) Three essay questions out of which the student should answer 2 questions each carrying 10 marks (i.e., $2 \times 10 = 20$ marks) (b) Eight short note questions out of which the student should attempt six questions, each carrying 5 marks ($6 \times 5 = 30$ marks). (c) Ten very short questions each carrying 2 marks (i.e., $10 \times 2 = 20$ marks). Thus, a total of 70 marks.

d) The question pattern for practical examination (a) Spotters/major practical/minor practical/Viva/practical record.

The minimum pass for internal assessment is 40% and for the University Examination is 50%. i.e., a student should score a total of 50% (adding the internal and external examination) to pass in each subject.

SEMESTER-I

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	TOTAL HOURS /WEEK	Max.Marks		
								INT	EXT	TOTAL
1		Human Anatomy-I	4	-	-	4	4	30	70	100
2		Human Physiology -I	4	-	-	4	4	30	70	100
3		Medical Bio-chemistry-I	4	-	-	4	4	30	70	100
4		Sociology	2	-	-	2	2	30	70	100
5		English and Communication Skills	2	-	-	2	2	30	70	100
6		Basic Computers	1	-	1	2	3	30	70	100
7		Human Anatomy-I Practical	-	-	2	2	4	30	70	100
8		Human Physiology-I Practical	-	-	2	2	4	30	70	100
9		Environmental Awareness	2	-	-	2	2	100	-	100
TOTAL			19	-	5	24	29	340	560	900

HUMAN ANATOMY – I

L/T/P/C

4/-/-/4

COURSE OUTCOMES

- **CO1:** Describe the structure and organization of the human body, including cells, tissues, organs, and systems.
- **CO2:** Identify and explain the anatomy of major organ systems such as skeletal, muscular, cardiovascular, respiratory, and nervous systems.
- **CO3:** Correlate anatomical structures with their functions in maintaining normal body physiology.
- **CO4:** Apply anatomical knowledge in clinical and surgical settings, including patient positioning and procedural relevance.
- **CO5:** Demonstrate understanding of anatomical terminology and body planes for effective communication in healthcare practice.

UNIT-I

GENERAL ANATOMY AND HISTOLOGY(12 HOURS)

1. Introduction to anatomy, anatomical terms, planes, axis.

2. General Anatomy:

- Fascia
- Muscles
- Bones
- Joints
- Vessels
- Nerve

3. General Histology:

- Epithelial
- Connective tissue
- Muscle
- Bone and cartilage
- Nerve and vessels
- Embryology

UNIT-II

UPPER EXTREMITY:

1. Osteology: Clavicle, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, Phalanges.

2. Muscles: Origin, insertion, nerve supply and actions.

UNIT-III

BASIC ANATOMY OF UPPEREXTREMITY:

1. Joints: Shoulder girdle, shoulder joint, elbow joints, radio ulnar joint, wrist joint and joints of the hand.

2. Breast, pectoral region, axilla, cubital fossa, Arches of hand

3. Brachial plexus, nerves of upper extremity

4. Blood vessels and lymphatic drainage

UNIT-IV

CARDIOVASCULAR & RESPIRATORY ANATOMY

1. Thoracic wall

2. Anatomy of circulatory system

3. Heart: Anatomy of heart, blood Supply, nerve supply, conducting System and major blood vessels

4. Lungs: Basic Anatomy of lungs, bronchial tree, pleura, Broncho pulmonary segments, blood Supply and nerve supply

5. Diaphragm: Origin, insertion, nerve supply and action.

6. Intercostal muscles and Accessory muscles of Respiration: Origin, insertion, nerve supply and action

7. Basic anatomy of Ribs and sternum

UNIT-V

SYSTEMIC ANATOMY

1. Digestive system:

- List the parts of the digestive system
- Basic Anatomy of stomach, liver, gallbladder, spleen, pancreas, intestines.

2. Urinary system:

- Basic Anatomy of kidney, urinary bladder

3. Endocrine system:

- Position and hormones secreted by each organ

4. Genital system:

- Basic anatomy of Male organs and female organs

Recommended Text Books

1. Human Anatomy-Snell
2. Anatomy-Chaurasia, Volume-I,II &III
3. Neuro anatomy-Inderbir Singh
4. Human Anatomy-Kadasne, Volume-I,II&III
5. Neuro anatomy—Vishram Singh
6. Human Anatomy-Datta

Human Anatomy – I Practical

L/T/P/C

-/-/2/2

Human anatomy practicals for physiotherapy students are essential for understanding the structure of the human body, its systems, and their functional relationships. These practicals focus on giving students hands-on experience in identifying anatomical structures, learning dissection techniques, and understanding the musculoskeletal, nervous, and cardiovascular systems, all of which are vital for effective physiotherapy practice.

Gross Specimens/Spotters

Upper Extremity

- Identify the spotter- (Cross section of shoulder Joint, Elbow Joint, Wrist complex, Hand)
- Identify the bone- UPPER EXTREMITY BONES (Scapula, Clavicle, Humerus, Radius and Ulna, Carpals, Metacarpals and Phalanges) Including side determination
- Surface Anatomy of the Upper Extremity – UPPER EXTREMITY BONES AND MUSCLES
- Spotters of Blood vessels (Profunda Brachii, Brachial, Radial, Ulnar)
- Spotter of Nerves (Axillary, Musculocutaneous, Radial, Median, Ulnar)
- Gross Specimen of Heart, Lung
- Spotters of Bronchial tree, Bronchopulmonary segments

Systemic Anatomy

- Gross Specimen/Spotter (Stomach, Liver, Gall Bladder, Spleen, Pancreas, Intestines, Kidney, Uterus)
- Cross section of Kidney

Human Physiology – I

L/T/P/C

4/-/-4

COURSE OUTCOMES

- **CO1:** Explain the normal functions of various human body systems including cardiovascular, respiratory, nervous, and endocrine systems.
- **CO2:** Describe physiological mechanisms involved in homeostasis and regulation of body functions.

- **CO3:** Correlate physiological processes with clinical conditions and patient care.
- **CO4:** Apply knowledge of physiological principles in anaesthesia and perioperative management.
- **CO5:** Interpret basic physiological parameters such as blood pressure, pulse, respiration, and reflexes in clinical practice.

UNIT-I

GENERAL PHYSIOLOGY

Cell:

1. Structure of cell membrane
 - a) Fluid mosaic model
 - b) Lipid bilayer
 - c) Functions of cell membrane
2. Transport across cell membrane
 - A. Basic mechanism of transport
 - a) Channel proteins
 - b) Carrier proteins
 - B. Methods of transport
 - a) Passive transport
 - b) Active transport
3. Body fluids
 - a) Intracellular fluid
 - b) Extracellular fluid
 - c) Body electrolytes
 - d) Regulation of body fluid volume
4. Homeostasis
 - a) Regulation of body function
 - b) Homeostatic regulatory mechanism

2. Blood:

1. Composition of blood & its volume
2. Plasma
3. Hemopoiesis
 - a) Composition
 - b) Plasma protein
4. Erythrocytes
 - a) Normal count
 - b) Structure of RBC (shape & size)
 - c) Functions of RBC
 - d) Hemoglobin (Normal Value, Fate, Function)
 - e) Anemia & polycythemia
 - f) ESR & PCV
5. Leukocytes
 - a) Classification
 - b) Functions of leukocytes
6. Platelets

- a) Normal count
- b) Functions of thrombocytes
- c) Blood Coagulation
- d) Bleeding time & clotting time
- 7. Blood group
 - a) ABO system
 - b) Landsteiner's law
 - c) ABO incompatibility
 - d) Rh system
 - e) Rh incompatibility & erythroblastosis fetalis
- 8. Blood transfusion
 - a) Collection & storage of blood
 - b) Precautions
 - c) Cross matching
 - d) Hazards of blood transfusion

Nerve:

- 1. Structure of a neuron
- 2. Classification of neurons
- 3. Electrical activity of neuron
 - a) Resting membrane potential
 - b) Action potential
- 4. Nerve Injury
 - a) Types of nerve Injury
 - b) Effect of nerve Injury
 - c) Regeneration of damaged nerve fiber

UNIT-II

Muscle Physiology

- 1. Classification
- 2. Properties of skeletal muscle
- 3. Structure of skeletal muscle
 - a) Sarcomere
 - b) Sarco tubular system
 - c) Neuro muscular junction & disease affecting it
- 4. Mechanism of muscle contraction
- 5. Functions of skeletal muscle
- 6. Types of muscle contractions
- 7. Red & white muscles
- 8. Rigor mortis, muscular dystrophy, altered muscle tone, muscle cramp, atrophy, EMG

UNIT-III

Cardiovascular System

- 1. Structure of heart & blood vessels
- 2. Properties of cardiac muscle
- 3. Origin & spread of cardiac pulse
- 4. Cardiac cycle & heart sounds

5. Cardiac output
 - a) Related terms
 - b) Regulation of cardiac output
 - c) Circulatory shock
6. Pulse & Heart rate and its regulation
7. Blood pressure
 - a) Definitions
 - b) Factors controlling & Influencing BP
 - c) Regulation of BP
8. Regional circulation
 - a) Coronary circulation
 - b) Cerebral circulation
9. Normal ECG.

UNIT-IV

Respiratory system

1. Introduction, structure & function of RS
 - a) Upper respiratory tract
 - b) Lower respiratory tract
 - c) Respiratory membrane
2. Mechanism of breathing
 - a) Mechanics of breathing
 - b) expiratory pressure change
 - c) Compliance
 - d) Surfactant
3. Respiratory volumes & capacities
4. Pulmonary ventilation & Dead space
5. Nervous & chemical regulation of respiration
6. Pulmonary function test-direct & indirect method

Recommended Text Books

1. Text book on Medical Physiology-Guyton
2. Textbook of Physiology-AK Jain (for MBBS students)
3. Human Physiology-C.C. Chatterjee
4. Essentials of Medical Physiology -Sembulingam, K.
5. Comprehensive Textbook of Medical Physiology: Vol-1 & 2 – Pal, Gopal Krishna
6. Physiology: Prep Manual for Undergraduates- Joshi, VijayaD.
7. Practical Physiology -Joshi, VijayaD.

Human Physiology – I Practical

L/T/P/C

-/-/2/2

These practicals typically align with the theoretical aspects of physiology and help students apply concepts to real-world clinical scenarios. Key Areas Covered in Human Physiology for

this semester includes the following.

- Determination of blood group, bleeding time and clotting time
- Estimation of haemoglobin concentration
- Peripheral pulse determination
- Auscultation of Heart sounds
- Determination of blood pressure
- Auscultation of breath sounds

MEDICAL BIOCHEMISTRY-I

L	T	P	C
4	0	0	4

Course Objectives

- To understand the biochemical composition and functions of the human body.
- To study the metabolism of carbohydrates, proteins, lipids, vitamins, and minerals.
- To explain the role of enzymes, hormones, and bioenergetics in normal body functions.
- To develop knowledge of molecular biology and genetic mechanisms related to health and disease.
- To correlate biochemical changes with clinical conditions and laboratory investigations.
- To introduce students to basic biochemical laboratory techniques and safety measures.

UNIT-I

Carbohydrate Chemistry

- Definition, general classification with examples
- Composition and functions of Monosaccharides, Disaccharides and Polysaccharides
- Anomers, Epimers, Enantiomers, Mutarotation
- Glycosaminoglycans (mucopolysaccharides)

Lipid Chemistry

- Definition, classification with examples.
- Classification and Functions of Fatty acids, Phospholipids, Lipoprotein
- Structure and functions of Cholesterol
- Sources and functions of Ketone bodies

UNIT-II

Amino acid chemistry

- Definition, Classification of amino acids with examples.
- Definition, Classification of proteins with examples
- Structural organization of proteins
- Biologically important peptides

Nucleic acids and nucleotide chemistry

- Composition and Functions of Nitrogen bases, Nucleosides, Nucleotides
- Structure and Functions of DNA
- Structure, Types and Functions of RNA
- Differences between DNA and RNA

UNIT-III

Enzymes

- Definition, Classification of enzymes with examples
- Active site, Enzyme specificity.
- Factors affecting enzyme activity
- Enzyme inhibition
- Iso enzymes and their clinical significance – LDH, creatine kinase, ALP

Vitamins

- Definition, Classification
- Fat soluble Vitamins-Sources, RDA, Functions and Deficiency.
- Water soluble Vitamins- Sources, RDA, Functions and Deficiency

UNIT-IV

Intermediary Metabolism

- Glycolysis
- TCA cycle
- B-oxidation of fatty acids (Palmitic acid)
- Ketone body formation and utilization Urea cycle

UNIT-V

Mineral Metabolism

- Definition, Classification.
- Sources, RDA, Functions and
- Deficiency of Calcium, Phosphorous, Iron, Sodium, Potassium
- Normal and abnormal constituents of Urine and Blood and their clinical significance:
- Normal constituents:
- Organic: Urea, Uric acid, Creatinine
- Inorganic: Ca, phosphate, chloride, electrolytes
- Abnormal constituents:
- Glucose, Ketone bodies, Protein, Blood, Bile salts, Bile pigments

Recommended Books

1. Essentials of Biochemistry by U. Satyanarayana.
2. Text book of Biochemistry for Medical students. DM Vasudevan Integrated textbook of Biochemistry Volume-I and II. Indumathi.
3. Textbook of Biochemistry for Medical students. MN Chatterjee and Rana Shinde.
4. Harper's Illustrated Biochemistry.
5. Essentials of Biochemistry. Pankaja Naik

English And Communication Skill

L	T	P	C
2	-	-	2

Course Objectives:

- To enhance the lexical and grammatical skills of the learners.
- To develop reading competencies for academic and professional requirements.

Malla Reddy Vishwavidyapeeth

- To write effectively to meet professional needs.
- To hone speaking and listening skills.
- To enhance empathy and other vital interpersonal skills of the learner.

Course Outcomes:

- Construct grammatically correct sentences with appropriate vocabulary.
- Analyze, interpret and synthesize a diverse range of profession-specific concepts through better comprehension of the text.
- Draft various types of written communication pieces useful to their professional lives.
- Understand and apply norms of scientific communication, soft skills and positive interpersonal communication.
- Listen effectively and speak fluently in formal and informal situations, especially in their workplace.

UNIT1: Sympathy (Poem) by Charles Mackay (6hrs)

Reading-Reading and its importance, techniques of effective reading.

Writing-Paragraph Writing (Topic sentence, Supporting sentences, and Conclusion) Grammar - Parts of Speech (Parsing), Articles

ELCSLAB

CALLLAB : Phonetics- Vowel Sounds (Monophthongs and Diphthongs)

Listening-Introduction to listening, Purpose of Listening, and

UNIT2: A Birthday Letter by Jawaharlal Nehru

Reading-Skimming and Scanning

Writing-Letter writing (Requests, Leave applications, Purchase letters, Letters in correspondence with medical insurance companies)

Grammar- Phrase, Clause and Sentence; Prepositions

ELCSLAB

CALLLAB: Phonetics- Consonant Sounds

Listening-Listening for gist and specific information

UNIT3: The secret of work by Swami Vivekananda (6hrs)

Reading-Making inferences and predictions

Writing-E-mail writing

Grammar-Tenses, Reported speech vocabulary–food and life style, instrument & equipment

ELCSLAB

CALLLAB: Intonation

Listening- Listening and identifying facts and opinions

ICSLAB: Speaking-Role Plays (OET) (Giving and taking instructions, Interacting with and explaining processes, conditions and instructions to the patients and their attenders,

UNIT4: All the world's a stage (Poem) by William Shakespeare (6hrs)

Reading-Reading for explicit and implicit meaning

Writing-Short essays: 2-Paragraph Essay, Thesis Statement

Grammar-Subject-Verbal agreement, Degrees of Comparison

ELCSLAB

CALLLAB: Consonant Clusters

Listening-Listen-Comprehend- Speak, Health Care

UNIT5: Sister Nivedita: Calcutta's Angel of Mercy (Article/Essay) by MonidipaDey (6hrs)

Writing-Report writing (Analysing tests and Reporting patient condition) Grammar– Voice, If conditionals

Vocabulary-Health, Wellness, Medical Vocabulary/Terminology

ELCSLAB

CALLLAB: Past Tense Markers and Plural Markers

Listening- Listening tasks from OET and IELTS

Recommended Books:

1. English for nurses by Vijaya Laxmi Naidu. Nirali Prakashan. 2008.
2. Practical English Usage by Michael Swan. OUP. 1995.
3. On Writing Well by William Zinsser, Harper Resource Book. 2001.
4. Cambridge English for nursing by Virginia Allum and Patricia Mc Garr. CUP. 2010.
5. English for nursing by Ross Wright and Bethany Cagnol. Pearson. 2001.
6. English for nursing-2 by Maris Spada Symonds and Ross Wright. Pearson. 2001.
7. Everyday English for International nurses by Joy Parkinson and Chris Brooker. Elsevier. 2004.
8. Oxford English for career Nurses by Tony Grice. Oxford University Press. 2007.

Basic Computers

L/T/P/C
1/-/1/2

Course Outcomes:

At the end of the course the student will be able

To understand peripherals of the computer how it works and understand various languages of the computer.

To create any kind of presentations for presenting their knowledge anywhere in the form of document or ppt.

To create excel sheets to save data and process the data efficiently.

To understand basic requirements of computer network hardware, software and its network architecture.

Course Objectives:

- To understand all components of computer, different working environments and operations of computer.

- To learn creating different types of word documents, MS Excel manipulations, Power point documents.
- To understand basic requirements of computer network hardware, software and its network architecture.

UNIT – I

Introduction to computers: -Definition of Computer-Characteristics of computer- Components of Computer Hardware – Input & Output devices- Memories– RAM and ROM– MB, GB their conversions –

Software: Application Software and Systems software- Data and Information –Different computer languages- Number systems- Binary and decimal conversions.

UNIT – II

MS WORD: Typing text in MS Word– Manipulating text– formatting text–using different font sizes, bold, italic– bullets and numbering –Pictures, Aligning the text and justify– choosing paper size– adjusting margins– header and footer, inserting page no's in a doc– printing a file with options– using spell check and grammar– find and replace– mail merge – insert tables in a document.

UNIT – III

MS EXCEL: Creating MS Excel-Cell editing, using formulas and functions, manipulating data with excel– using sort function to sort numbers and alphabets– drawing graphs and charts using data in excel.

MS POWERPOINT: Slide transition and animation-slides with sounds– inserting clip arts– Pictures, tables and graphs.

UNIT – IV

Introduction to Computer Networks: Introduction, Computer Network Devices (Hubs, Switches, Routers, Gateway, Bridge, Modems, Wireless Access Points, Firewalls & NIC), Types of computer Networks (LAN, MAN & WAN), Network Topologies (Star, Ring, Mesh, Tree, Hybrid Topologies), Internet Based Applications, Advantages & Disadvantages of Computer Networks, E-Mail, Components of E-Mail, Attaching Files in E-mail, Different Search Engines.

UNIT – V

Introduction to Artificial Intelligence & ML: History of AI, Sub Areas of AI, Applications of AI in Healthcare, Benefits of AI in Health Care, Challenges of AI in Healthcare, Introduction to Machine Learning, Applications of Machine Learning, Machine Learning Algorithms, Real world Machine Learning Use Cases.

BASIC COMPUTERS – PRACTICALS

1. Introduction to computer hardware and identification of input/output devices
2. Operating system basics and desktop navigation
3. Creating, saving, renaming, and organizing files and folders
4. Using Control Panel and system settings
5. Basic typing practice and keyboard shortcuts

- 6. Microsoft Word – document creation and formatting
- 7. Creating tables, charts, and page layouts in MS Word
- 8. Preparing resumes, reports, and official letters in Word
- 9. Microsoft Excel – data entry and worksheet management
- 10. Creating charts and graphs in Excel

Recommended Books:

- 2. Computer Fundamentals by Goel, Anita Pearson
- 3. Computer Fundamentals: Concepts, Systems & Applications- 8th Edition by Priti Sinha, PradeepK., Sinha
- 4. MS-Office 2010 Training Guide by Prof. Satish Jain, M. Geetha
- 5. Computer Networks, Andrews S Tanenbaum, 5th Edition, Pearson Education
- 6. Artificial Intelligence: A modern Approach, Stuart J. Russell and Peter Norvig, Third Edition, PearsonEducation
- 7. Hands-on Machine Learning with Scikit-Learn, Keras, and TensorFlow, Aurelien Geron-Oreilly, 2ndEdition

L	T	P	C
2	0	0	2

SOCIOLOGY

SUBJECT DISCRIPTION Sociology will introduce student to the basic sociology concepts, principles and social process, social institutions in relation to the individual, family and community and the various social factors affecting the family in rural and urban communities in India will be studied.

UNIT 1

- 1. Introduction:
 - a. Meaning-Definition, Nature and Scope of Sociology
 - b. Methods of Sociological investigations, Case Study, Social Survey, Questionnaire and Interview methods.
 - c. Importance of its study with special reference to Health Care Professionals.
- 2. Social Factors in health and disease situations:
 - a. Role of Social factors in health
 - b. Role of social factor in illness
 - c. Decision making in taking treatment

UNIT 2

- 1. Socialization:
 - a. Definition and Meaning of Socialisation
 - b. Primary, Secondary and Anticipatory socialisation
 - c. Agencies of Socialisation

2. Social Groups:
 - a. Definition and Features of Social Group
 - b. Primary Social Group
 - c. Secondary Social Group
 - d. The role of Primary and Secondary Groups in Hospitals.

UNIT 3

1. Family:
 - a. The family, meaning and definition
 - b. Functions of family
 - c. Changing family patterns
 - d. Influence of Family on the individuals health, the effects of sickness in the family.
2. Community:
 - a. Rural community: meaning and features- Health problems of rural community.
 - b. Urban community: meaning and features-Health problems in urbanities.

Environmental Awareness(VAC)

L	T	P	C
2	0	0	2

Course Description:

This course introduces students to the fundamental concepts of environmental awareness, examining the relationship between humans and the environment. It emphasizes the impact of human activities on the planet and promotes sustainable practices. Students will explore key environmental issues, such as climate change, biodiversity, pollution, and resource conservation, and develop practical knowledge for contributing to environmental protection.

Course Objectives:

- By the end of the course, students will be able to:
- Understand the basic concepts of environmental science and sustainability.
- Identify the major environmental challenges facing the world today.
- Analyze the impact of human activities on ecosystems, biodiversity, and natural resources.
- Explore global environmental policies and local solutions to environmental problems.
- Implement sustainable practices in everyday life.

UNIT I:

Introduction to Environment and Ecosystems

3 HOURS

- Environmental awareness and environmental education
- Ecosystems and biodiversity
- Types of ecosystems: Forests, oceans, wetlands
- Importance of biodiversity
- Threats to ecosystems and biodiversity
- Sustainability concepts and environmental protection

UNIT II:**Pollution and Climate Change****3 HOURS**

- Types of pollution: Air, water, soil, noise, and light pollution
- Causes and effects of pollution
- Pollution impact on health and ecosystems
- Climate change and global warming
- Greenhouse effect and human contributions
- Mitigation and adaptation strategies

UNIT III:**Resource Conservation and Sustainable Practices****3 HOURS**

- Renewable and non-renewable resources
- Conservation of water, energy, and natural resources
- Sustainable agriculture and food systems
- Organic farming and agroecology
- Role of diet in environmental sustainability
- Green lifestyle practices

UNIT IV:**Waste Management and Water Conservation****3 HOURS**

- Types of waste: Municipal, industrial, hazardous, electronic
- Biomedical and healthcare waste management
- 3 Rs: Reduce, Reuse, Recycle
- Composting, landfills, and incineration
- Water conservation and management practices
- Importance of clean water and sanitation

UNIT V:**Environmental Policies and Green Technologies****3 HOURS**

- Environmental laws and regulations
- Paris Agreement and Kyoto Protocol
- Role of NGOs, governments, and individuals
- Renewable energy sources: Solar, wind, hydro
- Sustainable transportation and green technologies
- Individual and community participation in environmental protection

REFERENCE BOOK

- Environmental Science: A Global Concern.

SEMESTER-II

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Total hours	Max.Marks		
								INT	EXT	TOTAL
1		Human Anatomy-II	4	-	-	4	4	30	70	100
2		Human Physiology –II	4	-	-	4	4	30	70	100
3		Basics of Biomedical sciences in surgery and Anaesthesia	2	-	2	4	6	30	70	100
4		Pathology	2	-	-	2	2	30	70	100
5		Microbiology	3	-	-	3	3	30	70	100
6		Human Anatomy–II Practical	-	-	2	2	4	30	70	100
7		Human Physiology–II Practical	-	-	1	1	2	30	70	100
9		Stress Management	1	-	-	1	1	100	-	100
TOTAL			16	-	5	21	26	470	630	1100

Human Anatomy II

L T P C
4 0 2 6

UNIT-I

Basic Anatomy Of Lower Extremity:

1. Osteology including features, side determination, clinical and applied anatomy of the following lower extremity bones Innominate bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges.
2. Myology: Origin, insertion, nerve supply, action, function, clinical and applied anatomy
 - a. Gluteal Region

UNIT-II

Basic Anatomy of Lower Extremity:

1. Arthrology: Joint structure, articulating components, relations, joint actions, Clinical and Applied Anatomy including Radiography
2. Hip Joint, Knee joint, Ankle joint, joints of the foot.
3. Femoral triangle, femoral canal and inguinal canal, Adductor canal, popliteal fossa, arches of foot
4. Lumbar plexus, Sacral plexus, Nerves of the Lower Extremity including cutaneous Nerves
5. Blood vessels and lymphatic drainage

UNIT-III

Basic Anatomy of Vertebral Column And Pelvic Girdle:

1. Types of vertebrae
2. Basic Structure and features of Cervical, thoracic, lumbar, sacral and coccygeal vertebrae
3. Muscles of Trunk and Abdomen
4. Core muscle Anatomy
5. Joints of vertebral column, structure and composition of intervertebral disc including the Radiography Evaluation
6. Basic Joint structure, articulating components, relations, joint actions, Clinical and Applied Anatomy including Radiography of Sacro- Iliac joint
7. Basic Structure of Innominate bone Pelvic girdle and muscles of the pelvic floor including Applied Anatomy

UNIT-IV

Basic Anatomy of Head and Neck:

1. Bones of the skull and face
2. Muscles of the face and neck

UNIT-V

Basic Neuro Anatomy:

1. General organization of Nervous System
2. Central Nervous System-Gross structure of Brain and Spinal Cord
3. Diencephalon- Gross structure of Thalamus, Hypothalamus and Basal Ganglia
4. Cerebro-Spinal Fluid
5. Spinal Cord- Segmental features, Laminae, Nuclei
6. Spinal nerves
7. Basic blood supply to brain and spinal cord with clinical and applied anatomy
8. Peripheral Nervous system
9. Cranial nerves- Applied Anatomy

Recommended Text Books

1. Human Anatomy – Snell
2. Anatomy- Chaurasia, Volume- I,II & III
3. Neuro anatomy -- Inderbir Singh
4. Human Anatomy – Kadasne, Volume- I, II & III
5. Neuroanatomy -- Vishram Singh
6. Human Anatomy – Datta

Human Anatomy Practical – II

- Gross Specimens/Spotters
- Spine, Pelvis and Lower Extremity
- Identify the spotter- Osteology- Identify the bone, LOWER EXTREMITY BONES (Innominate bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges.) Including side determination, Spinal Segments, Vertebrae (Cervical, Thoracic, Lumbar, Sacral and Coccyx), Pelvis and Innominate Bones

- Surface Anatomy of the Spine and Lower Extremity –Atlas, Axis, C-7 vertebrae, Spinous and Transverse process of vertebra, Locate the Innominate bone, ASIS and PSIS, Coccyx, Sacrum, Greater Trochanter, Condyles of femur, Patella, Tibial Tubercles and condyles, Shin Bone, Tarsal bones, Malleoli
- Arthrology- (Cross section of Hip Joint, Knee Joint, Ankle Joint, Joints of Foot, Pelvic Joints, Joints of Spine, Intervertebral Joints, Facet Joints, Sacro-Iliac Joints)
- NEURO-ANATOMY IDENTIFY THE SPOTTER
- Cross Section of the Skull
- SYSTEMIC ANATOMY
- Gross Specimen/Spotter (Brain and Spinal Cord)

Human Physiology II	L	T	P	C
	4	0	1	5

Course Outcomes (CO)

- CO1:** Explain cellular physiology, acid-base balance, and blood physiology.
- CO2:** Describe cardiovascular and respiratory system physiology and interpret ECG findings.
- CO3:** Explain renal, reproductive, endocrine, and nervous system physiology.
- CO4:** Describe gastrointestinal physiology and special senses.
- CO5:** Perform basic physiology practicals including vital signs, ECG, spirometry, and blood grouping.

Program Outcomes

- Develop fundamental biomedical science knowledge.
- Apply physiology concepts in anesthesia and OT practice.
- Interpret physiological parameters during patient monitoring.
- Demonstrate practical clinical assessment skills.
- Promote patient safety through physiological understanding.

UNIT-I

Nervous System-I	12 hours
-------------------------	-----------------

1. Introduction to nervous system - CNS, PNS and ANS
2. Neurotransmitters - Definition, fate of neurotransmitter, types
3. Synapse - Definition, type, structure, transmission of impulse across a synapse, properties.
4. Receptors and Sensation - Types of sensations, Classification of receptors, properties
5. Sensory System - Organization of the sensory system, sensory Homunculus
6. Pathophysiology of pain - Definitions, hyperalgesia and allodynia, deep pain, referred pain and its theories, management of chronic pain, endogenous opioid analgesic system
7. functions of various parts of brain in brief.

UNIT-II**Nervous System-II****12 hours**

1. Spinal cord - Introduction, effects of complete transection of the spinal cord, effects of hemi section of the spinal cord (Brown-Sequard Syndrome)
2. Reflexes - Reflex action, reflex arc, classification, properties, types – superficial and deep reflexes
3. Regulation of tone, Posture and its reflexes, Equilibrium and vestibular apparatus
4. Higher Functions - Learning, Memory, Speech
5. Autonomic Nervous System - Sympathetic division, Parasympathetic division, control of autonomic functions
6. Cerebrospinal fluid - Formation and circulation, composition, functions, applied aspect - Hydrocephalus, lumbar puncture

UNIT-III**12 hours****Special Senses:**

1. Vision - Anatomy of eye, visual pathway, pupillary reflexes, dark adaptation, light adaptation, photosensitivity
2. Hearing - Anatomy of ear, auditory pathway, tests for hearing - Watch test, Rinne's test, Weber's test, deafness, Audiometry
3. Taste and Smell: Taste sensations, taste pathway, olfactory pathway

Endocrinology:

1. Hormones - Definition, types, functions
2. Secretion, regulation, function and applied aspect of Hypothalamus, Pituitary Gland, Thyroid Gland, Parathyroid Gland, Pancreas, Adrenal Gland.

UNIT-IV**10 hours****Reproductive System:**

1. Sex determination and differentiation & its abnormalities, puberty, importance of sex hormones
2. Female reproductive system - Internal & external genital organs, Oogenesis, Structure of egg, Follicle development, ovulation, menstrual cycle, menopause
3. Male reproductive system - Testes, accessory sex organs, Spermatogenesis, structure of sperm
4. Physiology of pregnancy - Fertilization, Implantation, Placenta (formation, function, hormones), maternal changes during pregnancy, pregnancy tests, infertility

UNIT-V**10 hours****Gastrointestinal System:**

1. Physiological stages of digestion
2. Liver function

Excretory System:

1. Kidneys-structure & function
2. Urine formation (to exclude concentration and dilution)
3. Juxtaglomerular apparatus
4. Fluid and electrolyte balance – Na, K, H₂O
5. Renal circulation
6. Applied physiology: Types of bladders

Recommended Text Books

1. Text book on Medical Physiology – Guyton
2. Textbook of Physiology – A K Jain

Human Physiology Practical – II

L/T/P/C
-/-/2/1

- Examination of superficial sensations
- Examination of deep sensations
- Examination of cortical sensations
- Examination of reflexes
- Cranial nerve examination
- Examination of Balance and coordination

Pathology

L T P C
2 0 0 2

Unit-1 Cellular adaptation, Cell injury & cell death.

- Introduction to pathology.
- Overview: Cellular response to stress and noxious stimuli. Cellular adaptations of growth and differentiation.
- Overview of cell injury and cell death.
- Causes of cell injury. Mechanisms of cell injury.
- Reversible and irreversible cell injury.
- Examples of cell injury and necrosis.

Unit-2 Inflammation:

- General features of inflammation Historical highlights
- Acute inflammation
- Chemical mediators of inflammation Outcomes of acute inflammation Morphologic patterns of acute inflammation Summary of acute inflammation
- Chronic inflammation
- General features of the immune system Disorders of the immune system

Unit-3 Infectious diseases. -

- General principles of microbial pathogenesis viral infections.
- Bacterial infections-Rheumatic heart disease.
- Fungal infections.
- Parasitic infections.

Unit-4 Neoplasia. -

- Definitions Nomenclature.
- Biology of tumor growth benign and malignant neoplasms Epidemiology.

- Carcinogenic agents and their cellular interactions Clinical features of tumors.

Unit-5 Environmental and nutritional disorders. -

- Environmental and disease.
- Common environmental and occupational exposures Nutrition and disease.
- Coronary artery disease.

Recommended Text Book:

Pathology, Harsh Mohan e. Basic Pathology by Robbin

Microbiology

L	T	P	C
3	0	0	3

Course Objectives

- To introduce the basic concepts of medical microbiology and microorganisms causing diseases.
- To study the morphology, classification, growth, and characteristics of bacteria, viruses, fungi, and parasites.
- To understand the mechanisms of infection, immunity, and host defense.
- To explain the principles of sterilization, disinfection, and infection control practices.
- To develop knowledge of specimen collection, laboratory diagnosis, and microbiological techniques.

UNIT I – General Microbiology and Bacteriology (12 Hours)

- Classification of microorganisms
- Size, shape, and structure of bacteria
- Use of microscope in the study of bacteria
- Nutrition, growth, and multiplication of bacteria
- Use of culture media in diagnostic bacteriology
- Types and uses of culture media
- Antimicrobial sensitivity test

UNIT II – Sterilization, Disinfection and Immunology (12 Hours)

- Principles of sterilization and disinfection
- Hot air oven
- Autoclave
- Serum inspissator
- Pasteurization
- Antiseptics and disinfectants
- Immunity and vaccines
- Types of vaccines
- Immunization schedule
- Principles and interpretation of Widal, VDRL, ASLO, CRP, RF, and ELISA tests
- Rapid tests for HIV and HBsAg (excluding technical details)

UNIT III – Systematic Bacteriology (10 Hours)

- Morphology, cultivation, diseases caused, laboratory diagnosis, and specimen collection of Staphylococci, Streptococci, Pneumococci, Gonococci, Meningococci, Corynebacterium diphtheriae, Mycobacteria, Clostridia, Bacillus, Shigella, Salmonella, Escherichia coli, Klebsiella, Proteus, Vibrio cholerae, Pseudomonas, and Spirochetes
- Excluding classification, antigenic structure, and pathogenicity

UNIT IV – Parasitology and Mycology (10 Hours)

- Morphology, life cycle, and laboratory diagnosis of Entamoeba histolytica, Plasmodium, tape worms, and intestinal nematodes
- Morphology, diseases caused, and laboratory diagnosis of Candida, Cryptococcus, Dermatophytes, and opportunistic fungi

UNIT V – Virology (10 Hours)

- General properties of viruses
- Diseases caused, laboratory diagnosis, and prevention of Herpes, Hepatitis, HIV, Rabies, and Poliomyelitis viruses

Recommended Books

1. Microbiology, Ananthanarayan and Paniker's,
2. CP. Baveja. Textbook of Microbiology for nurses.
3. A textbook of Microbiology-Chakraborty.

Basics of Biomedical Sciences in Surgery and Anaesthesia

L	T	P	C
2	0	2	4

Course Outcomes

1. Understand basic principles of biomedical engineering and their application in surgery and anaesthesia.
2. Identify and describe surgical and anaesthesia equipment, including their functions and working principles.
3. Demonstrate knowledge of biomedical imaging techniques and surgical navigation systems used in clinical practice.
4. Apply concepts of anaesthesia delivery, monitoring systems, and healthcare technology management.

UNIT I

Introduction to Biomedical Engineering

4 Hours

- Biomedical engineering in surgery and anaesthesia
- Scope and applications
- Basic human physiology related to surgery and anaesthesia
- Introduction to medical instrumentation principles
- Patient safety, risk management, and quality assurance
- Role of biomedical engineers, ethical and legal aspects

UNIT II**Surgical and Anesthesia Devices****15 Hours**

- OT table, OT light
- Infusion pumps, TCI pumps
- Video laryngoscope, Bronchoscope
- Diathermy, Drills, ESU, LASER, Ultrasonic devices, RF devices, Harmonic scalpels
- 12 lead ECG
- Transducers, EtCO₂ monitor
- Pulse oximeter, Blood pressure monitor

UNIT III**Surgical Microscope and Laparoscopic Equipment****4 Hours**

- Surgical microscope
- Laparoscopic cart
- Scopes
- Veress needle
- Trocars
- Laparoscopic instruments

UNIT IV**Biomedical Imaging and Surgical Navigation****11 Hours**

- X-ray
- CT
- MRI
- Image guided surgery
- Image processing
- Surgical navigation systems
- Tracking and registration techniques

UNIT V**Anesthesia Delivery and Monitoring****6 Hours**

- Anesthesia machines
- Delivery systems
- Monitoring devices
- Physiological monitoring
- Closed loop anesthesia systems

PRACTICALS**60 HOURS****Reference Books**

- Fundamentals of Biomedical Instrumentation by Dr. O.N. Pandey (Author)
- Handbook of medical instrumentation by R S Kanpur.
- The Anesthesia Technologist's Manual by Emily S Guimaraes, Matthew Davis, Jeffrey R Kirsch, Glenn Woodworth.

- Surgical Technology for the surgical technologist by association of surgical technologists

Stress Management (VAC)

L	T	P	C
1	0	0	1

Course Objectives:

By the end of the course, students will:

- Understand what stress is and how it affects the body and mind.
- Learn how to recognize personal stressors and individual responses to stress.
- Explore various coping strategies to manage stress effectively.
- Understand how lifestyle changes can reduce overall stress.
- Learn how to manage stress in academic and professional settings.
- Equip students with tools to build long-term resilience against stress.

UNIT I:

Introduction to Stress and Stress Responses

3 HOURS

- Definition of stress: Eustress and distress
- Types of stress: Acute and chronic stress
- Biology of stress and fight-or-flight response
- Effects of stress on physical and mental health
- Role of perception and coping mechanisms

UNIT II:

Identifying Stressors and Stress Process

- Internal and external stressors
- Stress patterns: Thoughts, emotions, and behaviors
- Physical and emotional responses to stress
- Emotional regulation in stress management
- Stress development and escalation process

UNIT III:

Coping Strategies and Relaxation Techniques

3 HOURS

- Problem-focused and emotion-focused coping
- Cognitive Behavioral Therapy (CBT) techniques
- Relaxation methods and breathing exercises
- Time management and organizational skills
- Developing personal coping plans

UNIT IV:

Lifestyle and Workplace Stress Management

3 HOURS

- Role of exercise and physical activity
- Sleep hygiene and nutrition in stress control
- Social support and healthy relationships
- Managing academic and workplace stress
- Self-care and burnout prevention

UNIT V:

Building Long-Term Stress Resilience

3 HOURS

- Resilience theory and emotional intelligence
- Growth mindset and adapting to challenges
- Mindfulness and meditation practices
- Integrating stress management into daily life
- Maintaining long-term mental well-being

RECOMMENDED TEXT BOOK

- Stress Management: From Basic Science to Best Practice

SEMESTER-III

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	TOTAL HOURS	Max.Marks		
								INT	EXT	TOTAL
1		Haematology	2	-	-	2	2	30	70	100
2		Basic techniques of Anaesthesia	3	-	2	5	7	30	70	100
3		Basic concepts in Pharmacology	2	-	-	2	2	30	70	100
4		Basics of Surgical procedures	3	-	2	5	7	30	70	100
5		CSSD & Manifold Area.	2	-	2	4	6	30	70	100
6		Medical Law and Ethics	3	-	-	3	3	30	70	100
7		Soft Skills Development	2	-	-	2	1	100	-	100
TOTAL			16		6	22	28	280	420	700

Haematology

L	T	P	C
2	0	0	2

Course Outcomes

1. Demonstrate knowledge of basic hematological parameters, including hemoglobin estimation, blood cell counts, and coagulation profiles.
2. Identify and interpret common hematological disorders such as anemia, polycythemia, thrombocytopenia, and coagulation abnormalities.
3. Perform and assist in basic hematological investigations and understand their clinical significance.
4. Apply knowledge of blood transfusion practices, including indications, compatibility testing, and management of transfusion reactions.

UNIT – I: Basic Hematological Parameters

10 HOURS

- Hemoglobin: structure, function, estimation methods
- Blood cell counts: RBC, WBC, platelet count
- Differential leukocyte count and its clinical significance

UNIT – II: Red Cell Disorders

8 HOURS

- Anemia: classification, etiology, and clinical features
- Polycythemia: types, pathophysiology, and complications

UNIT – III: Platelet and Coagulation Profile**8 HOURS**

- Thrombocytopenia: causes, clinical implications
- Coagulation parameters: Bleeding Time (BT), Clotting Time (CT), Prothrombin Time (PT), International Normalized Ratio (INR), Activated Partial Thromboplastin Time (APTT)

UNIT – IV: Coagulation Disorders**6 HOURS**

- Disorders of hemostasis: inherited and acquired
- Hemophilia, DIC, and other coagulation abnormalities

UNIT – V: Blood Transfusion Medicine**6 HOURS**

- Principles of blood transfusion
- Indications and compatibility testing
- Hazards, reactions, and complications of transfusion

Reference books:

1. An Introduction to Hematology, Nandini Mukherjee.

Basic Techniques of Anaesthesia

L	T	P	C
3	0	2	5

Course Outcomes

1. Understand and perform preoperative assessment and patient preparation to evaluate anaesthetic risks and plan safe care.
2. Demonstrate knowledge of anaesthesia machine design, components, safety systems, and perioperative fluid management.
3. Apply principles of balanced anaesthesia, including administration of inhalational and intravenous agents, monitoring, and maintenance of oxygenation and depth of anaesthesia.
4. Perform anaesthetic induction, airway management, and use of airway devices, along with management of emergencies and use of emergency drugs.
5. Implement pain management techniques, including systemic analgesia, regional anaesthesia, and patient-controlled analgesia, and apply anaesthetic considerations in general and obstetric/gynecological surgeries.

UNIT I**Preoperative Assessment and Anesthesia Machine****20 Hours**

- Preoperative evaluations
- Patient history
- Physical examinations
- Assessment of anesthesia risks
- Planning of patient care
- Design of anesthesia machine

- Components of anesthesia machine
- Functionality of anesthesia machine
- Flow systems
- CO₂ absorbents
- Circuit types
- Humidification devices

UNIT II**Fluid Management and Emergency Medications****20 Hours**

- Crystalloids
- Colloids
- Fluid management strategies
- Perioperative considerations
- Indications
- Administration
- Premedication
- Preoxygenation
- Denitrogenation

UNIT III –**Anesthetic Induction and Airway Management****(20 Hours)**

- Induction techniques
- Airway devices
- Patent airway maintenance
- Induction agents
- Sellick's maneuver
- Principles of vaporizers
- Types of vaporizers
- Intubation
- Reversal agents

UNIT IV**Maintenance of Anesthesia and Pain Management****20 Hours**

- Balanced anesthesia
- Inhalational anesthetics
- Intravenous anesthetics
- Vital sign monitoring
- Depth of anesthesia
- Oxygenation monitoring
- Systemic analgesics
- Regional anesthesia
- Patient-controlled analgesia

UNIT V**Anesthetic Considerations and Complications****(20 Hours)**

- Appendectomy
- Cholecystectomy
- Hernia repair
- Laparotomy
- Labor and delivery
- Caesarean section
- Gynecological surgeries
- Obstetric emergencies
- Cardiovascular complications
- Respiratory complications
- Allergic reactions
- Adverse events management

Practical / Clinical Posting Topics (60 Hours)

- Preoperative assessment and patient preparation
- History taking and physical examination
- Risk stratification for anesthesia care
- Anesthesia machine components and functioning
- Safety systems in anesthesia machine
- Regional anesthesia procedures
- Peripheral nerve blocks
- Epidural techniques
- Management of anesthesia-related complications
- Airway obstruction management
- Hypotension management
- Allergy management
- Simulation and role-playing exercises

REFERENCE BOOKS

- Drugs & Equipment in Anesthetic Practice by Arun Kumar Paul,
- Short textbook on Anesthesia, Ajay Yadav
- Short Textbook of Anesthesia, Bajaj Kumar
- Understanding Anesthesia Equipment Dorsch & Dorsch, e. Wards Anesthesia Equipment Andrew & Ali Diba,

Basics of Surgical Procedures

L	T	P	C
3	0	2	5

Course Outcomes

1. Understand operation theatre layout, WHO surgical safety checklist, carbolization, fumigation, and aseptic techniques for maintaining a sterile field.
2. Demonstrate knowledge of common general surgical and obstetric/gynecological conditions and their management.
3. Apply principles, indications, and techniques of surgical procedures, including patient positioning, incision, and wound closure.
4. Identify and handle surgical instruments effectively during procedures.
5. Implement infection prevention and control measures to ensure patient safety and reduce surgical site infections.

UNIT I**Operation Theatre and Aseptic Techniques****20 Hours**

- WHO checklist
- Carbolic acid
- Fumigation
- Spaulding's classifications of zones
- Hand hygiene
- Gowning
- Gloving
- Sterile draping techniques

UNIT II**General Surgical Procedures and Diseases****20 Hours**

- Appendectomy
- Cholecystectomy
- Hernia repair
- Appendicitis
- Hernias
- Cholecystitis
- Gastrointestinal cancers
- Peptic ulcer disease

UNIT III**Obstetric and Gynecologic Procedures****20 Hours**

- Ectopic pregnancy
- Pelvic inflammatory disease
- Endometriosis
- Fibroids
- Ovarian cysts
- Cervical cancer
- Ovarian cancer

- Caesarean section
- Hysterectomy
- Ovarian cystectomy

UNIT IV**Wound Closure and Surgical Instruments****20 Hours**

- Surgical incision types
- Sutures
- Staples
- Adhesive tapes
- Wound dressing principles
- Surgical instruments in general surgery
- Surgical instruments in obstetrics and gynecology
- Instrument handling
- Instrument maintenance

UNIT V**Infection Control and Patient Positioning****20 Hours**

- Skin preparation
- Antimicrobial prophylaxis
- Aseptic practices
- Patient positioning techniques
- Safety considerations
- Surgical accessibility
- Surgical outcomes optimization

Practical / Clinical Posting Topics**(60 Hours)**

- Operation theatre layout demonstration
- WHO surgical safety checklist
- Sterile and non-sterile zones
- Suturing materials
- Suturing techniques
- Sterile area maintenance
- Gloving techniques
- Gowning techniques
- Draping techniques
- Identification of surgical instruments
- Uses of surgical instruments
- Patient positioning techniques
- Communication and coordination during surgery
- Simulation exercises in surgical settings

REFERENCE BOOKS

- Fullers Surgical Technology, Joanna Kotcher Fuller
- D C Dutta textbook OG Gynecology, Hiralal Konar
- Surgical Technology for the surgical technologist by association of surgical technologists.
- Textbook on Operation Theatre Technology, Bhagwan Ramachandran

CSSD & Manifold Area

L	T	P	C
2	0	2	4

COURSE OUTCOMES

1. Understand the principles of sterilization, decontamination, instrument preparation, and packaging techniques in CSSD.
2. Apply methods of sterile storage, distribution, inventory control (FIFO), and proper labeling and documentation.
3. Implement quality assurance measures by monitoring sterilization processes and ensuring compliance with standards.
4. Demonstrate infection control practices including hand hygiene, use of PPE, aseptic techniques, and prevention of cross-contamination.
5. Perform basic maintenance and troubleshooting of CSSD equipment to ensure safe and efficient functioning.

UNIT I

Introduction to CSSD and Sterilization Methods

13 Hours

Introduction to CSSD

- Role of CSSD
- Importance of CSSD
- Infection control
- Sterile instruments and equipment

Sterilization Methods

- Steam sterilization
- Autoclaving
- Ethylene oxide sterilization
- Hydrogen peroxide plasma sterilization
- Chemical sterilization

UNIT II

Decontamination and Instrument Preparation (7 Hours)

- Manual cleaning
- Mechanical cleaning

- Ultrasonic cleaning
- Enzymatic cleaning
- Instrument cleaning
- Inspection
- Assembly
- Packaging techniques

UNIT III**Storage, Quality Assurance and Infection Control****14 Hours**

- Inventory control
- FIFO system
- Labelling
- Documentation
- Biological monitoring
- Chemical monitoring
- Regulatory compliance

Infection Control Practices

- Hand hygiene
- PPE usage
- Aseptic techniques
- Prevention of cross-contamination

UNIT IV**Equipment Maintenance and Manifold Systems****8 Hours**

- Sterilizers
- Washers
- Drying cabinets
- Troubleshooting procedures

Hospital Manifold Systems

- Medical gases
- Design and layout
- Gas outlets and connections
- Gas identification and labelling

UNIT V**Gas Control, Safety and Emergency Procedures****8 Hours**

- Pressure regulation devices
- Safety practices
- Liquid medical oxygen

Emergency Response and Compliance

- Gas shutdown procedures
- Troubleshooting
- Problem-solving
- Regulations and compliance

Practical / Clinical Posting Topics **CSSD Procedures (60 Hours)**

(90 Hours)

- Autoclave operation
- Chemical sterilization methods
- Manual cleaning techniques
- Ultrasonic cleaner operation
- Instrument decontamination
- Inventory management
- Sterile storage procedures

Manifold Area (40 Hours)

- Hospital manifold system components
- Gas sources and regulators
- Safety alarms and devices
- Emergency equipment handling
- Gas shut-off valves
- Pressure relief devices
- Emergency alarms
- Troubleshooting manifold systems
- Maintenance of manifold systems

REFERENCE BOOKS

- Essentials of Applied Microbiology for Nurses Including Infection Control and Safety by Apurba S Sastry, Sandhya Bhat.
- medical gases: Health Technical Memorandum Medical gas pipeline systems, by Dept. of Health, UK Health Departments.

1.

Basic Concepts in Pharmacology

L	T	P	C
2	0	0	2

Course Outcomes

1. Understand basic principles of pharmacology, including drug classification and mechanisms of action.
2. Identify indications and contraindications of commonly used drugs.
3. Recognize adverse drug reactions and potential drug interactions.
4. Apply pharmacological knowledge in clinical practice for safe and effective patient care.

UNIT I**Introduction to Pharmacology and Drug Administration****5 Hours**

- Definition and scope of pharmacology
- Importance of pharmacology in anesthesia practice

Pharmacokinetics & Pharmacodynamics & Routes of Drug Administration

- Pharmacokinetics
- Pharmacodynamics
- Routes of drug administration

UNIT II**Sedatives, Analgesics and Anticholinergics****10 Hours**

- NSAIDs Drugs : NSAIDs used in clinical practice
- Antisialogogues: Atropine , Glycopyrrolate
- Sedatives / Anxiolytics
- Narcotics: Morphine , Pethidine , Fentanyl , Pentazocine ,Tramadol
- Antiemetics: Metoclopramide ,Ondansetron ,Dexamethasone

UNIT III**Anesthetic Agents and Muscle Relaxants****10 Hours****Induction Agents**

- Thiopentone
- Diazepam
- Midazolam
- Ketamine
- Propofol
- Etomidate

Muscle Relaxants

- Depolarizing – Suxamethonium
- Non-depolarizing – Vecuronium
- Atracurium
- Rocuronium

Inhalational Gases and Agents

- Oxygen (O₂)
- Nitrous Oxide (N₂O)
- Air
- Ether
- Halothane
- Isoflurane

- Sevoflurane
- Desflurane

UNIT IV**Reversal Agents and Local Anesthetics****5 Hours**

- Neostigmine
- Glycopyrrolate
- Atropine
- Naloxone
- Flumazenil

Local Anesthetics

- Xylocaine
- Bupivacaine
- Prilocaine jelly
- Emla ointment
- Etidocaine
- Ropivacaine

UNIT V**Emergency Drugs****10 Hours****Emergency Drugs: Mode of Administration, Dilution, Dosage and Effects**

- Adrenaline , Atropine , Ephedrine , Mephentermine
- Bicarbonate , Calcium , Potassium
- Dopamine , Dobutamine , Amiodarone , Aminophylline , Hydrocortisone
- Antihistaminics , Beta-blockers
- Calcium-channel blockers
- Xylocard , Nitroglycerin
- Sodium nitroprusside , Bronchodilators
- Diuretics , Furosemide , Mannitol

Reference Books

- Essentials of Medical Pharmacology, KD Tripathi
- Medical Pharmacology, Uday Kumar (Author)

Medical Law and Ethics

L	T	P	C
3	0	0	3

LEARNING OBJECTIVES

- Understand legal and ethical principles in medical practice, including confidentiality, informed consent, euthanasia, organ transplantation, medico-legal aspects, and professional indemnity.
- Develop professionalism by applying values such as integrity, accountability, ethical behavior, communication, teamwork, and cultural sensitivity in healthcare settings.
- Identify and manage issues related to professional conduct, responsibility, and misconduct within the healthcare system.
- Apply management principles such as planning, organizing, directing, coordination, leadership, and motivation in healthcare organizations.
- Understand basics of human resource, financial, communication, and healthcare technology management for effective healthcare delivery.

UNIT – I: Foundations of Medical Ethics**10 HRS**

- Definition, scope, and goals of medical ethics
- Code of conduct and professional standards

UNIT – II: Ethical Principles and Patient Rights**10 HRS**

- Autonomy, beneficence, non-maleficence, and justice
- Confidentiality and privacy
- Informed consent and patient rights

UNIT – III: Legal Issues in Medical Practice**8 HRS**

- Medical negligence and malpractice
- Rational vs irrational drug therapy
- End-of-life care and euthanasia
- Organ transplantation laws

UNIT – IV: Medico-Legal Documentation**6 HRS**

- Medico-legal cases (MLC) and classification
- Medical records: ownership, confidentiality, and retention
- Legal aspects of information disclosure

UNIT – V: Professional Accountability and Standards**6 HRS**

- Professional indemnity insurance
- Development of clinical protocols and safety systems
- Professional and personal values
- Accountability, responsibility, and misconduct

Soft Skills development

L	T	P	C
2	0	0	2

COURSE OBJECTIVES

1. Enhance communication and interpersonal skills.
2. Develop leadership and teamwork abilities.
3. Improve problem-solving and decision-making skills.
4. Build professional behavior and confidence.

UNIT I:**Introduction to Soft Skills and Communication Skills****3 HOURS**

- Definition and importance of soft skills
- Difference between hard skills and soft skills
- Key soft skills in healthcare and workplace settings
- Communication process and active listening
- Verbal and non-verbal communication
- Email and phone communication etiquette

UNIT II:**Emotional Intelligence and Teamwork****3 HOURS**

- Emotional intelligence: Self-awareness, empathy, motivation, and self-regulation
- Emotional resilience and stress handling
- Team roles and team dynamics
- Effective communication in teams
- Building trust and collaboration
- Conflict handling within teams

UNIT III:**Conflict Resolution and Time Management****3 HOURS**

- Sources and types of conflict
- Conflict resolution strategies: Negotiation, mediation, compromise
- Role of active listening in conflict management
- Importance of time management
- Prioritization techniques and SMART goals
- Managing procrastination and distractions

UNIT IV:**Leadership and Professional Development****3 HOURS**

- Leadership styles and qualities of effective leaders
- Team motivation and morale building
- Influence and persuasion skills
- Professional ethics and workplace behavior
- Confidence building and self-development

UNIT V:**Public Speaking and Presentation Skills****3 HOURS**

- Fear management in public speaking

- Structure of presentations: Introduction, body, conclusion
- Use of visual aids and presentation tools
- Audience engagement techniques
- Body language, eye contact, and storytelling
- Practice of group presentations and speaking exercises

RECOMMENDED TEXT BOOK

- The 7 Habits of Highly Effective People..

SEMESTER-IV

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	TOTAL HOURS	Max.Marks		
								INT	EXT	TOTAL
1		Advanced Anaesthesia Techniques	4	-	2	6	8	30	70	100
2		Advanced Surgical Procedures	3	-	3	6	9	30	70	100
3		Basic Intensive Care	3	-	2	5	7	30	70	100
4		Clinical Medicine & Related Management	4	-	-	4	4	30	70	100
5		Health and Well-being	1	-	-	1	1	100	-	100
TOTAL			15	-	7	22	29	220	280	500

Advanced Anesthesia Techniques

L T P C
4 0 2 6

Course Outcomes

1. Demonstrate knowledge of anaesthetic considerations and techniques for ENT and ophthalmic surgeries.
2. Perform and assist in advanced airway management, including fiberoptic intubation and supraglottic airway placement.
3. Apply appropriate anaesthesia techniques for ophthalmic procedures, including local and regional blocks.
4. Identify, prevent, and manage complications associated with ENT and ophthalmic anaesthesia.
5. Integrate theoretical knowledge with clinical skills to ensure patient safety and effective perioperative care.

UNIT I**Anaesthetic Considerations in ENT Surgeries****20 Hours**

- Anaesthetic considerations for ear, nose, and throat surgeries
- Tonsillectomy
- Adenoidectomy
- Sinus surgery
- Challenges in airway management during ENT surgeries
- Pain management protocols in ENT procedures

UNIT II:**Airway Management in ENT Procedures****(20 Hours)**

- Fiberoptic intubation
- Supraglottic airway devices
- Video laryngoscopy
- Securing airway during ENT surgeries
- Management of difficult airway situations

UNIT III:**Anaesthetic Techniques for Ophthalmic Surgeries****20 Hours**

- Anaesthesia for cataract extraction
- Retinal surgeries
- Glaucoma procedures
- Patient positioning in ophthalmic surgeries
- Sedation and monitoring techniques

UNIT IV:**Local and Regional Anaesthesia Techniques****20 Hours**

- Local anaesthetics for head and neck surgeries
- Nerve blocks
- Regional anaesthesia techniques
- Administration techniques
- Advantages and limitations of regional anaesthesia

UNIT V:**Management of Complications in ENT and Ophthalmic Surgeries****20 Hours**

- Complications in ENT surgeries
- Complications in ophthalmic surgeries
- Airway obstruction management
- Emergency airway manoeuvres
- Ocular emergencies
- Prevention and management strategies

Practical / Clinical Postings**(50 Hours)**

- Patient positioning and airway access during tonsillectomy and adenoidectomy
- Selection and administration of anaesthetic agents in ENT surgeries
- Anaesthetic techniques for sinus surgery
- Fiberoptic intubation techniques using airway manikins
- Insertion and positioning of supraglottic airway devices
- Topical anaesthesia techniques for cataract extraction
- Peribulbar and retrobulbar block techniques
- Simulation of difficult airway scenarios
- Management of airway obstruction in ENT surgeries
- Ocular emergency management simulations

REFERENCE BOOKS

- Drugs & Equipment in Anesthetic Practice by Arun Kumar Paul,
- short textbook on Anesthesia, Ajay Yadav
- The Anesthesia Technician & Technologists Manual Glenn Woodworth. g. Miller's Anesthesia

Advanced Surgical Procedures

L	T	P	C
3	0	3	6

Course Outcomes

1. Demonstrate knowledge of ENT and ophthalmic diseases, surgical procedures, and associated complication management.
2. Understand and apply preoperative, intraoperative, and postoperative care in surgical practice.
3. Identify and utilize specialized instruments, endoscopic, minimally invasive, and laser-assisted techniques.
4. Apply principles of laser safety, patient positioning, and clinical decision-making in surgical settings.
5. Integrate theoretical knowledge with practical skills through simulation-based training to enhance patient safety and surgical outcomes.

UNIT I:

Surgical Procedures in ENT

20 Hours

- Tonsillectomy
- Septoplasty
- Laryngectomy
- Sinus surgery
- Specialized instruments and techniques in ENT surgery
- Patient positioning in ENT procedures

UNIT II:

Diseases in Otolaryngology (ENT)

20 Hours

- Chronic sinusitis
- Tonsillitis

- Deviated septum
- Otitis media
- Vocal cord nodules and polyps
- Obstructive sleep apnea
- Laryngeal cancer
- Nasal polyps
- Salivary gland disorders
- Cochlear implantation

UNIT III:**Ophthalmic Diseases and Surgical Techniques****20 Hours**

- Cataracts and cataract extraction
- Intraocular lens implantation
- Glaucoma and trabeculectomy
- Retinal detachment repair
- Corneal transplantation
- Refractive surgeries (LASIK, PRK)
- Vitrectomy
- Retinoblastoma management

UNIT IV:**Laser and Endoscopic Surgical Procedures****20 Hours**

- Laser safety training
- Protective eyewear and fire safety
- Laser plume management
- Laser warning signage and interlock systems
- Endoscopic sinus surgery
- Laryngoscopy
- Tracheostomy
- Laser-assisted tonsillectomy
- Laser refractive surgeries

UNIT V:**Minimally Invasive Surgery and Complication Management****20 Hours**

- Minimally invasive approaches in ENT and ophthalmology
- Robotic-assisted procedures
- Advantages and limitations of minimally invasive surgery
- Management of complications in ENT surgeries
- Management of complications in ophthalmic surgeries
- Prevention and recognition of adverse events

PRACTICALS

- Identification of ENT and ophthalmic surgical instruments

- Arrangement techniques for tonsillectomy procedures
- Handling of specialized ENT instruments
- Nasal packing and airway patency techniques
- Endoscopic sinus surgery simulations
- Arrangement of instruments for laryngoscopic examination
- Visualization of vocal cords using laryngoscope models
- Simulated ophthalmic surgical procedures
- Practice of endoscopic procedures in ENT and ophthalmology
- Management of complications during ENT and ophthalmic surgeries

REFERENCE BOOKS

- Fullers Surgical Technology, Joanna Kotcher Fuller
- Diseases in ENT, Head & Neck Surgery, PL Dhingra & Shruti
- Laparoscopic Surgery, R. K. Mishra d. Surgical Technology.

Basic Intensive Care

L T P C
3 0 2 5

Course Outcomes

1. Recognize and manage emergencies and complications in unconscious and critically ill patients.
2. Demonstrate skills in patient care, including physiotherapy, feeding, Ryle's tube insertion, suctioning, and proper positioning techniques.
3. Apply principles of oxygen therapy and select appropriate delivery systems and masks based on patient condition.
4. Assess and provide ventilation support in emergencies using techniques like bag-valve mask and airway adjuncts.
5. Operate, maintain, and troubleshoot ICU equipment including ventilators, monitors, beds, and suction devices with proper sterilization practices.

UNIT I:

ICU Equipment and Ventilator Care

20 Hours

- Care and maintenance of ventilators
- Suction machines
- Monitoring devices
- Sterilization and disinfection of ventilators
- Beds, lights, and ICU apparatus
- Air conditioning and pollution control in ICU

UNIT II:

Patient Care and Airway Management

20 Hours

- Care of unconscious adult and paediatric patients

- Suctioning techniques
- Posturing of semiconscious and unconscious patients
- Oxygen therapy
- Maintenance of clear airway
- Types of masks
- Different types of airways

UNIT III:**Ventilation and Respiratory Support****20 Hours**

- Ventilation during patient crisis
- Resuscitator and bag valve mask assembly
- Short-term ventilation
- Transport ventilators
- Jet ventilation
- Volume cycled ventilators
- Time cycled ventilators
- Pressure cycled ventilators
- High frequency ventilators

UNIT IV:**Monitoring and Diagnostic Techniques****20 Hours**

- ABG techniques and analysis
- Spirometers and expired gas measurement
- Blood pressure monitoring apparatus
- Oscillo tonometer
- Aneroid manometer BP instrument
- Temperature monitoring
- Cardiac monitors
- Respiratory monitors

UNIT IV:**Monitoring and Diagnostic Techniques****(20 Hours)**

- ABG techniques and analysis
- Spirometers and expired gas measurement
- Blood pressure monitoring apparatus
- Oscillo tonometer
- Aneroid manometer BP instrument
- Temperature monitoring
- Cardiac monitors
- Respiratory monitors

Practical / Clinical Postings (90 Hours)

- Care and maintenance of ventilators

- Ventilator cleaning, sterilization, and disinfection
- Troubleshooting ventilator alarms and issues
- Bed positioning and ICU apparatus handling
- ICU air conditioning and pollution control practices
- Care of unconscious adult and paediatric patients
- Oxygen therapy using masks and nasal cannulas
- Endotracheal tube insertion and airway management
- Bag-valve mask ventilation techniques
- Physiotherapy and postural drainage techniques
- Ryle's tube insertion and enteral feeding
- Hemofiltration and hemodialysis machine handling
- Monitoring of ICU patients during critical care procedures
- Communication and psychological support role-play sessions

REFERENCE BOOKS

- Principles of Critical Care, Udwadia Erach Farokh (Author)
- The Protocol Book of Intensive Care, Soumitra Kumar.
- Oxford's Handbook of Critical Care, M Singer, A. Webb
- Essentials of Critical Care Nursing, Jaya Kuruvilla

Clinical Medicine & Related Management

L	T	P	C
4	0	0	4

Course Outcomes (CO)

- CO1:** Understand cardiovascular examination and investigations.
CO2: Explain common cardiovascular diseases and management.
CO3: Understand respiratory examination and investigations.
CO4: Describe respiratory diseases and emergency management.
CO5: Apply clinical knowledge in respiratory and cardiovascular emergencies.

Program Outcomes (PO)

- PO1:** Clinical knowledge and patient assessment
PO2: Diagnostic and interpretation skills
PO3: Emergency management competency
PO4: Professional communication and teamwork
PO5: Safe patient care practices

UNIT 1:

Cardiovascular Examination & Investigations

(12 Hours)

- Clinical examination of CVS
- Pulse examination
- Blood pressure measurement
- Heart sounds and murmurs
- ECG interpretation

- Echocardiography
- Cardiac enzymes
- Stress test
- Cardiac catheterization basics

UNIT 2:**Cardiac Diseases****12 Hours**

- Ischemic heart disease
- Angina
- Myocardial infarction
- Valvular heart diseases
- Common arrhythmias
- Atrial fibrillation
- Ventricular tachycardia
- Bradycardia management

UNIT 3:**Hypertension & Heart Failure****10 Hours**

- Hypertension
- Complications of hypertension
- Heart failure
- Left and right heart failure
- Cardiomyopathies
- Medical management principles

UNIT 4:**Respiratory Examination & Investigations****10 Hours**

- Respiratory system examination
- Pulmonary function tests
- Chest X-ray
- ABG analysis
- CT thorax
- Bronchoscopy basics

UNIT 5:**Respiratory Diseases & Management****16 Hours**

- Asthma
- COPD
- Pneumonia
- Pulmonary tuberculosis
- Bronchiectasis
- Lung abscess
- Pneumothorax
- Pleural effusion
- Carcinoma lung

- Respiratory failure
- Oxygen therapy
- Ventilatory support

Practicals

- ECG interpretation
- Respiratory examination
- Airway management
- ABG observation
- Pulmonary function testing

REFERENCE BOOKS

- .Harrison's principles of Internal Medicine
- Toohey's Medicine, R Indrani.

Health and Well-Being(VAC)

L	T	P	C
1	0	0	1

Course Description:

This course explores the holistic approach to health and well-being, focusing on physical, mental, and social aspects. Students will learn about health promotion strategies, the importance of physical activity, nutrition, mental health awareness, and stress management. The course also addresses the impact of lifestyle choices and societal factors on overall health.

Course Outcome

By the end of the course, students will be able to:

- Understand the physical, mental, and social determinants of health.
- Apply strategies for improving and maintaining physical health.
- Recognize the importance of mental well-being and stress management techniques.
- Understand the relationship between nutrition and overall health.
- Develop practical skills for managing time, stress, and emotions.
- Cultivate a balanced approach to achieving long-term health and well-being.

UNIT I

Introduction to Health and Physical Fitness

3 HOURS

- Concepts of health and well-being
- Dimensions of health: Physical, mental, social, and emotional
- Impact of lifestyle choices on health
- Importance of physical activity and exercise
- Types of exercise and personal fitness planning

UNIT II:

Nutrition and Healthy Lifestyle

3 HOURS

- Understanding mental health and emotional well-being
- Emotional resilience and coping strategies
- Stress and its effects on health
- Relaxation and mindfulness techniques
- Time management for stress reduction

UNIT IV:

Sleep, Social Health, and Addiction Awareness

3 HOURS

- Importance of sleep and recovery
- Sleep hygiene and healthy sleep habits
- Social relationships and communication
- Community involvement and well-being
- Substance use, addiction, and preventive measures

UNIT V:

Chronic Diseases and Healthy Habit Formation

3 HOURS

- Common chronic diseases and risk factors
- Lifestyle modifications for disease prevention
- Health screening and monitoring
- Psychology of habit formation
- Strategies for maintaining healthy behaviors

Assessment and Evaluation:

Class Participation :20

Assignments/ case study presentations: 30 Final: 50

Reference Textbook

Health and Wellness" by S. L. Kaskutas & K. A. A. Nielson

SEMESTER-V

<u>S.NO</u>	SUBJECTCODE	SUBJECT	L	T	P	C	TOTAL HOURS	Max.Marks		
								INT	EXT	TOTAL
1		Specialized Anaesthesia 1	4	-	3	7	10	30	70	100
2		Specialized surgery 1	4	-	3	7	10	30	70	100
3		Recent Advances in Anaesthesia and Surgical fields	4	-	-	4	4	30	70	100
4		Community Medicine & Environmental Sciences	3	-	-	3	3	100	-	100
5		Inter personal Communication	2	-	-	2	2	100	-	100
TOTAL			17	-	6	23	29	290	210	500

Specialized Anaesthesia–1

L T P C
4 0 3 7

COURSE OUTCOMES (COs)

At the end of this course, the student will be able to:

CO1: Explain anesthetic management principles in orthopedic, pediatric, and urological surgeries.

CO2: Analyze physiological and pharmacological considerations in pediatric anesthesia and apply appropriate techniques.

CO3: Evaluate anesthetic challenges in patients with congenital anomalies and plan perioperative care strategies.

CO4: Apply regional anesthesia techniques including spinal and peripheral nerve blocks with understanding of indications and complications.

CO5: Identify and manage intraoperative and postoperative complications in specialized surgical procedures.

CO6: Demonstrate competency in patient monitoring, pain management, and evidence-based anesthesia practices.

UNIT 1:

Orthopedic Anesthesia**20 Hours**

- Anesthesia for fracture fixation
- Joint replacement surgeries
- Spine surgeries
- Positioning in orthopedic surgery
- Blood loss management
- Tourniquet use
- Intraoperative monitoring
- Postoperative pain management

UNIT 2:**Pediatric Anesthesia****20 Hours**

- Pediatric anatomy and physiology
- Preoperative evaluation
- Pediatric airway management
- Induction techniques
- Maintenance of anesthesia
- Pediatric fluid therapy
- Pediatric emergencies

UNIT 3:**Congenital Anomalies & Anesthesia****20 Hours**

- Congenital heart diseases
- Cleft lip and palate
- Neural tube defects
- Hydrocephalus
- Airway abnormalities
- Intraoperative monitoring
- Postoperative care

UNIT 4:**Urological Anesthesia****20 Hours**

- Anesthesia for prostatectomy
- Nephrectomy
- Cystoscopy
- TURP syndrome
- Lithotripsy procedures
- Positioning in urology
- Fluid management

UNIT 5:**Regional Anesthesia Techniques****20 Hours**

- Spinal anesthesia
- Epidural anesthesia
- Peripheral nerve blocks
- Local anesthetics
- Complications of regional anesthesia
- Ultrasound-guided blocks

Practicals

(90 Hours)

- Pediatric intubation
- Spinal anesthesia simulation
- Peripheral nerve blocks
- Orthopedic positioning
- Regional anesthesia setup

REFERENCE BOOKS

- Drugs & Equipment in Anesthetic Practice by Arun Kumar Paul
- Short textbook on Anesthesia, Ajay Yadav
- Understanding Anesthesia Equipment Dorsch & Dorsch

Specialized Surgery–1

L T P C
4 0 3 7

COURSE OUTCOMES (COs)

- CO1:** Describe common orthopedic, pediatric, and urological diseases and their surgical indications.
- CO2:** Explain surgical procedures and techniques used in orthopedics, pediatric surgery, and urology.
- CO3:** Demonstrate understanding of intraoperative practices including patient positioning, instrumentation, and C-arm usage.
- CO4:** Apply principles of radiation safety, infection control, equipment maintenance, and patient safety protocols.
- CO5:** Outline anesthesia considerations and perioperative management for specialized surgical procedures.
- CO6:** Analyze postoperative care, pain management, rehabilitation, and effective communication in surgical practice.

UNIT 1:

Orthopedic Diseases & Surgeries

(35 Hours)

- Osteoarthritis
- Fractures ,Herniated disc ,Scoliosis
- Carpal tunnel syndrome ,Rotator cuff tear
- Ligament injuries ,Spinal stenosis ,Bone tumors
- Osteoporosis
- Joint replacement surgeries ,ORIF ,Arthroscopy
- Spine surgeries

UNIT 2:

C-Arm & Radiation Safety

5 Hours

- Principles of C-arm
- Radiation hazards
- Radiation protection
- Lead aprons and shielding
- Pediatric radiation safety

- Contrast media safety

UNIT 3:**Pediatric Surgical Diseases & Procedures****30 Hours**

- Cleft lip and palate
- Pediatric hernia
- Hypospadias
- Cryptorchidism
- PUJO
- Pyloric stenosis
- Hirschsprung disease
- Clubfoot
- Pediatric trauma
- Pediatric laparoscopy

UNIT 4:**Urological Diseases & Surgeries****20 Hours**

- Kidney stones
- ESWL
- Ureteroscopy
- TURP
- Bladder cancer
- Prostate cancer
- Renal tumors
- Nephrectomy
- Cystectomy
- Urological scopes

UNIT 5:**Minimally Invasive Surgery & Postoperative Care****10 Hours**

- Arthroscopy
- Laparoscopy
- Robotic surgery
- Trocar insertion
- Camera navigation
- Postoperative rehabilitation
- Pain management

Practicals**(90 Hours)**

- Orthopedic instruments
- Arthroscopy setup
- Pediatric sterile techniques
- Catheterization
- Laparoscopic instruments

REFERENCE BOOKS

- Fullers Surgical Technology, Joanna Kotcher Fuller

Malla Reddy Vishwavidyapeeth

- Laparoscopic Surgery, R. K. Mishra
- Surgical Technology for the surgical technologist by association of surgical technologists

Recent Advancements in Anesthesia and Surgical Fields

L	T	P	C
4	0	0	4

COURSE OUTCOMES

- **CO1:** Describe recent advances in anaesthesia and surgical practices, including minimally invasive surgery and ERAS protocols.
- **CO2:** Explain advanced anaesthetic techniques such as Total Intravenous Anaesthesia (TIVA) and Target-Controlled Infusion (TCI).
- **CO3:** Demonstrate understanding of neuromuscular monitoring and its role in safe anaesthesia management.
- **CO4:** Apply principles of multimodal analgesia and regional anaesthesia techniques for effective perioperative pain management.
- **CO5:** Analyze patient safety protocols, infection prevention strategies, and perioperative care within enhanced recovery frameworks.
- **CO6:** Evaluate the benefits, risks, and clinical impact of recent advancements on patient outcomes and quality of care.

UNIT 1:

Minimally Invasive Surgery

15 Hours

- Laparoscopic surgery
- Robotic surgery
- Endoscopic surgery
- NOTES procedures
- Single-incision surgery

UNIT 2:

ERAS & Patient Safety

30 Hours

- ERAS protocols
- Surgical safety checklist
- Infection prevention
- Simulation training
- Team communication

UNIT 3:

Advanced Anesthetic Techniques

15 Hours

- TIVA
- TCI
- BIS monitoring
- CNAP monitoring
- Neuromuscular monitoring

UNIT 4:

Perioperative Pain Management & Imaging

20 Hours

- Multimodal analgesia
- Regional anesthesia
- Non-opioid analgesics

- Ultrasound guidance
- 3D imaging systems

UNIT 5:

Surgical Innovations & Endoscopy

20 Hours

- Artificial intelligence in surgery
- Virtual reality
- Augmented reality
- 3D printing
- Advanced endoscopy

PRACTICALS

- BIS monitoring
- TIVA setup
- Robotic surgery observation
- Endoscopy instruments
- OT safety drills
-

REFERENCE BOOKS

- Fullers Surgical Technology, Joanna Kotcher Fuller
- SRB's manual of Surgery, Sriram Bhat M,
- Miller's Anesthesia

COMMUNITY MEDICINE & ENVIRONMENTAL SCIENCE

L	T	P	C
3	0	0	3

COURSE OUTCOMES:

- **CO1:** Describe fundamental concepts of environmental science and community medicine, including ecosystem structure, public health principles, and environmental determinants of health.
- **CO2:** Explain major environmental issues and their impact on community health, including pollution, climate change, and resource depletion.
- **CO3:** Apply principles of environmental assessment and resource management to promote sustainable practices in community settings.
- **CO4:** Analyze the role of community science in identifying, preventing, and managing environmental and public health problems.
- **CO5:** Develop critical thinking and problem-solving skills to address real-world environmental and community health challenges.
- **CO6:** Demonstrate effective communication and advocacy skills to promote environmental awareness, public health, and sustainable development in communities.

UNIT I: Fundamentals of Community Medicine and Environmental Health

10 HOURS

- Concept of community medicine and public health
- Environmental determinants of health

- Safe water: sources, reservoirs, and standards
- Water pollution and its health effects
- Water-related diseases and prevention
- Methods of water purification
- Sanitation and general hygiene practices
- Housing and health

UNIT II: Air, Noise, Radiation and Environmental Protection**10 HOURS**

- Composition of air and its significance
- Air pollution: sources, types, and health effects
- Prevention and control of air pollution
- Noise pollution and its impact on health
- Radiation and its hazards
- Environmental Protection Act and regulations
- Role of community in environmental protection

UNIT III: Waste Management and Public Health Practices**10 HOURS**

- Types of waste: solid, liquid, and biomedical waste
- Disposal of solid waste
- Disposal of liquid waste
- Disposal of biomedical waste
- Waste management techniques and safety measures
- Infection control practices
- Community participation in waste management

UNIT IV: Emergency Preparedness, Community Response and Health Management**8 HOURS**

- Basics of emergency and risk management
- Preparedness and risk reduction in communities
- Resource management during emergencies
- Psychological impact and its management
- Community response to disasters (floods, earthquakes, epidemics)
- Role of public health systems during emergencies
- Basic triage principles and mass casualty management
- Coordination, communication, and information management
- Rehabilitation and community recovery measures
- Institutional mechanisms and response systems

Interpersonal Communication**L/T/P/C****2/-/-/2****Course Description:**

This course explores the fundamental principles, theories, and techniques of interpersonal communication. Students will examine both verbal and non-verbal communication strategies and apply these skills to improve personal and professional interactions. Through class discussions, role-playing, and group activities, students will develop a better understanding of effective communication in various social contexts.

Course Objectives:

- By the end of the course, students will:
- Understand the theories and principles of interpersonal communication.
- Develop effective verbal and non-verbal communication skills.
- Analyse and enhance communication in various interpersonal relationships (e.g., friendships, family, workplace).
- Improve listening, empathy, and conflict-resolution skills.
- Understand cultural and gender influences on communication.
- Apply communication skills in real-world scenarios.

UNIT I:**Introduction to Interpersonal Communication****3 HOURS**

- Basics of interpersonal communication
- Communication process: Sender, receiver, message, feedback, noise
- Importance of communication in daily and professional life
- Verbal communication and language use
- Clarity, precision, and communication barriers

UNIT II:**Non-Verbal Communication and Listening Skills****3 HOURS**

- Body language, gestures, posture, and facial expressions
- Space and touch in communication
- Emotional expression through non-verbal cues
- Types of listening: Active, passive, reflective
- Barriers to effective listening and empathy development

UNIT III:**Relationship Development and Conflict Management****3 HOURS**

- Self-disclosure and relationship building
- Johari Window model
- Trust and intimacy in communication
- Types of conflict and conflict management styles
- Healthy conflict resolution strategies

UNIT IV:**Cultural and Workplace Communication****3 HOURS**

- Cultural influences on communication
- Gender differences in communication
- Cross-cultural communication strategies
- Communication in workplace and healthcare settings
- Professional relationships, teamwork, and leadership communication

UNIT V:**Digital and Ethical Communication****3 HOURS***Malla Reddy Vishwavidyapeeth*

- Technology and digital communication
- Social media and interpersonal relationships
- Advantages and disadvantages of digital communication
- Ethics in communication
- Honesty, privacy, transparency, and professional boundaries

RECOMMENDED TEXT BOOK

- Interpersonal Communication: Everyday Encounters .

SEMESTER-VI

S.NO	SUBJECTCODE	SUBJECT	L	T	P	C	TOTAL HOURS	Max.Marks		
								INT	EXT	TOTAL
1		Specialized Anaesthesia 2	4	-	2	6	8	30	70	100
2		Specialized Surgery 2	4	-	2	6	8	30	70	100
3		Specialized Anaesthesia& Surgery 3	4	-	2	6	8	30	70	100
4		Biostatistics And Research Methodology	3	-	-	3	3	30	70	100
5		Art of Being a BetterPerson	2	-	-	2	2	100		100
TOTAL			17		6	23	29	220	280	500

BAOTT-024 Specialized Anaesthesia-2

L T P C
4 0 2 6

COURSE OUTCOMES

- **CO1:** Describe anaesthetic considerations and monitoring techniques in cardiovascular, thoracic, and neurosurgical procedures.
- **CO2:** Explain hemodynamic management strategies during cardiothoracic surgeries, including management of hypotension and hypertension.
- **CO3:** Demonstrate knowledge of invasive monitoring techniques such as central venous catheterization and arterial line insertion with safety measures.
- **CO4:** Apply anaesthesia protocols for major procedures including coronary artery bypass grafting, valve replacement, and lung surgeries.
- **CO5:** Analyze the principles of cardiopulmonary bypass and its management during open-heart surgeries.

UNIT 1:

Cardiovascular & Thoracic Anesthesia

15 Hours

- CABG anesthesia
- Valve replacement anesthesia
- Lung resection anesthesia
- Thoracic positioning

UNIT 2:

Central Venous & Arterial Access

10 Hours

- IJV cannulation
- Femoral line
- PICC line
- Subclavian line
- Arterial line insertion
- Allen's test

UNIT 3:**Cardiac Bypass Anesthesia****(15 Hours)**

- Cardiopulmonary bypass
- Heparinization
- ACT monitoring
- Valve surgeries

UNIT 4:**Hemodynamic Management****20 Hours**

- Hypotension management
- Hypertension management
- Fluid therapy
- Vasopressors
- TEE basics

UNIT 5:**Neuro-Anesthesia & Monitoring****40 Hours**

- Neuro-anesthesia principles
- Intracranial pressure management
- TIVA in neurosurgery
- Neurophysiological monitoring
- Neurosurgical positioning

PRACTICALS

- CVP insertion simulation
- Arterial line setup
- TIVA setup
- Neuro-monitoring observation

REFERENCE BOOKS

- Understanding Anesthesia Equipment Dorsch & Dorsch
- .Wards Anesthesia Equipment Andrew & Ali Diba,

L T P C
4 0 2 6

Specialized Surgery–2

COURSE OUTCOMES

- **CO1:** Describe common cardiovascular and thoracic diseases, including congenital heart defects, and their surgical management.
- **CO2:** Explain the pathophysiology and clinical implications of major cardiothoracic and neurosurgical conditions.
- **CO3:** Demonstrate understanding of CTVS procedures such as CABG, valve replacement, lung resection, and thoracotomy.
- **CO4:** Outline neurosurgical procedures including craniotomy, spinal fusion, tumor excision, and deep brain stimulation.
- **CO5:** Apply anaesthetic considerations and techniques for cardiothoracic and neurosurgical procedures.
- **CO6:** Analyze intraoperative monitoring modalities such as ECG, arterial pressure monitoring, TEE, and neurophysiological monitoring for patient safety.
- **CO7:** Evaluate perioperative complications and implement strategies for prevention, early recognition, and effective management to improve surgical outcomes.

UNIT 1:

DISEASES IN CTVS

25 HOURS

- Coronary artery disease
- CABG
- Valvular heart disease
- Aortic aneurysm
- Arrhythmias
- Lung cancer
- PAD and DVT

UNIT 2:

Congenital Heart Defects

10 Hours

- ASD
- VSD
- Tetralogy of Fallot
- Congenital heart repair surgeries

UNIT 3:

CTVS Procedures

15 Hours

- CABG procedure
- Valve replacement
- Thoracotomy
- Lung resection

UNIT 4:

Neurosurgical Procedures & Monitoring

30 Hours

- Craniotomy
- Spinal fusion

- Tumor resection
- Deep brain stimulation
- Cranial pins and horseshoe headrest
- Neuro-monitoring

Unit 5:

Perioperative Complications & Management

20 Hours

- Hemodynamic instability
- Bleeding management
- Neurological complications
- Crisis management

PRACTICALS

50 HOURS

- CPB machine setup
- Neurosurgical positioning
- TEE observation
- Monitoring devices
- Crisis simulations

REFERENCE BOOKS

- Fullers Surgical Technology, Joanna Kotcher Fuller
- The Neurosurgical Instrument Guide, Christopher.S. Eddleman
- Surgical Technology for the surgical technologist by association of surgical technologists.

Specialized Anaesthesia & Surgery – 3

L	T	P	C
4	0	2	6

COURSE OUTCOMES

- **CO1:** Describe principles and applications of robotic-assisted surgical procedures and transplant surgeries.
- **CO2:** Demonstrate effective collaboration and communication within the operation theatre team.
- **CO3:** Apply appropriate anaesthesia considerations and techniques for robotic and transplant procedures.
- **CO4:** Ensure patient safety, comfort, and optimal surgical conditions during advanced surgical procedures.
- **CO5:** Manage postoperative care of transplant recipients, including basic understanding of immunosuppression and recovery protocols.

UNIT I

Robotic-Assisted Surgical Procedures

20 Hours

- Introduction to robotic surgery
- Principles of robotic-assisted surgeries
- da Vinci Surgical System
- Robotic-assisted prostatectomy
- Robotic-assisted hysterectomy
- Robotic-assisted colorectal surgery
- Roles of OT and Anaesthesia team professionals

- Instrument docking and console operation
- Patient positioning in robotic surgeries
- Pneumoperitoneum management
- Safety measures in robotic procedures

UNIT II

Anaesthetic Techniques & Monitoring Systems

20 Hours

- Anaesthetic considerations in robotic surgeries
- Anaesthetic agents used in robotic procedures
- Airway management during robotic surgery
- BIS monitoring
- Neuromuscular monitoring (NMT)
- Ultrasound in anaesthesia practice
- Ultrasound-guided regional anaesthesia
- Navigation systems in surgery
- Interpretation of monitoring data
- Patient safety and monitoring protocols

UNIT III

Non-Operative Room Anaesthesia (NORA)

20 HOURS

- Introduction to NORA ,Scope and importance of NORA
- Anaesthesia in interventional radiology
- Anaesthesia in endoscopy
- Anaesthesia in cardiac catheterization
- Anaesthesia in bronchoscopy
- Sedation techniques and protocols
- Radiation safety and precautions
- Pediatric NORA
- Regional anaesthesia in NORA
- Critical care anaesthesia outside ICU
- Patient selection and risk assessment
- Equipment and emergency preparedness
- Teamwork and communication in NORA
- Quality improvement and patient outcomes

UNIT IV

Organ Transplantation Procedures

20 HOURS

- Introduction to organ transplantation ,Kidney transplantation ,Liver transplantation
- Heart transplantation ,Organ preservation techniques
- Graft implantation ,Vascular anastomosis
- Immunosuppression strategies
- Ethical considerations in transplantation
- Organ donation and allocation
- Cross-matching techniques
- Immunological considerations
- Multidisciplinary transplant team approach

UNIT V

Postoperative Care & Immunosuppression

20 HOURS

- Postoperative care protocols in transplant surgeries
- Monitoring graft function
- Immunosuppressive drug regimens
- Drug interactions and dose adjustments
- Infection prevention strategies
- Management of postoperative complications
- Long-term follow-up care
- Patient counselling and education
- Rehabilitation after transplantation
- Ethical and legal responsibilities

PRACTICALS

Specialized Anaesthesia & Surgery – 3 Robotic-Assisted Surgical Procedures

60 HOURS

- Hands-on practice with robotic surgical systems
- Instrument docking and robotic arm manipulation
- Console operation training
- Team coordination during robotic surgery
- Patient positioning techniques

BIS, NMT, Ultrasound & Navigation

- BIS electrode placement and monitoring
- Neuromuscular monitoring techniques
- Ultrasound-guided nerve block practice
- Navigation system demonstrations
- Interpretation of monitoring values

NORA

- Sedation techniques in non-operating room settings
- Airway management in NORA
- Radiation safety practices
- Infection control in NORA
- Emergency management simulation

Organ Transplantation

- Organ preservation demonstrations
- Cross-matching laboratory techniques
- Perioperative transplant management scenarios
- Immunosuppressive drug monitoring
- Postoperative infection prevention exercises

REFERENCE BOOKS

- .Miller's Anesthesia
- Advances In Anesthesia For Laparoscopic Surgeries Regional Anesthesia And The Road Ahead
- Fullers Surgical Technology, Joanna Kotcher Fuller d. Laparoscopic Surgery, R.K .Mishra

L T P C

Research Methodology & Biostatistics

3 0 0 3

COURSE OUTCOMES

- **CO1:** Describe fundamental concepts of research methodology, including research designs, data types, and data collection methods.
- **CO2:** Identify and formulate research problems, objectives, and research questions.
- **CO3:** Apply basic biostatistics principles and sampling techniques for data analysis and interpretation.
- **CO4:** Evaluate ethical considerations in research, including informed consent, confidentiality, and ethical approval processes.
- **CO5:** Develop a structured research proposal and report using appropriate tools, methodologies, and scientific writing standards.

UNIT I

Introduction to Research Methods

10 HOURS

- Meaning and objectives of research
- Types of research
- Importance of research in healthcare
- Research process
- Literature review
- Identifying research gaps
- Formulation of research objectives
- Hypothesis formulation

UNIT II

Research Problem & Ethical Issues

10 HOURS

- Identifying research problems
- Research questions
- Variables in research
- Ethical principles in research
- Informed consent
- Confidentiality and privacy
- Ethical committee approval
- Plagiarism and research misconduct

UNIT III

Research Design & Sampling Methods

15 HOURS

- Research design overview
- Experimental research design
- Observational research design
- Qualitative and quantitative research
- Sampling techniques
- Probability sampling
- Non-probability sampling
- Sample size determination
- Pilot study

UNIT IV

Biostatistics & Types of Data

15 HOURS

- Introduction to biostatistics

- Types of data
- Measures of central tendency
- Measures of dispersion
- Graphical presentation of data
- Probability concepts
- Correlation and regression
- Hypothesis testing
- Statistical significance
- Interpretation of statistical results

UNIT V

Research Tools & Proposal Development

10 HOURS

- Research tools and instruments
- Questionnaire preparation
- Interview techniques
- Data collection methods
- Data analysis basics
- Research report writing
- Referencing styles
- Developing a research proposal
- Presentation of research findings

Practicals

Research Methodology & Biostatistics

30 HOURS

- Literature review exercises
- Questionnaire preparation
- Sampling technique demonstrations
- Data collection practice
- Preparation of informed consent forms
- Statistical calculations using sample data
- Graph and chart preparation
- Research proposal preparation
- Presentation of mini research projects
- Interpretation of biostatistical data

REFERENCE BOOKS

- Research methodology by C R Kothari

Art of Being A Better Person

L/T/P/C

2/-/-/2

Course Description:

This course explores what it means to live ethically, compassionately, and meaningfully as a human being. Students will engage in discussions about moral philosophy, empathy, self-awareness, and how to cultivate kindness, responsibility, and social engagement in everyday life.

Course Objectives:

- By the end of the course, students will:
- Understand foundational ethical principles that guide human behavior.
- Cultivate emotional intelligence and empathy.
- Learn practical strategies for self-improvement and kindness.
- Understand their role in society and how to make a positive impact.
- Reflect on personal actions, relationships, and contributions to the community.

UNIT 1**(3 hrs)**

- Introduction to Being a Good Human
- Defining "goodness" and ethical living
- Overview of moral philosophies: Utilitarianism, Deontology, Virtue Ethics The role of self-awareness in personal growth
- Activity: Reflective journaling on what "being good" means to you.

UNIT 2**(3 hrs)**

- The Power of Empathy
- Understanding empathy vs. sympathy
- The science behind empathy and its benefits for social connections Techniques for cultivating empathy in everyday life
- Activity: Empathy-building exercises and discussions.

UNIT 3**3hrs**

- Emotional Intelligence (EQ)
- What is Emotional Intelligence? (Self-awareness, self-regulation, motivation, empathy, and social skills) The role of EQ in personal and professional relationships
- Strategies to improve emotional intelligence
- Activity: Self-assessment of emotional intelligence and EQ development exercises.

UNIT 4**3hrs**

- Compassion and Kindness
- The science of kindness: How kindness benefits us and others
- Practicing kindness in small, everyday actions
- Overcoming barriers to kindness (e.g., stress, biases, indifference)
- Activity: "Random Acts of Kindness" challenge.

UNIT 5**3hrs**

- Personal Integrity and Honesty
- The importance of integrity in personal and professional life Consequences of dishonesty and lack of integrity
- How to align actions with values
- Activity: Case study discussion on ethical dilemmas and decision-making.

UNIT 6**2hrs****Building Positive Relationships**

- Communication skills for healthy relationships
- Setting boundaries and respecting others' boundaries
- Conflict resolution and forgiveness
- Activity: Role-playing scenarios to practice healthy communication

UNIT 7

2hrs

Responsibility, Accountability and Community Contribution

- Concept of personal responsibility in life
- Accountability in personal and community contexts
- Taking ownership of mistakes and learning from them
- Role of individuals in building strong communities
- Volunteering, activism, and social responsibility
- Impact of small positive actions on society
- Activity: Reflection on past mistakes and planning for growth
- Activity: Brainstorming ways to contribute to the local community

UNIT 8

2 hrs

Gratitude, Contentment and Purposeful Living

- Psychological and emotional benefits of gratitude
- Practicing contentment in a consumer-driven world
- Techniques for cultivating a mindset of abundance
- Discovering personal values and purpose
- Activity: Gratitude journal and daily reflection
- Overcoming Negative Traits
- Bringing It All Together: A Life of Goodness Review of key learnings from the course Creating a vision for continuous personal growth
- How to maintain a positive and ethical life in a challenging wor

Assessment and Evaluation:

- Class Participation :20
- Assignments/ case study presentations: 30 Final: 50
- Reference Textbook
- How to Win Friends and Influence People" by Dale Carnegie

Reference book

- The Seven Habits of Highly Effective People" by Stephen R. Covey
-

SEMESTER-VII & VIII**Year IV Semester VII**

Course Code	Course Title	Credits/Week			Hours/Semester			Assesments		Total
		L	P	C	L	T/P	Total	INT	EXT	
	Internship	2	20	22	30	900	930	-	100	100
	Project work		06	06		270	270		100	100
Total		2	26	28	30	1170	1200	-	200	200

Year IV Semester VIII

Course Code	Course Title	Credits/Week			Hours/Semester			Assesments		Total
		L	P	C	L	T/P	Total	INT	EXT	
	Internship	2	20	22	30	900	930	-	100	100
	Project work		06	06		270	270		100	100
Total		2	26	28	30	1170	1200	-	200	200

1. INTERNSHIP**L/T/P-/C-44****Learning Objectives:**

- To provide hands-on clinical exposure in hospital and emergency care settings.
- To develop practical skills in patient care and clinical assistance.
- To improve professional behavior, communication, and teamwork.
- To integrate theoretical knowledge with clinical practice.
- To enhance decision-making and problem-solving abilities in healthcare situations.

Learning Outcomes:

- Demonstrate competency in basic and advanced clinical procedures.
- Assist healthcare professionals effectively in patient management.
- Apply infection control and patient safety measures in clinical practice.
- Maintain professional ethics, communication, and documentation skills.

COURSE OUTCOMES

- **CO1:** Demonstrate competence in basic, intermediate, and advanced clinical and anaesthesia procedures.
- **CO2:** Apply theoretical knowledge effectively in real-time clinical and operation theatre settings.

- **CO3:** Perform simulation-based and patient-care procedures with confidence and accuracy.
- **CO4:** Participate actively in advanced and specialized treatment procedures within the healthcare team.
- **CO5:** Exhibit professional skills, communication, and ethical practice in clinical environments.

CONTENT

- Provides opportunity to develop confidence and clinical skills
- Enhances competence in simulation and treatment delivery
- Exposure to basic, intermediate, and advanced procedures
- Participation in advanced and specialized treatment procedures
- Application of classroom knowledge into clinical practice
- Integration of theoretical and practical learning
- Hands-on training in real healthcare settings
- Development of decision-making and problem-solving skills
- Improvement of communication and teamwork in clinical environment
- Completion of clinical training through continuous practice
- Minimum working duration of 8 hours per day
- Working hours may extend depending on healthcare setting needs

Activities / Duties During Internship

Clinical Responsibilities

- Assisting in patient preparation and positioning
- Monitoring vital signs and patient condition
- Assisting healthcare professionals during procedures
- Handling and maintenance of medical equipment
- Preparation of operation theatre and emergency setup
- Assisting in infection control and sterilization procedures
- Maintaining patient records and documentation
- Transport and shifting of patients safely

Observation and Learning

- Observation of clinical procedures and emergency management
- Understanding anesthesia and surgical protocols
- Learning biomedical equipment handling and troubleshooting
- Participating in ward rounds, case discussions, and demonstrations

Professional Development

- Developing communication skills with patients and healthcare staff
- Maintaining discipline, punctuality, and ethical behavior
- Following hospital policies and safety protocols
- Working effectively as part of a multidisciplinary healthcare team

Internship Methodology

- Supervised clinical training in hospitals
- Rotational postings in various departments
- Daily clinical activities and logbook maintenance
- Demonstration and return demonstration methods
- Case observation and clinical discussions

2. PROJECT

L/T/P-12/C-12

Learning Objectives:

- To introduce students to research methodology and project work.
- To develop skills in literature review and data collection.
- To understand research problem identification and study planning.
- To promote analytical thinking and scientific approach in healthcare practice.

Learning Outcomes:

- Identify and define a research problem related to healthcare services.
- Conduct effective literature review using standard sources.
- Collect, organize, and interpret relevant data systematically.
- Present preliminary findings in a structured and scientific manner.

Introduction

Project work is an important component of the academic curriculum that enables students to integrate theoretical knowledge with practical application. It provides an opportunity to explore specific healthcare-related problems, understand clinical practices, and develop research-oriented skills. Through systematic observation, data collection, analysis, and interpretation, students gain practical exposure to real-world healthcare settings and improve their professional competence.

Need for the Study

- To bridge the gap between classroom learning and clinical practice.
- To understand real-time healthcare delivery systems and patient care processes.
- To develop research aptitude, analytical thinking, and documentation skills.
- To identify existing problems in healthcare services and suggest suitable improvements.
- To encourage evidence-based learning and decision-making.

Objectives of the Study

- To gain practical exposure in the selected area of healthcare practice.
- To identify and analyze a healthcare-related problem systematically.
- To collect, organize, and interpret relevant data scientifically.
- To understand hospital workflow, patient management, and healthcare services.
- To improve problem-solving, communication, and critical thinking skills.

Methodology

Study Design:

- Descriptive Study / Observational Study

Study Area:

- Hospital / Emergency Department / Operation Theatre / Healthcare Setting

Data Collection Methods:

- Direct observation
- Case records review
- Interaction with healthcare professionals
- Institutional reports or documents

Inclusion Criteria:

- Relevant cases or data related to the selected topic
- Available and accessible clinical or healthcare records

Exclusion Criteria:

- Incomplete or irrelevant records
- Data unrelated to the objectives of the study

Data Collection Tools

- Observation checklist
- Structured data recording format
- Basic questionnaire or interview schedule (if required)
- Clinical or hospital records

Expected Outcomes

- Better understanding of healthcare systems and clinical practices
- Identification of strengths, limitations, and challenges in healthcare delivery
- Improved practical knowledge and professional skills
- Development of research, documentation, and presentation abilities
- Exposure to real-world healthcare scenarios and patient management systems

Limitations of the Study

- Limited duration of the study period
- Small sample size
- Restricted access to patient data or institutional records
- Possibility of observational bias

Conclusion

The project work provides valuable exposure to practical aspects of healthcare services and research methodology. It enhances the student's knowledge, analytical ability, communication skills, and professional competence. The study also helps students understand real-life clinical situations and encourages evidence-based healthcare practice.

References

- Standard textbooks related to the subject
- Clinical guidelines and protocols
- Institutional policies and manuals
- Research articles and journals

•