MALLA REDDY VISHWAVIDYAPEETH

(Deemed to be University)

Suraram X Roads, Jeedimetla, Hyderabad 500055

School of Public Health, Emerging Healthcare & Technology

(SPHEHT)

COURSE STRUCTURE & SYLLABUS DOCUMENT

B.Sc. Surgical Assistant

Year 2025–29 Batch

COURSE STRUCTURE

I year I semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	BSA3610101	Human Anatomy - I	4	-	-	4	30	70	100
2	BSA3610102	Human Physiology - I	4	-	-	4	30	70	100
3	BSA3610103	Medical Bio-chemistry	4	-	-	4	30	70	100
4	BSA3610104	English and Communication Skills	2	-	-	2	30	70	100
5	BSA3610105	Basics of Computers	1	-	2	2	30	70	100
6	BSA3610106	Sociology	2	-	-	2	30	70	100
7	BSA3610101P	Human Anatomy - I Practical	-	-	4	2	30	70	100
8	BSA3610102P	Human Physiology - I Practical	-	-	4	2	30	70	100
9	BSA3610107VA	Environmental Awareness	2	-	-	2	100	-	100
TOTAL			19	-	10	24	340	560	900

I year II semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL

1	BSA3610201	Human Anatomy – II	4	-	-	4	30	70	100
2	BSA3610202	Human Physiology - II	4	-	-	4	30	70	100
3	BSA3610203	Pathology	2	-	-	2	30	70	100
4	BSA3610204	Microbiology	3	-	-	3	30	70	100
5	BSA3610205	Medical Terminology	1	-	-	1	30	70	100
6	BSA3610206	Basics Of Surgery	3	-	-	3	30	70	100
7	BSA3610207VA	Stress Management	1	-	-	1	100	-	100
8	BSA3610201P	Human Anatomy – II Practical	-	-	4	2	30	70	100
9	BSA3610202P	Human Physiology – II Practical	-	-	2	1	30	70	100
TOTAL			**18**	**-**	**6**	**21**	**340**	**560**	**900**

II year III semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	BSA3610301	Surgical Techniques-1	3	-	2	4	30	70	100
2	BSA3610302	Pharmacology	3	-	-	3	30	70	100
3	BSA3610303	Health Care Administration	2	-	-	2	30	70	100

4	BSA3610304	Medical Law, Ethics and Medical Records	3	-	-	3	30	70	100
5	BSA3610305VA	Soft Skills Development	1	-	-	1	100	-	100
6	BSA3610306	Clinical Posting-1	-	-	20	10	100	-	100
7		AI in Healthcare: Foundation	1	-	-	1			
TOTAL			**12**	**-**	**22**	**23**	**320**	**280**	**600**

II year IV semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	BSA3610401	Surgical Techniques-2	3	-	4	5	30	70	100
2	BSA3610402	Operating Room Safety	3	-	-	3	30	70	100
3	BSA3610403VA	Health and Well-being	1	-	-	1	100	-	100
4	BSA3610404	Clinical Posting-2	-	-	20	10	100	-	100
5	BSA3610405	Seminar	1	-	-	1	30	70	100
TOTAL			**8**	**-**	**24**	**20**	**290**	**210**	**500**

III year – V semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	BSA3610501	Advanced Surgical Assistance	3	-	2	4	30	70	100
2	BSA3610502	Anesthesia Techniques	3	-	-	3	30	70	100
3	BSA3610503	Infection Control	3	-	-	3	30	70	100
4	BSA3610504VA	Interpersonal Communication	1	-	-	1	100	-	100
5	BSA3610505	Clinical Postings-3	-	-	18	9	100	-	100
TOTAL			**10**	**-**	**20**	**20**	**290**	**210**	**500**

III year – VI semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	BSA3610601	Specialized Surgical Procedures	3	-	2	4	30	70	100
2	BSA3610602	Post -Operative Care	3	-	-	3	30	70	100
3	BSA3610603	Emergency Surgery	3	-	-	3	30	70	100
4	BSA3610604	Research Methodology and Biostatistics	3	-	-	3	30	70	100
5	BSA3610605	Clinical Posting-4	-	-	16	8	100	-	100

6	BSA3610606VA	Art of Being a Better Person	1	-	-	1	100	-	100
TOTAL			**13**	**-**	**18**	**22**	**320**	**280**	**600**

IV year – VII semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	BSA3610701	Internship-I	-	-	40	20	30	70	100
2	BSA3610702VA	Healthy Eating for Healthy Living	1	-	-	1	100	-	100
3	BSA3610703	Project	-	-	2	1	100	-	100
TOTAL			**1**	**-**	**42**	**22**	**230**	**70**	**300**

IV year – VIII semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	BSA3610801	Internship-II	-	-	20	10	30	70	100
2	BSA3610802VA	Professionalism in the Workplace	1	-	-	1	100	-	100
3	BSA3610803	Project	-	-	20	10	30	70	100
TOTAL			**1**	**-**	**40**	**21**	**160**	**140**	**300**

1.1 Under Graduate Programme

Sl. No.	Course	Duration	Eligibility for admission
1	BSc. Surgical Assistance	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 x 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 paper 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 x 10 = 20 marks) (b) Eight short note questions out of which the student should attempt six questions, each carrying 5 marks (6 x 5 = 30 marks). (c) Ten very short questions each carrying 2 marks (i.e. 10 x 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

HUMAN ANATOMY – I L/T/P/C

4/-/-/4

UNIT-I

GENERALANATOMY AND HISTOLOGY

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

UPPEREXTREMITY:

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

RECOMMEMDEDTEXTBOOKS

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—Vishrsam Singh
6. Human Anatomy-Datta

HUMAN PHYSIOLOGY – I L/T/P/C
4/-/-/4

UNIT-I

GENERALPHYSIOLOGY

Cell:

1. Structure of cell membrane
    a) Fluid mosaic model
    b) Lipidic-layer
    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

BLOOD:

1. Composition of blood &it's 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 out put
    a) Related terms
    b) Regulation of cardiac output
    c) Circulatory shock
6. Pulse &Heart rate and it's 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

RESPIRATORYSYSTEM

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) Respiratory 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 Krushna 6. Physiology: Prep Manual for Undergraduates- Joshi, VijayaD.
7. Practical Physiology -Joshi, VijayaD.

MEDICAL BIOCHEMISTRY L/T/P/C

4/-/-/4

UNIT-I

CARBOHYDRATE CHEMISTRY

- Definition, general classification with examples
- Composition and functions of Monosaccharides, Disaccharides ani 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 Ket one bodies

UNIT-II

AMINOACIDCHEMISTRY

- Definition, Classification of amino acids with examples.
- Definition, Classification of proteins with examples

- Structural organization of proteins
- Biologically important peptides

NUCLEICACIDSANDNUCLEOTIDECHEMISTRY

- 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

INTERMEDIARYMETABOILISM

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

UNIT-V

MINERALMETABOLIS

- Definition, Classification. Sources, RDA, Functions and Deficiency of Calcium, Phosphorous, Iron, Sodium, Potassium

CLINICALBIOCHEMISTRY

- 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
3. Integrated textbook of Biochemistry Volume-l and II. Indumathi.
4. Textbook of Biochemistry for Medical students. MN Chatterjee and Rana Shinde. 5. Harper's Illustrated Biochemistry.
6. Essentials of Biochemistry. Pankaja Naik

ENGLISH AND COMMUNICATION SKILLS 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.

To write effectively to meet professional needs.

To hone speaking and listening skills.

To enhance empathy and other vital interpersonal skills of the learners

UNIT 1: Sympathy (Poem) by Charles Mackay

Reading - Reading and its importance, techniques of effective reading. Writing - Paragraph Writing (Topic sentence, Supporting sentences, and Conclusion) Grammar - Parts of Speech (Parsing), Articles
Vocabulary - Pain and Symptoms, and Common Illness

ELCS LAB

CALL LAB: Phonetics - Vowel Sounds (Monophthongs and Diphthongs) Listening - Introduction to listening, Purpose of Listening, and Barriers to effective listening
ICS LAB: Speaking - Self-introduction and Introducing others, JAM

UNIT 2: 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

Vocabulary - Body parts and diseases, Definitions / One-word substitutes

ELCS LAB

CALL LAB: Phonetics- Consonant Sounds

Listening - Listening for gist and specific information

ICS LAB: Speaking - Small talk, Narration of anecdotes

UNIT 3: The secret of work by Swami Vivekananda

Reading - Making inferences and predictions

Writing - E-mail writing

Grammar - Tenses, Reported speech

Vocabulary - Food and lifestyle, Instruments and Equipment

ELCS LAB

CALL LAB: Intonation

Listening - Listening and identifying facts and opinions

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

UNIT 4: All the world's a stage (Poem) by William Shakespeare

Reading - Reading for explicit and implicit meaning

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

Grammar - Subject-Verb agreement, Degrees of Comparison

Vocabulary - Caring and Emotions, Medical Abbreviations and Acronyms

ELCS LAB

CALL LAB: Consonant Clusters

Listening - Listen- Comprehend - Speak , Health Care

ICS LAB: Speaking - Formal Discussions, Physical Description/Personality

UNIT 5: Sister Nivedita: Calcutta's Angel of Mercy (Article/Essay) by Monidipa Dey

Reading - Intensive and Extensive Reading, Reading comprehension passages from OET and IELTS Writing - Report writing (Analyzing tests and Reporting patient condition) Grammar – Voice, If conditionals

Vocabulary - Health, Hygiene and Wellness, Medical Vocabulary/Terminology

ELCS LAB

CALL LAB: Past Tense Markers and Plural Markers

Listening - Listening tasks from OET and IELTS

ICS LAB: Speaking - Conversation practice, Short oral presentations specifying the condition of the patient

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.

TEXTBOOK:

English for nurses by Vijaya Laxmi Naidu. Nirali Prakashan. 2008.

RECOMMENDED BOOKS:

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

BASICS OF COMPUTERS

COURSE OBJECTIVES:

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

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.

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.

RECOMMENDED BOOKS:

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

HUMAN ANATOMY - I Practical L/T/P/C **-/-/4/2**

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 Practical L/T/P/C **-/-/4/2**

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 hemoglobin concentration
- Peripheral pulse determination
- Auscultation of Heart sounds
- Determination of blood pressure
- Auscultation of breath sounds
- Assessment of respiratory rate

ENVIRONMENTAL AWARENESS L/T/P/C

2/-/-/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 1

1. Introduction to Environmental Awareness
2. What is environmental awareness?
3. The importance of environmental education.
4. Key environmental concepts: ecosystems, biodiversity, sustainability. Historical perspective on environmental awareness.

Unit 2

1. Earth's Ecosystems and Biodiversity
2. What are ecosystems?
3. Types of ecosystems: forests, oceans, wetlands, etc. Importance of biodiversity. 4. Threats to biodiversity: habitat loss, invasive species, climate change.

Unit 3

1. Pollution and Its Impact
2. Types of pollution: air, water, soil, noise, and light pollution. Causes and effects of pollution on health and ecosystems. Case studies of major pollution events.

Unit 4

1. Climate Change and Global Warming
2. The science of climate change.
3. Greenhouse effect and human contributions.
4. Impacts of climate change: rising temperatures, sea levels, extreme weather. Mitigation and adaptation strategies.

Unit 5

1. Resource Conservation
2. Renewable vs. non-renewable resources.
3. The importance of conserving water, energy, and other resources.
4. Techniques for conservation: recycling, energy efficiency, and water-saving practices.

Unit 6

1. Sustainable Agriculture and Food Systems
2. Environmental impact of conventional farming practices.
3. Sustainable agriculture: organic farming, permaculture, and agroecology. The role of diet in environmental sustainability.

Unit 7

1. Waste Management
2. Types of waste: municipal, industrial, hazardous, electronic. The 3 Rs: Reduce, Reuse, Recycle.
3. Landfills, incineration, and composting. Zero waste lifestyle.

Unit 8

1. Water Conservation and Management
2. The global water crisis: causes and consequences. Water management practices and policies.
3. The importance of clean water for all living organisms.

Unit 9

1. Environmental Policy and Legislation
2. Global environmental treaties: Paris Agreement, Kyoto Protocol. National environmental policies and regulations.
3. Role of NGOs, governments, and individuals in policy development.

Unit 10

1. Green Technologies and Innovations
2. Introduction to renewable energy sources (solar, wind, hydro, etc.). Electric vehicles and sustainable transportation.
3. Innovations in waste-to-energy and sustainable agriculture.
4. The Role of Individuals in Environmental Protection
5. How individual actions impact the environment.
6. Eco-friendly lifestyles: reducing waste, sustainable consumption, green travel. Community action and grassroots movements.

Reference Textbook

Environmental Science: A Global Concern" by William P. Cunningham & Mary Ann Cunningham

SEMESTER-II

HUMAN ANATOMY – II

L/T/P/C
4/-/-/4

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 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

RECOMMEMDED 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 -- Vishrsam Singh

6. Human Anatomy – Datta

HUMAN PHYSIOLOGY -II

L/T/P/C
4/-/-/4

UNIT-I

NERVOUS SYSTEM-I

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

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 it's 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

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

REPRODUCTIVE SYSTEM:

1. Sex determination and differentiation & it's 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

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 Ja

PATHOLOGY L/T/P/C

2/-/-/2

1. Cellular adaptation, Cell injury & cell death. - 17 Hours

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.

2. Inflammation: 8 Hours 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

3. Immunity disorders. - 6 Hours General features of the immune system Disorders of the immune system

4. Infectious diseases. - 6 Hours General principles of microbial pathogenesis viral infections.

 Bacterial infections-Rheumatic heart disease.

 Fungal infections.

 Parasitic infections.

5. Neoplasia. - 5 Hours Definitions Nomenclature.

 Biology of tumor growth benign and malignant neoplasms Epidemiology. Carcinogenic agents and their cellular interactions Clinical features of tumors. **6. Environmental and nutritional disorders. -** 8 Hours Environmental and disease.

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

RECOMMENDED TEXT BOOK:

Pathology, Harsh Mohan e. Basic Pathology by Robb

MICROBIOLOGY

L/T/P/C

3/-/-/3

1. Morphology -

6 Hours

 Classification of microorganisms, size, shape and structure of bacteria. Use of microscope in the study of bacteria.

2. Growth and nutrition. -

4 Hours

- Nutrition, growth and multiplications of bacteria, use of culture media in diagnostic bacteriology.

3. Culture media. -

4 Hours

- Use of culture media in diagnostic bacteriology, antimicrobial sensitivity test.

4. Sterilization and Disinfection. -

2 Hours

- Principles and use of equipment of sterilization namely hot air oven, autoclave, and serum inspissate, pasteurization, antiseptic and disinfectants.

5. Immunology. -

6 Hours

- Immunity, vaccines, types of vaccine and immunization schedule, principles, and interpretation of common serological tests namely Widal, VDRL, ASLO, CRP, RF & ELISA.

- Rapid tests for HIV and HBsAg (excluding technical details).

6. Systematic Bacteriology. -

10 Hours

- Morphology, cultivation, diseases caused, laboratory diagnosis including specimen collection of the following bacteria (excluding classification, antigenic structure, and pathogenicity),

- Staphylococci, Streptococci, Pneumococci, Gonococci, Meningococci, C. diphtheriae, Mycobacteria, Clostridia, Bacillus, Shigella, Salmonella, E. coli, Klebsiella, Proteus,

- Vibrio cholerae, Pseudomonas & Spirochetes.

7. Parasitology. -

6 Hours

- Morphology, life cycle, laboratory diagnosis of following parasites: E.histolytica, Plasmodium, tape worms, Intestinal nematodes.

8. Mycology. -

6 Hours

 Morphology, diseases caused and lab diagnosis of following fungi. Candida, Cryptococcus, Dermatophytes, opportunistic fungi

9. Virology. -

6 Hours

 General properties of viruses, diseases caused lab diagnosis and prevention of following viruses, Herpes, Hepatitis, HIV, Rabies and Poliomyelitis.

RECOMMENDED TEXT BOOKS:

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

MEDICAL TERMINOLOGY

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

COURSE OBJECTIVES

 Apply surgical terminology in pre-op, intra-op, and post-op settings.
 Accurately interpret abbreviations, acronyms, and shorthand used in surgery. Communicate effectively with the surgical team using correct technical vocabulary.

UNIT I – Advanced Surgical Language

 Specialized prefixes and suffixes in surgery (e.g., -ectomy, -plasty, -otomy, -rrhaphy). Terminology for surgical directions and operative sites.
 OT-specific abbreviations and shorthand.

 Terminology for operative sites, surgical approaches, and procedures.

UNIT II – System-Based Surgical Terminology

 Surgical terms for cardiovascular, gastrointestinal, urogenital, neurosurgical, orthopaedic, and ENT procedures.
 Common disease and injury terms encountered in surgery.

UNIT III – Operative Notes & Case Records

 Reading and interpreting surgical consent forms, OT notes, and discharge summaries. Standardized documentation phrases in operative reports.

UNIT IV – Diagnostic & Interventional Terms

 Imaging terminology in surgery (X-ray, CT, MRI, ultrasound reports). Interventional procedure terms (biopsy, catheterization, stenting)

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UNIT V – Error Prevention in Communication

 Avoiding misinterpretation of medical terms.
 Case studies on errors due to incorrect terminology.
 WHO surgical safety checklist language.

REFERENCE BOOKS:

1. Chabner, D.E., *The Language of Medicine*, Elsevier, 2020.
2. Gylys, B.A., *Medical Terminology Systems*, F.A. Davis, 2021.
3. Cohen, B.J., *Medical Terminology: An Illustrated Guide*, Wolters Kluwer, 2019.

BASICS OF SURGERY

L/T/P/C

UNIT I: Introduction to Surgery 3/-/-/3 Definition, scope and branches of surgery

 History and evolution of surgery

 Role of the surgical technologist/assistant

 Preoperative, intraoperative, and postoperative phases

 Basic surgical terminologies

UNIT II: Asepsis and Sterilization

 Medical and surgical asepsis

 Principles of sterilization and disinfection

 Types of sterilization: steam, ethylene oxide, chemical, plasma

 Infection control practices in operation theatres

 Surgical site infection (SSI) – prevention and control

UNIT III: Surgical Instruments and Sutures

- Classification of surgical instruments
- Care, cleaning, and maintenance of instruments
- Introduction to surgical suture materials
- Types of needles, suture techniques (continuous, interrupted)
- Uses of staplers and advanced suturing methods

UNIT IV: Haemostasis and Wound Healing

- Mechanism of haemostasis
- Types of bleeding and their control (mechanical, thermal, chemical) Classification of wounds
- Stages of wound healing
- Factors affecting wound healing and wound care

UNIT V: Surgical Positions and Incisions

- Common surgical positions: Supine, Prone, Lithotomy, Trendelenburg, etc. Indications and precautions for each position
- Common surgical incisions: Midline, Kocher's, Pfannenstiel, etc. Choice of incision based on the procedure

UNIT VI: Preoperative and Postoperative Care

- Preoperative assessment and patient preparation
- Consent and patient education
- Postoperative monitoring and care
- Complications and their prevention (e.g., DVT, infection, pneumonia) Role of surgical technologists in recovery room care

UNIT VII: Surgical Procedures Overview

- Introduction to minor and major surgical procedures
- Principles of minimally invasive surgery
- Biopsy procedures

- Drainage and debridement
- Day-care surgeries

UNIT VIII: Surgical Emergencies

- Recognition and initial management of:
  - Shock
  - Hemorrhage
  - Burns
  - Acute abdomen
  - Trauma and fractures

REFERENCE BOOKS:

1. "Short Practice of Surgery" – Bailey & Love (27th or latest edition) 2. "Essentials of General Surgery" – Peter F. Lawrence
3. "Fundamentals of Surgical Practice" – Andrew N. Kingsnorth 4. "Clinical Surgery" – Sriram Bhat M
5. "Textbook of Surgery" – S Das
6. "Basic Surgical Techniques" – R M Kirk
7. "Principles and Practice of Surgery" – O. James Garden

HUMAN ANATOMY PRACTICAL – II

L/T/P/C
-/-/4/2

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 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

STRESS MANAGEMENT L/T/P/C **1/-/-/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 1

- Introduction to Stress and Its Effects Definition of stress: Eustress vs. Distress Types of stress: Acute vs. Chronic
  - The biology of stress (fight-or-flight response, hormones)
- Short-term and long-term effects on physical and mental health The role of perception and coping mechanisms

Unit 2

- Identifying Stressors and Personal Stress Responses
- Internal vs. external stressors (work, relationships, environment) Identifying stress patterns (thoughts, behaviours, physical reactions) Emotional regulation and its role in stress management
  - The Stress Process: How stress develops and escalates

Unit 3

- Coping Strategies and Stress Relief Techniques
- Problem-focused vs. emotion-focused coping
- Cognitive Behavioral Therapy (CBT) techniques for stress
- Relaxation techniques (deep breathing, progressive muscle relaxation) Time management and organization as stress-relief tools
  - Developing a personal coping plan

Unit 4

- Lifestyle Changes for Managing Stress The role of physical activity and exercise Sleep hygiene and its connection to stress Nutrition and its impact on mental health Social support and healthy relationships Mindfulness and meditation practices

Unit 5

- Stress Management at Work and School
- Managing work and school stress: Time management, prioritization Dealing with high-pressure environments and deadlines
  - Building resilience and avoiding burnout
  - The importance of taking breaks and practicing self-care

Unit 6

- Building Long-Term Stress Resilience
- Resilience theory and how to bounce back from adversity Developing a growth mindset to handle challenges Building emotional intelligence to cope with stress Integrating stress management into daily life

RECOMMENDED TEXT BOOKS:

Stress Management: From Basic Science to Best Practice" by C. L. Cooper and Philip L. Merritt

SEMESTER-III

SURGICAL TECHNIQUES – I

L/T/P/C
3/-/2/4

UNIT I: Introduction to Surgical Techniques

- History and development of surgical techniques
- Basic principles of surgery
- Role of surgical technologist
- Operating room environment and discipline

UNIT II: Preoperative Preparation

- Preparation of the surgical team (gowning, gloving, scrubbing)
- Preparation of OT table and trolley
- Draping techniques
- Patient preparation (shaving, skin prep, positioning)
- Sterilization and disinfection

UNIT III: Surgical Instruments

- Classification of instruments: Cutting, Clamping, Retracting, Grasping, etc.
- Identification, use, care, and sterilization
- Handling sharp instruments safely

UNIT IV: Surgical Sutures and Needles

- Types of sutures (absorbable/non-absorbable)
- Suture materials and techniques (simple, mattress, continuous)

- Types of surgical needles and their uses
- Suture removal techniques

UNIT V: Basic Surgical Techniques

Surgical procedures: general surgery, and specialized fields such as orthopaedic, neuro, cardiac, urology, gynecologic, etc.
Surgical methods, positioning, suturing, patient prep, and handling

- Incision and dissection
- Hemostasis techniques (ligation, cautery)
- Handling tissues
- Retraction and exposure
- Closure and dressing

PRACTICALS:

1. Surgical Hand Scrub Procedure
2. Sterile Gowning and Gloving
3. Setting up OT table and trolley for surgery
4. Assisting in patient positioning for various surgeries
5. Identification and handling of surgical instruments
6. Suturing practice using dummy models
7. Demonstration of basic knot-tying techniques (one-hand, two-hand, instrument knot) 8. Handling of surgical drapes and correct draping technique
9. Suture material handling and cutting
10. Practice surgical incision techniques on dummy/tissue models

RECOMMENDED BOOKS:

1. Textbook of Surgical Techniques by R M Kirk-2013.
2. Bailey and Love's Short Practice of Surgery by Norman Williams-28th ed. CRC Press, 2023.
3. Clinical Surgery by Sriram Bhat M-2019.

4. Essentials of Operating Room Technique by Philips Nancymarie-, 2020. 5. Alexander's Care of the Patient in Surgery by Jane C. Rothrock17thed. Elsevier, 2022. 6. Manual of Surgical Instruments by M. K. Agrawal
7. Practical notebook/manual by the concerned university/college

PHARMACOLOGY L/T/P/C
3/-/-/3

UNIT-I

General Pharmacology

a) Absorption, distribution, metabolism and elimination of drugs, b) routes of drug administration.
c) Adverse reactions to drugs.
d) Factors modifying drug response

UNIT-II

Autonomic nervous system & Peripheral nervous system

a) Sympathetic nervous system - sympathomimetics, sympatholytics b) Parasympathetic - Cholinergics, Anticholinergics Drugs
c) Skeletal muscle relaxants
d) Local anaesthetics

UNIT-III

Central nervous system

a) Drug therapy of various CNS disorders like epilepsy, depression. b) Non-steroidal anti-inflammatory drugs

c) General anesthetics

AUTOCOIDS

a) Histamine and anti histaminics

UNIT-IV

Cardiovascular system

a) Drug therapy of hypertension, shock, angina, cardiac arrhythmias b) Diuretics

c) Coagulants and anticoagulants, antiplatelet drugs

d) Hypo-lipidemics

Gastrointestinal and respiratory system

a) Drug treatment of peptic ulcer

b) Drug therapy of bronchial asthma

UNIT-V

Hormones

a) Drug therapy of Diabetes

b) Corticosteroids

c) Chemotherapeutic agents - b-Lactam Antibiotics, fluoroquinolones, aminoglycoside, tetracyclines, chloramphericol

PRACTICALS

a) Study of laboratory animals and their handling (a. Frogs, b. Mice, c. Rats, d. Guinea pigs, e. Rabbits).

b) Study of laboratory appliances used in experimental pharmacology. c) Study of use of anesthetics in laboratory animals.

d) Effects of skeletal muscle relaxants using rota-rod apparatus.

e) Effect of drugs on locomotor activity using actophotometer.

f) Anticonvulsant effect of drugs by MES and PTZ method.

g) Study of local anesthetics by different method

RECOMMENDED BOOKS:

1. Padmaja Uday Kumar - Pharmacology for Dental & Allied Health Sciences - 4th edition, 2017.
2. Joginder Singh Pathania, Rupendra Kumar Bharti, Vikas Sood-Textbook of Pharmacology for Paramedical Students 2019
3. KD Tripathi- Essentials of Pharmacology - 8th edition, 2018.
4. HL Sharma & KK Sharma - Principles of Pharmacology - 3rd edition, 2017.

MEDICAL LAW, ETHICS AND MEDICAL RECORDS L/T/P/C **3/-/-/3**

MEDICAL LAW

UNIT-I

- Medical ethics - Definition - Goal Scope
- Introduction to Code of conduct

UNIT-II

- Basic principles of medical ethics Confidentiality Malpractice and negligence - Rational and irrational drug therapy

UNIT-III

- Autonomy and informed consent - Right of patients
- Care of the terminally ill- Euthanasia

UNIT-IV

- Organ transplantation
- Medico legal aspects of medical records-Medico legal case and type-Records and document related to MLC-ownership of medical records-Confidentiality Privilege communication Release of medical information - Unauthorized disclosure retention of medical records - other various aspects.
- Professional Indemnity insurance policy

UNIT-V

- Development of standardized protocol to avoid near miss or sentinel events Obtaining an informed consent

RECOMMENDED BOOKS:

1. Law relating to medical negligence and compensation- Dr. K.P.D.A. Prabakar & Dr. J. Paulraj Joseph-2023
2. A textbook of medical jurisprudence and toxicology-Justice K Kannan -25 edition-1" edition-2016
3. Law the doctor must know-Hitesh J Bhatt & Jeetendra Sharma-2017
4. Law on medical negligence and legal remedies-Dr. Annu Bahl Mehra & Harshit Kiran 2022

RECORD KEEPING

UNIT-I

 Commonly Used Prefixes, Suffixes and root words in Medical Terminology, Common Latin Terms used in Prescription Writing, Study of Standard Abbreviations.

UNIT-II

 Medical Records Management. Meaning, functions, principles of record keeping, Importance of medical records to patients, doctors, and hospitals, classification of records like coding system, indexing system, types of forms basic and special, legal aspects of medical records.

UNIT-III

 International Classification of Diseases (ICD), Electronic Medical Record (EMR), Records Management: Registers, forms, retention and preservation of MR, Role of MRD personnel.

UNIT-IV

 Medical Registers: Meaning, types, advantages of Medical Registers, registers used in various departments, Statutory registers and reports to be maintained-specimens

UNIT-V

 Medical Audit: its process, role and importance in hospitals.

RECOMMENDED BOOKS:

Davies, Juanita. Essentials of Medical Terminology. 3rd edition. New York. Delmar. 2008 Mogli. J.D. Medical Records: Organization & Management 2nd edition New Delhi Jaypee Brothers.
The body by Bilbirson Agreed for Occupancy

ETHICS

UNIT-I

 Introduction to Public Health Ethics.
 Theories of Justice and Distribution of Public Health Resources.
 Principle for Public Health Ethics.

UNIT-II

 Priority-Setting and Resource Allocation at the Macro Level.
 Priority-Setting and Resource Allocation at the Micro Level.

UNIT-III

 Medical Ethics, Legal Aspects and Medical Terminology.

1) Role Definition and Interaction, Ethical, Moral, and Legal Responsibilities 2) Medical terminology

3) Medical waste Management

UNIT-IV

- Contemporary Ethical and Legal Issues in Health Care: Legal regulation of a standalone diagnostic center, medico-legal cases and medical negligence, ethical aspects of health care.
  - Balancing Individual and Community Interests.
  - Ethics and Health Promotion.

UNIT-V

- Role of Human Rights in Public Health
- Ethics of Beath Promotion and Disease Prevention

RECOMMENDED BOOKS:

1. Ethics and Public Health Archana Rani Sahoo & Patitapahan Das-2017 2. Public Health, Ethics and Equity-Sudhir Anand, Fabienne Peter and Amartya Sen-2006 3. Nursing and healthcare ethics-Robinson & Doody-6 edition-2022 4. Ethics- William K. Frankena 2 edition-2015

SOFT SKILLS DEVELOPMENT L/T/P/C

1/-/-/1

Course Objectives:

By the end of the course, students will:

- Improve their communication and interpersonal skills.
- Develop emotional intelligence (EQ) and conflict resolution strategies. Enhance their ability to work in teams and exhibit leadership qualities. Gain confidence in public speaking and professional writing.
- Master time management and personal organization strategies.

UNIT 1

- Introduction to Soft Skills
- Definition of soft skills vs. hard skills
- The importance of soft skills in the workplace

Key soft skills: communication, teamwork, adaptability, problem-solving, leadership, etc. Activities: Icebreakers, group discussions on soft skills in the workplace Assignment: Self-assessment on current soft skills

UNIT 2

Communication Skills

- The communication process: sender, message, receiver, feedback Active listening techniques
- Body language and non-verbal cues Effective speaking: tone, clarity, and pacing Email and phone communication etiquette

Activities: Role-playing scenarios (e.g., client interaction, conflict resolution) Assignment: Practice active listening and send an email incorporating effective communication principles.

UNIT 3

Emotional Intelligence (EQ)

- What is emotional intelligence? (Self-awareness, self-regulation, motivation, empathy, and social skills) Recognizing and managing your emotions

- Understanding others' emotions and building empathy
  Developing emotional resilience

Activities: Emotional intelligence quizzes, group discussion on handling emotions in stressful situations
Assignment: Journaling emotional responses and reflection

on EQ practices. UNIT 4

- Teamwork and Collaboration Roles and dynamics within teams Effective communication in teams Conflict resolution in teams
  - Building trust and fostering a collaborative environment

Activities: Team exercises, problem-solving tasks, and brainstorming sessions Assignment: Work on a team project or task, and present it in class.

UNIT 5

Conflict Resolution

- Sources of conflict (miscommunication, differing priorities, etc.)
- Conflict resolution strategies (e.g., negotiation, mediation, compromise) The role of active listening in resolving conflicts
  - Managing personal emotions during conflict

Assignment: Reflect on a personal or professional conflict and propose a resolution strategy.

UNIT 6

- Time Management and Personal Organization
  - The importance of time management in personal and professional success Prioritization techniques (e.g., Eisenhower Matrix, ABCDE method)
- Tools for time management (digital calendars, to-do lists, Pomodoro technique) Setting SMART goals

- Managing procrastination and avoiding distractions

Activities: Time-blocking exercises, goal-setting workshop
Assignment: Create a personal time management plan and track daily productivity for a week.

UNIT 7

- Leadership and Influence
- Types of leadership (e.g., transformational, transactional, servant leadership) Leading by example: qualities of effective leaders
- Building and maintaining team morale The art of persuasion and influence

Activities: Leadership style assessment, group discussions on leadership challenges Assignment: Write a reflection on a leader you admire and why.

UNIT 8

- Public Speaking and Presentation Skills
- Overcoming fear of public speaking
- Structuring a presentation (opening, body, conclusion) Effective use of visual aids (PowerPoint, etc.)
- Engaging the audience through storytelling, eye contact, and body language

Activities: Group presentations, peer feedback sessions, impromptu speaking exercises Assignment: Prepare and deliver a short presentation (5-7 minutes) on a topic of choice.

REFERENCE TEXTBOOK

The 7 Habits of Highly Effective People" by Stephen R. Covey

CLINICAL POSTING-1 L/T/P/C
-/-/20/10

Students in the B**.Sc. Surgical Assistance program** will undergo **Clinical Postings – I** as their first structured exposure to real-time surgical environments. These postings will take place in the **Operation Theatres (OTs)** of affiliated teaching hospitals, focusing mainly on **General Surgery Units** and allied specialties.

The aim is to introduce students to the surgical ecosystem, sterile practices, instrument handling, and team coordination required for open and minor surgical procedures. Under the **direct supervision** of OT mentors and surgical staff, students will **observe and assist** in basic perioperative workflows such as patient preparation, surgical field setup, instrument arrangement, and assistance during suturing or wound management where permitted.

Clinical Logbook Requirement
Each student must maintain a **Clinical Logbook** documenting:

- **Daily observations**
- **Surgical procedures observed or assisted**
- **Instruments handled**
- **Reflections and learning outcomes**

This logbook will contribute to the **internal assessment**, based on:

- Engagement and attentiveness
- Professional conduct in OT
- Accuracy and completeness of documentation

Core Practical Skills Covered in Clinical Posting – I

1. Sterile Techniques and OT Protocols

- Perform proper surgical hand washing (scrub)
- Gowning and gloving (closed and open methods)
- Maintaining sterile field during surgical procedures
- Understanding OT zoning, traffic flow, and sterility maintenance

2. Surgical Instrument Familiarization

- Identification and classification of general surgical instruments (cutting, grasping, retracting, suturing)
- Safe handling and passing techniques
- Care, cleaning, and storage of instruments

3. Patient Preparation and Positioning

 Understanding preoperative patient verification and consent checks Skin preparation and draping methods for open surgeries
 Learning standard surgical positions (supine, prone, lithotomy) and their purposes **4. Basic Assistance in Minor Surgical Procedures (Observation & Supervised Practice)** Assisting in wound retraction
 Managing suction during procedures
 Handling sponges and swab counting protocols

5. OT Workflow and Team Coordination

 Understanding the roles of scrub nurse, circulating nurse, surgeon, and anaesthetist Observing "Surgical Safety Checklist" and time-out procedures
 Effective communication during surgery

AI in Healthcare: Foundation

Category: Skill Enhancement Course (SEC) | **L-T-P:** 1-0-0 | **Credits:** 1

Course Objectives

- · Explain fundamental artificial intelligence concepts, machine learning principles, and health data types without complex mathematics.
- · Identify and examine major clinical, diagnostic, public health, and operational AI use cases across the healthcare ecosystem.
- · Evaluate AI performance metrics, clinical validation strategies, algorithmic bias, and limitations of medical AI tools.
- · Apply ethical, legal, regulatory, and human-in-the-loop principles to ensure patient safety and privacy in AI deployment.
- · Demonstrate practical competency with no-code AI platforms to formulate a realistic solution for a discipline-specific healthcare challenge.

Course Outcomes: On completion, students will be able to:

- · **CO1:** Explain core AI concepts (machine learning, deep learning, NLP, generative AI) and their applications across healthcare systems in plain language.
- · **CO2:** Identify and describe major healthcare use cases of AI, including diagnostics, clinical decision support, drug discovery, public health surveillance, and hospital operations.
- · **CO3:** Critically evaluate AI tools by interpreting performance measures (accuracy, sensitivity, specificity) and recognizing bias and data-quality limitations.
- · **CO4:** Apply ethical, legal, and regulatory principles (privacy, consent, fairness, accountability, transparency) to healthcare AI implementation.
- · **CO5:** Use no-code AI tools responsibly to design and propose realistic AI solutions for discipline-specific healthcare challenges.

Graduate Attributes Addressed: GA1 (Disciplinary & Interdisciplinary Knowledge), GA2 (Critical Thinking & Problem Solving), GA3 (Digital & Technological Literacy), GA5 (Effective Communication), GA7 (Ethical Reasoning & Professional Integrity), GA9 (Entrepreneurship & Innovation Mindset), GA10 (Lifelong Learning & Self-Directed Growth)

Unit I: Introduction to AI and Health Data

- · Fundamental definitions and scope: What AI is and isn't; distinguishing AI, Machine Learning (ML), and Deep Learning (DL)
- · Basic principles of how machines learn patterns from data without advanced mathematics
- · Structure and taxonomy of health data: Electronic Health Records (EHR), medical imaging, genomics, and wearable sensor streams
- · Health data quality, data curation, and the principle of "garbage in, garbage out" in healthcare algorithms
- · **Practical/Hands-on Session:** Building and training a simple medical/healthcare image classifier using no-code platforms (e.g., Teachable Machine)

Unit II: AI Applications Across Healthcare Domains

- · Medical imaging applications in radiology, digital pathology, and ophthalmology
- · Clinical Decision Support Systems (CDSS), symptom checkers, and patient risk prediction models
- · Natural Language Processing (NLP) for unstructured clinical notes, voice recognition, and EHR documentation
- · Generative AI, LLMs, drug discovery workflows, public health surveillance, hospital operations, and AI-enabled telemedicine
- · **Practical/Case Demo Session:** Case demonstrations and critical group discussion on real-world AI deployment in clinical settings

Unit III: Evaluating AI Performance, Bias, and Validation

- · Interpreting performance metrics in plain clinical terms: accuracy, sensitivity, specificity, and false positives/negatives
- · Understanding overfitting, model generalizability across diverse patient populations, and performance degradation
- · Clinical validation frameworks, clinical trials for AI algorithms, and black-box explainability/interpretability
- · Identifying algorithmic bias, data representation gaps, and evaluating fitness-for-purpose
- · **Practical/Tutorial Session:** Critical appraisal exercise evaluating and critiquing a published AI tool's clinical claims

Unit IV: Ethics, Law, and Healthcare AI Governance

- · Patient data privacy, consent frameworks, and regulatory awareness (HIPAA, GDPR, and India's DPDP Act)
- · Algorithmic fairness, health equity, and preventing bias against vulnerable patient demographics

- · Clinical liability, accountability when AI systems err, and Software as a Medical Device (SaMD) regulatory oversight
- · Human-in-the-loop principles and maintaining practitioner oversight in automated healthcare decision-making
- · **Practical/Interactive Session:** Ethical dilemma role-play and decision-making scenario analysis

Unit V: Responsible Practice and Capstone Project

- · Prompt engineering techniques for generative AI tools (e.g., ChatGPT, Claude) in clinical and academic contexts
- · Managing AI hallucinations, fact-verification protocols, and ethical academic/professional use
- · Tracking fast-moving AI developments and future trajectories in medical technology
- · **Practical/Capstone Presentation:** Group formulation, design pitch, and presentation proposing a realistic AI solution to a domain-specific healthcare problem

Recommended Readings

Key Textbooks & Reference Books

1. **Topol, E.** (2019). *Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again*. Basic Books.
2. **Bohr, A., & Memarzadeh, K.** (Eds.). (2020). *Artificial Intelligence in Healthcare*. Academic Press.
3. **Agrawal, A., Gans, J., & Goldfarb, A.** (2018). *Prediction Machines: The Simple Economics of Artificial Intelligence*. Harvard Business Review Press.

Regulatory Reports & Ethical Guidelines

1. **World Health Organization.** (2021). *Ethics and governance of artificial intelligence for health: WHO guidance*. Geneva: World Health Organization.
2. **Ministry of Law and Justice, Government of India.** (2023). *The Digital Personal Data Protection Act, 2023 (DPDP Act)*. Gazette of India.
3. **U.S. Food and Drug Administration (FDA).** (2021). *Artificial Intelligence/Machine Learning (AI/ML)-Based Software as a Medical Device (SaMD) Action Plan*.

Online Interactive & No-Code Resources

1. **Google Teachable Machine:**
   `[https://teachablemachine.withgoogle.com/](https://teachablemachine.withgoogle.com/)`
2. **Orange Data Mining (Visual Programming & Interactive Workflows):**
   `[https://orangedatamining.com/](https://orangedatamining.com/)`

3. WHO / ITU Focus Group on Artificial Intelligence for Health (FG-AI4H) Resources:
https://www.who.int/initiatives/cih

SEMESTER- IV

SURGICAL TECHNIQUES – II

L/T/P/C

3/-/4/5

UNIT I: Advanced Surgical Aseptic Techniques

- Surgical asepsis vs. medical asepsis
- Zones of the operation theatre
- Traffic control and sterile field maintenance
- Handling sterile equipment during procedures
- Disposal of bio-medical waste in surgery

UNIT II: Surgical Drains, Tubes, and Catheters

- Types of drains (closed, open, passive, active)
- Indications and methods of insertion
- Surgical catheters: Foley, Ryle's tube, ICD, etc.
- Drain care and complications

UNIT III: Electrosurgery & Energy Devices

- Differences between electrosurgery (RF alternating current through the patient) vs. electrocautery (direct current, heating of a probe, no current through the patient) Tissue Effect: Cutting, coagulation, desiccation, fulguration; determined by current density, duration, electrode size, waveform, tissue conductivity
- Equipment overview: Electrosurgical unit (ESU), active electrode (handpiece), return (dispersive) electrode/pad
- Circuit configurations: monopolar: active electrode + return pad (current through patient); bipolar: both electrodes integrated (current localized within tissue) Modes of operation: Cutting (continuous waveform), coagulation (pulsed or low-duty cycle), fulguration (high-voltage arc, superficial)
- Uses and precautions
- Advanced Energy Devices & Emerging Technologies: Vessel-Sealing Systems; Ultrasonic Devices; Hybrid Tools; Other Modalities such as Inclusion of laser, microwave ablation, argon beam coagulator, shockwaves, etc.

 Safety, hazards and risk management associated with electro surgery: Burn risk; circuit related risk; smoke and fire hazard; interference risks; mitigation strategies

UNIT IV: Surgical Procedures

Operating techniques and protocols for surgeries in areas such as neuro, ortho, cardiac, plastics, transplantation, thyroid, urology, ENT, ophthalmic

Common surgical procedures:

- Hernia repair
- Appendectomy
- Cholecystectomy
- Hysterectomy
- Laparoscopic vs open surgeries
- Emergency surgical procedures (trauma, perforation, obstruction)

UNIT V: Emergency Management in OT

- Crash cart and emergency tray setup
- CPR and BLS (Basic Life Support)
- Management of hemorrhage, shock, anaphylaxis
- OT fire safety and disaster preparedness

PRACTICALs

1. Setting up an OT for specific major surgeries
2. Proper draping for major abdominal, thoracic, and orthopedic procedures 3. Assisting in major surgeries as second or third assistant
4. Use and maintenance of electrosurgical units
5. Handling and placement of drains and catheters
6. Demonstration of crash cart setup
7. Performing CPR and BLS on mannequins
8. Hands-on practice in tying surgical knots in depth
9. Assisting laparoscopic instrumentation setup
10. Preparing for and responding to intraoperative emergencies

RECOMMENDED BOOKS:

1. *Alexander's Care of the Patient in Surgery* – Jane C. Rothrock, 17th ed., Elsevier, 2022 2.*Bailey and Love's Short Practice of Surgery* – Norman Williams, 28th ed., CRC Press, 2023 3. *Essentials of Surgical Specialties* – Peter F. Lawrence, 6th ed., Wolters Kluwer, 2023 4. *Basic Surgical Techniques* – R.M. Kirk, 7th ed., Elsevier, 2018

5. *Textbook of Clinical OT Techniques* – Dr. M.K. Agrawal, 2nd ed., Jaypee Brothers, 2020 6. *Manual on Surgical Instruments and OT Practices* – College/University-issued Practical Book, latest edition
7. *BLS & CPR Training Handbook* – American Heart Association (AHA Guidelines), 2020

OPERATING ROOM SAFETY

L/T/P/C
3/-/-/3

UNIT I: Introduction to Operating Room (OR) Safety

Malla Reddy Vishwavidyapeeth

- Overview of OT environment and structure
- Zoning in OT: sterile, clean, protective, disposal
- Types of surgeries (clean, contaminated, infected) and their scheduling Role of surgical and OT staff in safety maintenance
- Operating room attire and behavioral protocols

UNIT II: Infection Control in OR

- Principles of infection control
- Sources and transmission of infection in OT
- Hand hygiene techniques (surgical hand wash, hand rub) Personal Protective Equipment (PPE)
- Surgical site infection (SSI): causes, prevention, surveillance

UNIT III: Sterilization and Disinfection

- Difference between cleaning, disinfection, and sterilization Methods: steam, dry heat, ethylene oxide (EtO), plasma, chemical Disinfectants and antiseptics used in OT
- Sterility indicators and sterility assurance
- Biomedical waste management (BMWM) in OT

UNIT IV: Electrical & Fire Safety in OT

- Hazards of electrosurgical units
- Grounding and insulation techniques
- Prevention of burns, shocks, and short circuits
- Fire safety protocols (fire triangle, OT fire risks)
- Operation and types of fire extinguishers
- Fire drills and disaster response

UNIT V: Patient Safety and Ergonomics

- Patient identification protocols
- Prevention of wrong site/wrong patient surgery
- Safe patient positioning and pressure sore prevention
- WHO Surgical Safety Checklist
- OT table safety, stretcher/wheelchair safety
- Communication and teamwork for safety (SBAR technique)

UNIT VI: Emergency Preparedness in OR

- Crash cart and emergency protocols
- Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS) overview Anaphylaxis and medication errors – prevention & response
- Evacuation plan in case of fire or disaster
- OT record documentation for medicolegal safety

PRACTICAL COMPONENT (it should include in the postings clinical) Students will **demonstrate or observe**:

- Proper OT attire, gowning, gloving
- Surgical hand scrubbing techniques
- Handling sterilized equipment without contamination
- Operating a crash cart setup
- Performing basic fire extinguisher operation
- Filling WHO Surgical Safety Checklist
- Waste segregation in color-coded bins

RECOMMENDED BOOKS:

1. Alexander's Care of the Patient in Surgery – Jane C. Rothrock
2. Essentials of Operating Room Management – J. Deveny
3. Perioperative Safety – Donna S. Watson
4. Fundamentals of Operating Room Technique – Nancymarie Phillips 5. WHO Guidelines on Safe Surgery 2009 – World Health Organization 6. Basic Life Support Provider Manual – American Heart Association 7. Manual of Infection Prevention in OT – Hospital Infection Society, India

HEALTH AND WELL-BEING L/T/P/C

1/-/-/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 Objectives:

- 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 1

1. Introduction to Health and Well-being
2. Overview of health and well-being concepts
3. Dimensions of health: Physical, mental, social, and emotional The impact of lifestyle choices on health

UNIT 2

1. Physical Health and Fitness
2. Importance of physical activity for overall health

3. Types of exercise: Aerobic, strength, flexibility, and balance Creating a personal fitness plan

UNIT 3

1. Nutrition and Healthy Eating
2. Basics of nutrition: Macronutrients and micronutrients Healthy eating habits and food groups 3. Impact of nutrition on physical and mental health

UNIT 4

1. Mental Health and Emotional Well-being
2. Understanding mental health: Definitions, stigma, and myths Key aspects of emotional well-being 3. Building emotional resilience

UNIT 5

1. Stress Management Techniques Understanding stress and its effects on health Mindfulness and relaxation techniques
2. Time management for stress reduction

UNIT 6

1. Sleep and Recovery
2. Importance of sleep for physical and mental health Sleep hygiene and healthy sleep habits 3. Impact of sleep deprivation on overall well-being

UNIT 7

1. Social Health and Relationships
2. The role of social connections in well-being
3. Healthy relationships: Communication, boundaries, and support Community involvement and social well-being

UNIT 8

1. Substance Use and Addiction
2. The impact of alcohol, tobacco, and drugs on health Understanding addiction and treatment options Preventive measures and harm reduction strategies

UNIT 9

1. Chronic Diseases and Prevention
2. Common chronic diseases (e.g., diabetes, heart disease) Risk factors and lifestyle modifications for prevention Screening, early detection, and health monitoring

UNIT 10

1. Building Healthy Habits
2. The psychology of habit formation
3. Strategies for adopting and maintaining healthy habits Overcoming barriers to healthy behaviour changes

REFERENCE TEXTBOOK

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

CLINICAL POSTING – II

L/T/P/C
-/-/20/10

Clinical Posting – II is designed for **second-stage surgical exposure**, allowing students to rotate through **specialized surgical units** such as **Orthopaedics, ENT, Urology, Neurosurgery, Cardiothoracic Surgery, and Emergency/Trauma OT**.

The objective is to deepen their understanding of **specialized instrumentation, patient positioning, complex perioperative workflows**, and interdepartmental coordination.
Students will participate in supervised assistance for selected surgical procedures, focusing on **advanced sterile practices, specialty-specific equipment setup**, and **emergency surgical readiness**.

Clinical Logbook Requirement

Each student must maintain a **Clinical Logbook** documenting:

- Daily postings and observations
- Specialty-specific surgical cases observed or assisted
- Instrumentation and equipment used
- Learning reflections and skill progression

1. Specialty OT Protocols

- Understanding unique OT zoning requirements for neurosurgery, cardiothoracic, and ortho units Familiarity with laminar airflow and infection prevention measures in implant surgeries

2. Advanced Surgical Instrumentation

- Orthopaedic: bone-holding forceps, drills, saws, reamers, prosthesis handling
- ENT: endoscopes, microscopes, suction cautery
- Urology: cystoscopes, resectoscopes, laser lithotripsy units
- Neurosurgery: craniotomy sets, micro instruments, bipolar cautery systems
- Cardiothoracic: sternal retractors, heart–lung bypass equipment basics

3. Specialized Patient Positioning

- Lithotomy with Trendelenburg for urology/gynaecology
- Lateral decubitus for thoracotomy and nephrectomy
- Sitting and prone positions for neurosurgery
- Safety measures to avoid nerve and pressure injuries

4. Emergency Surgery Readiness

- Setting up for exploratory laparotomy
- Trauma OT preparation for polytrauma cases
- Rapid blood transfusion setup and monitoring
- Coordination with anaesthesia and critical care team

5. Interdisciplinary OT Team Dynamics

- Communication with physiotherapists, ICU teams, and post-op wards
- Documentation of implants and devices used during surgeries
- Observing intraoperative decision-making in emergencies

SEMINAR L/T/P/C
1/-/-/1

The **seminar** component provides students an opportunity to research, prepare, and present topics related to surgical assistance, operation theatre practices, or advancements in medical technology. This fosters academic inquiry, public speaking skills, and evidence-based knowledge application in surgical contexts.

Course Objectives:

By the end of this seminar program, students will be able to:

1. Select relevant surgical or perioperative care topics from current literature.
2. Conduct literature reviews using credible academic and clinical sources.
3. Develop structured presentations using appropriate medical terminology.
4. Answer audience questions with evidence-based responses.

Structure & Guidelines:

- Frequency: One seminar per student per semester.
- Duration: 15–20 minutes presentation + 5 minutes Q&A.
- Format: PowerPoint presentation (or equivalent) with case-based or research-based content. Evaluation Criteria:
    - Depth of research and relevance of topic (20%)
    - Presentation structure and clarity (20%)
    - Use of medical terminology and adherence to surgical standards (20%)
    - Audience engagement and communication skills (20%)
    - Quality of responses in Q&A (20%)

Suggested Seminar Topics:

- Recent advances in minimally invasive surgery.

- Sterilization methods and OT innovations.
- Robotic surgery and its role in modern healthcare.
- Comparative analysis of general vs. regional anaesthesia.
- Post-operative care innovations.

Assessment:
Marks will be added to internal assessment based on presentation performance and faculty feedback.

SEMESTER- V

ADVANCED SURGICAL ASSISTANCE L/T/P/C

3/-/2/4

UNIT I: Role of the Surgical Assistant in Advanced Procedures

- Scope and responsibilities in complex surgeries
- First, second, and third assistant roles
- Communication and coordination with the surgical team
- Ethical and legal considerations

UNIT II: Assistance in Specialized Surgeries

- Neurosurgery
- Cardiothoracic and vascular surgery
- Urology and plastic surgery
- Orthopedic procedures
- Robotic and image-guided surgeries

UNIT III: Laparoscopic and Endoscopic Surgical Assistance

- Principles of laparoscopy and endoscopy
- Instrument handling and setup
- Insufflation, camera control, and port positioning
- Troubleshooting equipment

UNIT IV: Microsurgery and Laser Surgery Assistance

- Basics of microsurgery
- Use of surgical microscope
- Types of lasers used in surgery
- Safety precautions and tissue interaction
-

UNIT V: Postoperative Care and Documentation

- Patient transfer and positioning
- Wound assessment and dressing
- Handling drains and tubes
- Record keeping and medicolegal documentation

PRACTICAL

1. Assisting in live OT for complex surgical procedures
2. Assisting in laparoscopic instrument setup and port placement
3. Handling robotic-assisted or video-guided systems (demo if available)
4. Wound care and dressing under supervision
5. Observation of transplant or minimally invasive surgeries
6. Proper communication during real-time procedures
7. Maintenance and checklists for specialized surgical sets

REFERENCE BOOKS

1. Alexander's Care of the Patient in Surgery – Jane C. Rothrock, 17th ed., Elsevier, 2022 2. Bailey and Love's Short Practice of Surgery – Norman Williams, 28th ed., CRC Press, 2023 3. Surgical Technology for the Surgical Technologist – Association of Surgical Technologists, 6th ed., Cengage Learning, 2021
4. Essentials of Surgical Specialties – Peter F. Lawrence, 6th ed., Wolters Kluwer, 2023 5. Fundamentals of Laparoscopic Surgery – Michael J. Soper & Lee L. Swanstrom, Springer, 2017 6. Atlas of Robotic Surgery – Pier Cristoforo Giulianotti, Springer, 2018

ANESTHESIA TECHNIQUES

L-T-P-C:
3/-/-3

UNIT I: Basics of Anesthesia

- Definition and history of anesthesia
- Classification: general, regional, local
- Phases of anesthesia: induction, maintenance, emergence
- Preoperative assessment

UNIT II: Anesthetic Drugs and Equipment

- Inhalational and intravenous agents
- Local anesthetics (lidocaine, bupivacaine)
- Anesthesia machine components
- Oxygen supply and gas cylinders

UNIT III: Monitoring and Airway Management

- Basic vital sign monitoring
- Pulse oximetry, ECG, BP, capnography
- Airway devices: mask, LMA, ETT
- Intubation techniques

UNIT IV: Regional and Spinal Anesthesia

- Nerve block techniques
- Spinal, epidural, caudal anesthesia

- Patient positioning and safety
- Complications and contraindications

UNIT V: Complications and Emergency Management

- Anaphylaxis
- Hypotension, arrhythmia, cardiac arrest
- Malignant hyperthermia
- Recovery room management

PRACTICALS

1. Setting up the anesthesia workstation
2. Identifying anesthesia equipment and drugs
3. Observing general and spinal anesthesia administration
4. Airway management demo using mannequins
5. Pre-anesthetic evaluation practice
6. CPR and BLS drills
7. Post-anesthesia care procedures

REFERENCE BOOKS

1.Clinical Anaesthesia – Paul G. Barash, 9th ed., Wolters Kluwer, 2021.
2.Basics of Anaesthesia – Ronald D. Miller & Manuel C. Pardo, 8th ed., Elsevier, 2022. 3. Morgan and Mikhail's Clinical Anaesthesiology – John F. Butterworth, 7th ed., McGraw-Hill Education, 2022 Understanding Anaesthesia Equipment – Jerry A. Dorsch & Susan E. Dorsch, 6th ed., Wolters Kluwer, 2011.
4.Textbook of Anaesthesia – A. A. Kulkarni, 4th ed., Jaypee Brothers Medical Publishers, 2020.

INFECTION CONTROL

L/T/P/C
3/-/-3

UNIT I: Introduction to Infection Control

- Basics of microbiology
- Chain of infection
- Nosocomial (Hospital-Acquired) infections
- Principles of infection prevention

UNIT II: Hand Hygiene and PPE

- 7 steps of hand washing
- Alcohol-based hand rub
- Personal Protective Equipment: types and donning/doffing
- Glove techniques (sterile/non-sterile)

UNIT III: Sterilization and Disinfection

- Methods of sterilization
- Types of disinfectants (glutaraldehyde, phenol, etc.)
- Instrument sterilization protocols
- Sterility indicators

UNIT IV: Biomedical Waste Management

- Segregation and color coding
- Transport, treatment, and disposal
- Sharp injury prevention
- Staff safety practices

UNIT V: Hospital Infection Control Policies

- Infection control committee and roles
- Outbreak investigation
- Surveillance and reporting
- Standard vs transmission-based precautions

REFERENCE BOOKS

1. **Hospital Infection Control Guidelines** – CDC & WHO Joint Publications, latest revision, **2021**
2. **Manual of Infection Prevention and Control** – National Centre for Disease Control (NCDC, India), 2nd ed., **2020**
3. **Essentials of Microbiology for Nurses** – Jaypee Brothers Medical Publishers, 3rd ed., **2019** 4. **Textbook of Infection Control in OT** – Dr. R. Rao, Jaypee Brothers Medical Publishers, **2018**
5. **Biomedical Waste Management Rules** – Ministry of Health & Family Welfare, Govt. of India, latest amendment, **2018 (amended 2022)**
6. **Infection Control in Clinical Settings** – Elsevier Practical Series, 1st ed., **2017**

INTERPERSONAL COMMUNICATION L/T/P/C

1/-/-/1

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 1

- Introduction to Interpersonal Communication
- Overview of interpersonal communication theory.
- Key principles: sender, message, receiver, feedback, noise. Importance of communication in daily life.

Unit 2

- Verbal Communication
- The role of language in communication.
- Choosing words carefully: Clarity, precision, and ambiguity. Influence of culture and context on verbal communication.

Unit 3

- Non-Verbal Communication
- Body language, facial expressions, and gestures. Space, posture, and touch in communication.
- The role of non-verbal cues in conveying emotions

Unit 4

- Listening Skills
- Types of listening: Active, passive, reflective. Barriers to effective listening.
- Developing empathy through listening.

Unit 5

- Self-Disclosure and Relationship Development The importance of self-disclosure in relationships. The Johari Window model.
- How self-disclosure affects trust and intimacy.

Unit 6

- Conflict in Interpersonal Communication Types of conflict: Productive vs. destructive. Conflict management styles.
- Strategies for resolving conflict in healthy ways.

Unit 7

 Cultural and Gender Differences in Communication

 Cultural influences on communication styles. Gender communication differences. Strategies for effective cross-cultural communication.

Unit 8

 Communication in Close Relationships

 Communication patterns in romantic relationships, family, and friendships.

 Managing expectations and maintaining healthy communication in intimate relationships.

Unit 9

 Communication in the Workplace

 Interpersonal communication in professional settings.

 Navigating professional relationships and maintaining boundaries. Communication and leadership.

Unit 10

 Digital Communication

 The role of technology in interpersonal communication. The impact of social media on relationships. Pros and cons of digital communication tools.

 The Ethics of Communication

 Ethical dilemmas in communication.

 Honesty, transparency, and privacy in conversations. Balancing openness with respect for others' boundaries.

Reference Textbook:

"Interpersonal Communication: Everyday Encounters" (Author: Julia T. Wood, 9th **CLINICAL POSTING – III**

L/T/P/C
-/-/18/9

Clinical Posting – III marks the **advanced phase** of surgical assistance training, where students begin to participate more actively in **specialized surgical disciplines** while refining their skills in **perioperative care** and **OT management**. The emphasis is on **efficient assistance in intermediate-to-complex surgical cases**, precise handling of instruments, and proactive engagement with the surgical and anaesthesia teams.

During this stage, students will rotate through **specialty operation theatres** such as **orthopaedics, urology, ENT, gynaecology, gastrointestinal surgery, and trauma surgery**. They will assist in **preparing the OT**, assembling and testing advanced surgical equipment, and anticipating the needs of the surgeon during procedures.

In addition to intraoperative roles, students will play an important part in **post-operative recovery care**, including wound assessment, drain management, and early complication recognition. Exposure to **emergency surgery protocols** and **rapid OT turnaround** will be provided.

By the end of **Clinical Posting – III**, students will be able to:

- Prepare and organize OTs for **specialty-specific surgeries**.
- Assist confidently in **intermediate-to-complex open and minimally invasive procedures**.
- Identify and handle **specialized surgical instruments** (orthopaedic, urological, ENT, gynaecological, GI).
- Support anaesthesia teams in **pre-induction preparations** and **monitoring**.
- Recognize and assist in **managing intraoperative complications**.
- Participate in **emergency surgical workflows** with efficiency.
- Monitor patients in the **post-anaesthesia care unit (PACU)** and assist in early recovery interventions.
- Maintain **accurate clinical documentation** in line with institutional protocols.

This logbook will contribute to **internal assessment** along with **faculty evaluations**.
In Addition with Student should must learn these measures:

1. Hand hygiene practice and audit
2. PPE gowning/gloving demonstration
3. Sterilization process tour (CSSD visit)
4. Biomedical waste segregation exercise
5. Preparation of disinfectant solutions
6. Cleaning and disinfection of OT tables/instruments

SEMESTER- VI

SPECIALIZED SURGICAL PROCEDURES

L/T/P/C
3/-/2/4

UNIT I – Introduction to Specialized Surgery

- Principles of specialty surgical practice, classification of surgeries, patient assessment & consent, risk factors in specialty surgeries.
- Preparing OT for different specialties, instrument segregation.

UNIT II – Laparoscopic & Robotic Surgery

 Principles, advantages, limitations, patient positioning, ergonomics, instrument classification. Camera handling, laparoscopic tower assembly, robotic arm docking basics.

UNIT III – Orthopaedic & Trauma Surgery

 Common orthopaedic procedures, fracture management, arthroscopy basics.

 Plaster application, orthopaedic set preparation.

UNIT IV – Neurosurgical Procedures

 Craniotomy, spinal surgery, microvascular decompression, aneurysm clipping basics. Microscope positioning, micro instrument handling.

UNIT V – ENT & Urology Surgeries

 FESS, micro laryngeal surgery, TURP, PCNL.

 Endoscopic setup, laser safety protocols.

UNIT VI – Cardiothoracic & Plastic Surgery

 CABG, valve replacement, vascular grafts, reconstructive surgeries.

 Sternal retractor setup, micro-suturing observation.

REFERENCE BOOKS:

1. Alexander's Care of the Patient in Surgery – Jane C. Rothrock, 17th ed., 2023
2. Bailey & Love's Short Practice of Surgery – Norman Williams, 28th ed., 2023 3. Surgical Technology for the Surgical Technologist – AST, 6th ed., 2022
4. Essentials of Surgical Specialties – Peter F. Lawrence, 4th ed., 2021
5. Fundamentals of Laparoscopic Surgery – Soper & Swanstrom, 3rd ed., 2020
6. Atlas of Robotic Surgery – Pier Cristoforo Giulianotti, 1st ed., 2018

POST-OPERATIVE CARE L/T/P/C
3/-/-/3

UNIT I – Principles of Post-Operative Care

 Recovery room design, patient monitoring protocols, PACU guidelines. Vital signs monitoring, oxygen therapy setup.

UNIT II – Pain Management

 Analgesic types, PCA, nerve blocks, multimodal pain management.

 PCA pump operation, pain score documentation.

UNIT III – Wound Healing & Care

 Stages of healing, factors affecting healing, dressing materials.
 Wound dressing changes, drain care.

UNIT IV – Prevention & Management of Complications

 DVT, pneumonia, wound dehiscence, shock.
 DVT prophylaxis exercises, early mobilization assistance.

UNIT V – Rehabilitation & Discharge Planning

 Physiotherapy, nutritional support, patient education.
 Teaching patients about home care.

UNIT VI – Infection Control in Post-Op Care

 Sterile dressing techniques, prevention of SSI.
 Aseptic dressing preparation.

REFERENCE BOOKS:

1. Alexander's Care of the Patient in Surgery – Jane C. Rothrock, 17th ed., 2023 2. Bailey & Love's Short Practice of Surgery – Norman Williams, 28th ed., 2023 3. Textbook of Postoperative Care – D. C. Rowbotham, 5th ed., 2018
4. Essentials of Postoperative Nursing – Jaypee Brothers, 2nd ed., 2020
5. WHO Surgical Safety Guidelines – WHO, 2016

EMERGENCY SURGERY L/T/P/C

3/-/-3

UNIT I – Introduction to Emergency Surgery

 Principles, triage system, golden hour concept.
 OT emergency setup drills.

UNIT II – Trauma Surgery

 Blunt vs. penetrating injuries, haemorrhage control, ATLS protocols.
 Haemostasis techniques, emergency surgical pack setup.

UNIT III – Acute Abdominal Emergencies

- Appendicitis, perforation peritonitis, bowel obstruction.
- Rapid laparotomy setup.

UNIT IV – Obstetric & Gynaecological Emergencies

- Ectopic pregnancy, ruptured uterus, emergency C-section.

UNIT V – Vascular & Thoracic Emergencies

- Aortic dissection, massive hemothorax, cardiac tamponade.
- Chest tube insertion setup.

UNIT VI – Resuscitation & Life Support

- BLS, ACLS, OT-based emergency response.
- CPR drills, defibrillator use.

REFERENCE BOOKS:

1. Bailey & Love's Short Practice of Surgery – Norman Williams, 28th ed., 2023 2. Oxford Handbook of Emergency Medicine – Jonathan Wyatt, 5th ed., 2020 3. Advanced Trauma Life Support (ATLS) Manual – ACS, 10th ed., 2018 4. Alexander's Care of the Patient in Surgery – Jane C. Rothrock, 17th ed., 2023 5. BLS & CPR Handbook – AHA Guidelines, 2020

RESEARCH METHODOLOGY AND BIOSTATISTICS L/T/P/C **3/-/-/3**

1. INTRODUCTION TO RESEARCH METHODOLOGY

- Meaning of research
- Objectives of research
- Motivation in research
- Types of researches and research approaches
- Criteria for good research
- Problems encountered by researchers in India

2. IDENTIFYING RESEARCH PROBLEM

Research problem:

- Statement of research problem
- Statement of purpose and objectives of research problem
- Necessity of defining problem

Testing of hypothesis:

- What is hypothesis
- Basic concepts concerning testing of hypothesis

- Limitations of testing of hypothesis

3. ETHICAL ISSUES IN RESEARCH

- Introduction to research ethics
- Ethical principles
- Ethics and ethical code
- Animal research ethics
- Making ethical decision
- Components of ethical research plan

4. RESEARCH DESIGN

- Meaning of research design
- Need for research design
- Features of good research design

5. BASIC CONCEPTS OF BIOSTATISTICS

Introduction:

- Definition and characteristics of statistics
- Importance of study of statistics
- Branches of statistics
- Statistics and health sciences
- Descriptive and inferential statistics
- Variables and their types

Tabulation of data:

- Basic principles of graphical representations
- Types of diagrams- histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, non- probability curve

Measures of central tendency:

- Need for measure of central tendency
- Definition and calculation of mean- ungrouped and grouped
- Definition and calculation of Median
- Definition and calculation of mode
- Comparison of mean, median, and mode

Probability and standard deviation:

- Meaning of probability or standard deviation
- The binomial distribution
- The normal distribution
- Divergence from normality-

skewness and kurtosis **6. TYPES OF DATA**

- Qualitative data
- Quantitative data

7. RESEARCH TOOLS AND DATA COLLECTION METHODS Measurement and scaling techniques:

- Measurement in research

 Scales in research sources of error in measurements Technique of developing measurement tools
 Meaning of scaling and its classification
 Important scaling techniques

Methods of data collection:

 Collection of primary data
 Collection of data through questionnaires and schedules Differences between questionnaires and schedules

8. SAMPLING METHODS

Sampling fundamentals:

 Need for sampling, and some fundamental definitions Important sampling distributions

Sampling design:

 Criteria for selecting procedure
 Implications for sampling design
 Steps in sampling design
 Different types of sampling designs

9. DEVELOPING A RESEARCH PROPOSAL

 Introduction to Research Proposal
 Selecting a Research Problem
 Review of Literature
 Formulating Research Objectives and Hypotheses Research Questions
 Theoretical or Conceptual Framework
 Research Design and Methodology
 Sampling Techniques and Sample Size
 Data Collection Methods
 Data Analysis Plan
 Ethical Considerations
 Limitations and Delimitations
 References and Bibliography
 Appendices (e.g., consent forms, tools, questionnaires)

RECOMMENDED BOOKS:

1. Methods in biostatistics by Mahajan
2. Research methodology by C R Kothari
3. Textbook of biostatistics by Sundar Rao
4. Textbook of biostatistics and research methodology by U. Satyanarayana

ART OF BEING A BETTER PERSON L/T/P/C

1/-/-/1

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

- 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

- 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

- 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

- 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

- 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

- 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

- Responsibility and Accountability
- The concept of personal responsibility in life Accountability in both personal and community contexts How to take ownership of mistakes and learn from them Activity: Reflect on past mistakes and plan for growth.

UNIT 8

- Contributing to the Community and Society
- The role of individuals in building strong communities Volunteering, activism, and social responsibility
- The impact of small, positive actions on a larger scale

Activity: Brainstorming session on potential ways to contribute to the local community. UNIT 9

- Practicing Gratitude and Contentment
- The psychological and emotional benefits of gratitude Practicing contentment in a consumer-driven world Techniques for cultivating a mindset of abundance Activity: Gratitude journal and daily reflection.

UNIT 10

- Living with Purpose and Meaning
- Discovering personal values and purpose
- The intersection of passion, skills, and service Creating a life plan that aligns with core values Activity: Create a personal mission statement.

UNIT 11

- Overcoming Negative Traits: Greed, Anger, and Envy The psychology behind negative emotions and traits How greed, anger, and envy affect our well-being
- Strategies for managing and transforming negative emotions

Activity: Mindfulness meditation and reflection exercises.

UNIT 12

- 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 world

Activity: Final reflection paper or presentation on how students will apply the course's principles to their life.

REFERENCE TEXTBOOK

How to Win Friends and Influence People" by Dale Carnegie

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

CLINICAL POSTING- IV

L/T/P/C

-/-/16/8

In the **Fourth and final phase** of clinical training for the **B.Sc. Surgical Assistance** program, students' progress to **independent and supervised assistance** in **complex surgical environments**, applying the full spectrum of skills acquired throughout the course.

This posting emphasizes **integration of knowledge with high-level technical performance**, preparing students for **immediate entry into professional surgical assistance roles**.

Students will be **actively engaged in advanced surgical specialties** such as **oncological, vascular, neurosurgical, cardiothoracic, transplant, and multi-disciplinary surgeries**.

The focus is on **independent preparation of the operating theatre**, **complete surgical instrumentation setup**, **equipment troubleshooting**, and **supporting the surgical and anaesthesia teams during high-pressure scenarios**.

Additional focus is placed on **perioperative patient care**, **advanced haemostasis assistance**, **critical care post-operative support**, and **emergency readiness** in the OT. Students will also participate in **audit processes**, **surgical case documentation**, and **morbidity/mortality review meetings**. Leadership is fostered through **mentorship of junior batches** and **coordinating multidisciplinary team efforts**.

Key Clinical Exposure Areas

1. **Advanced Surgical Specialties** – Onco, vascular, neurosurgery, cardiothoracic, transplant, trauma. 2. **Comprehensive OT Management** – Independent setup, stock management, quality control. 3. **Anaesthesia Support** – Assisting in induction, airway management readiness, equipment troubleshooting.

4. **Emergency Surgical Preparedness** – Rapid OT turnaround for emergency cases. 5. **Post-operative Care** – ICU/Recovery room monitoring, wound and drain management. 6. **Leadership & Mentorship** – Supervising juniors, training in protocols, team coordination.

Assessment Criteria

 Practical Skills: 50% (Hands-on performance, aseptic technique, procedural assistance) **Case Documentation**: 20% (Completeness, accuracy, timeliness)

 Professionalism & Teamwork: 15% (Communication, leadership, mentoring ability) **Knowledge Application**: 15% (Problem-solving, troubleshooting, protocol adherence)

SEMESTER VII

HEALTHY EATING FOR HEALTHY LIVING

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

Course Description:

This course is designed to teach students the foundational principles of nutrition, the relationship between food and health, and practical strategies for making sustainable, healthy eating choices. Students will learn how to create balanced meals, understand dietary guidelines, and navigate the modern food environment to support long-term health and well-being.

UNIT-I

Introduction to Nutrition and Healthy Eating

 What is nutrition?

 Overview of macronutrients (carbohydrates, proteins, fats) and micronutrients (vitamins, minerals). The importance of hydration.

 Understanding energy balance: Calories in vs. Calories out.

 Introduction to My Plate (or other dietary guidelines).

UNIT-II

Building a Balanced Plate

- The principles of meal planning.
- Portion control and serving sizes.
- Healthy fats vs. unhealthy fats.
- Carbohydrates: Simple vs. complex sugars.
- Protein sources: Animal vs. plant-based.

UNIT-III

Reading Food Labels and Understanding Food Marketing

- How to read food labels (nutritional facts, ingredients list, serving sizes).
- Decoding food claims (low-fat, organic, non-GMO).
- Understanding food marketing and its impact on consumer choices.
- Navigating grocery stores and making informed decisions.

UNIT-IV

The Role of Fruits and Vegetables in Healthy Eating

- The importance of fruits and vegetables in the diet.
- Health benefits of fiber, antioxidants, and phytochemicals.
- Incorporating more plant-based foods into your meals.
- Seasonal and local produce: Why it matters.

UNIT-V

Special Diets and Nutrition for Different Lifestyles

- Overview of popular diets (e.g., Mediterranean, vegetarian, vegan, paleo, ketogenic). Nutrition for athletes and active individuals.
- Special considerations for children, seniors, and pregnant women.
- Managing food allergies and intolerances (e.g., gluten, lactose).

UNIT-VI

Mindful Eating and Emotional Health

- What is mindful eating?
- The connection between emotions and eating habits.
- Managing stress and emotional eating.
- Developing a healthy relationship with food.

UNIT-VII

Sustainable Eating and Environmental Impact

 The environmental impact of food choices (e.g., food miles, carbon footprint). Sustainable eating practices: Local, seasonal, and organic foods.
 Reducing food waste: Practical tips.
 The role of plant-based eating in sustainability.

UNIT-VIII

Putting It All Together: Creating a Sustainable, Healthy Eating Plan

 Review of key concepts: Macronutrients, micronutrients, balanced eating, mindful eating. Goal setting: How to set achievable health goals.
 Meal prep and planning for a busy lifestyle.
 Long-term strategies for maintaining a healthy diet.

RECOMMENDED TEXTBOOKS:

1. Nutrition and You" by Joan Salge Blake
2. Understanding Nutrition" by Eleanor Noss Whitney and Sharon Rady Rolfes

INTERNSHIP – I

L/T/P/C
-/-/40/20

Clinical Posting Areas:

- General Surgery
- Orthopaedic Surgery
- Gynaecology & Obstetrics
- Urology
- ENT & Ophthalmology
- Emergency & Trauma OT
- Robotic-Assisted Surgeries (if available)
- Sterilization and CSSD

Duties & Responsibilities:

- Pre-operative and post-operative care
- Assisting during surgeries under supervision
- Handling of surgical instruments and consumables
- Infection control practices
- Maintaining case files and observation records
- Adherence to professional ethics and conduct
- Time management and coordination with OT teams

Assessment Criteria:

- Logbook Maintenance
- Departmental Supervisor Evaluation
- Case-Based Viva
- Report Submission
- Final Practical Evaluation by External Examiner

PROJECT – I L/T/P/C: -/-/2/1

SEMESTER VIII

PROFESSIONALISM IN THE WORKPLACE

L/T/PC
1/-/-/1

Course Description:

This course is designed to provide students with the foundational knowledge and skills required to demonstrate professionalism in a variety of workplace settings. Topics will include communication, ethics, accountability, time management, problem-solving, conflict resolution, and maintaining a positive and effective work ethic. Students will engage in practical activities that promote personal and professional growth.

Course Objectives:

By the end of this course, students will:

1. Understand the key elements of professional behavior in the workplace.
2. Demonstrate effective communication, both verbal and non-verbal, in a professional environment. 3. Learn to manage time effectively and handle workplace challenges with a positive attitude. 4. Cultivate emotional intelligence and adaptability in professional settings.
5. Understand workplace ethics, integrity, and how to make ethical decisions.
6. Develop skills for conflict resolution and teamwork in diverse work environments.

UNIT-I

Introduction to Professionalism

- What is professionalism?
- Characteristics of a professional: Appearance, behaviour, and attitude
- The importance of professional ethics and integrity

UNIT-II

Effective Communication in the Workplace

- Verbal and non-verbal communication
- Active listening and responding
- Communicating across cultures

UNIT-III

Workplace Etiquette and Networking

- Social etiquette in the workplace
- Networking best practices
- Building relationships with colleagues, managers, and clients

UNIT-IV

- Time Management and Organization
- Prioritizing tasks and setting goals

- Managing deadlines and avoiding procrastination
- Tools and techniques for effective time management

UNIT-V

Accountability and Reliability

- Taking responsibility for your actions
- Being reliable and dependable in the workplace
- How accountability affects professional reputation

UNIT-VI

Problem Solving and Decision Making

- Approaches to critical thinking and decision-making
- Strategies for solving workplace problems effectively
- The role of creativity and innovation in problem-solving

UNIT-VII

Teamwork and Collaboration

- Working with diverse teams
- Building trust and collaboration in teams
- Managing team conflicts and maintaining harmony

UNIT-VIII

Conflict Resolution and Handling Difficult Conversations

- Understanding conflict dynamics
- Techniques for resolving conflicts professionally
- Role-playing difficult conversations in the workplace

UNIT-IX

Ethical Dilemmas in the Workplace

- Recognizing ethical challenges
- Making decisions based on ethical principles
- The role of transparency and honesty

UNIT-X

Building Emotional Intelligence and Adaptability

- What is emotional intelligence and why does it matter?
- Developing self-awareness and self-regulation
- Adapting to changing work environments

RECOMMENDED TEXTBOOKS:

1. Professionalism: Skills for Workplace Success" by Deborah C. Dillon
2. The Professional Workplace: The Skills You Need to Succeed" by Ronald W. Holme

INTERNSHIP – II

L/T/P/C

- /-/20/10

Clinical Posting Areas:

- Cardiothoracic Surgery
- Neurosurgery
- Laparoscopic & Endoscopic Surgeries
- Organ Transplant Units (Liver/Kidney)
- Robotic Surgery (Advanced exposure)
- Surgical ICU / Recovery Room
- Anaesthesia and Patient Monitoring

Duties & Responsibilities:

- Assisting independently under senior supervision
- Participation in emergency and trauma cases
- Operating sterilization units and managing surgical logistics
- Surgical charting, documentation, and discharge summaries
- Supporting pre-op briefings and post-op rounds
- Interprofessional communication with nursing, anaesthesia, and surgical teams **Assessment Criteria:**
- Detailed Logbook Submission
- Supervisor's Structured Evaluation
- Final Practical Exam (including viva & case discussion)
- Attendance and Professional Conduct Record
- Comprehensive Internship Report

Learning Outcomes:

- Ability to assist in major and super-specialty surgeries with confidence Expertise in OT protocols, emergency response, and critical decision-making support Readiness for employment or higher studies in surgical/clinical domains

PROJECT II
L/T/P/C: -/-/20/10