

Semester	Subject Title	Credit	(L-T-P)
I	HUMAN ANATOMY – I	4	4-0-0

UNIT-I

GENERAL ANATOMY 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

UPPER EXTREMITY:

1. Osteology: Clavicle, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, Phalanges.
2. Muscles: Origin, insertion, nerve supply and actions.

UNIT-III

BASIC ANATOMY OF UPPER EXTREMITY:

1. Joints: Shoulder girdle, shoulder joint, elbow joints, radio ulnar joint, wrist joint and joints of the hand.
2. Breast, pectoral region, axilla, cubital fossa, Arches of hand
3. Brachial plexus, nerves of upper extremity
4. Blood vessels and lymphatic drainage

UNIT-IV

CARDIOVASCULAR & RESPIRATORY ANATOMY

1. Thoracic wall

2. Anatomy of circulatory system
3. Heart: Anatomy of heart, blood Supply, nerve supply, conducting System and major blood vessels
4. Lungs: Basic Anatomy of lungs, bronchial tree, pleura, Broncho pulmonary segments, blood Supply and nerve supply
5. Diaphragm: Origin, insertion, nerve supply and action.
6. Intercostal muscles and Accessory muscles of Respiration: Origin, insertion, nerve supply and action
7. Basic anatomy of Ribs and sternum

UNIT-V

SYSTEMIC ANATOMY

1. Digestive system:
 - List the parts of the digestive system
 - Basic Anatomy of stomach, liver, gallbladder, spleen, pancreas, intestines.
2. Urinary system:
 - Basic Anatomy of kidney, urinary bladder
3. Endocrine system:
 - Position and hormones secreted by each organ
4. Genital system:
 - Basic anatomy of Male organs and female organs

RECOMMENDED TEXT BOOKS

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

Semester	Subject Title	Credit	(L-T-P)
I	HUMAN PHYSIOLOGY – I	4	4-0-0

UNIT- I

GENERAL PHYSIOLOGY

Cell:

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

BLOOD:

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

6. Platelets

- a) Normal count
- b) Functions of thrombocytes
- c) Blood Coagulation
- d) Bleeding time & clotting time

7. Blood group

- a) ABO system
- b) Landsteiner's law
- c) ABO incompatibility
- d) Rh system
- e) Rh incompatibility & erythroblastosis fetalis

8. Blood transfusion

- a) Collection & storage of blood
- b) Precautions
- c) Cross matching
- d) Hazards of blood transfusion

NERVE:

1. Structure of a neuron

2. Classification of neurons

3. Electrical activity of neuron

- a) Resting membrane potential
- b) Action potential

4. Nerve Injury

- a) Types of nerve Injury
- b) Effect of nerve Injury
- c) Regeneration of damaged nerve fiber

UNIT-II

MUSCLE PHYSIOLOGY

1. Classification

2. Properties of skeletal muscle

3. Structure of skeletal muscle

- a) Sarcomere
- b) Sarco tubular system
- c) Neuro muscular junction & disease affecting it

4. Mechanism of muscle contraction

5. Functions of skeletal muscle

6. Types of muscle contractions

7. Red & white muscles

8. Rigor mortis, muscular dystrophy, altered muscle tone, muscle cramp, atrophy, EMG

UNIT-III

CARDIOVASCULAR SYSTEM

1. Structure of heart & blood vessels

2. Properties of cardiac muscle
3. Origin & spread of cardiac pulse
4. Cardiac cycle & heart sounds
5. Cardiac output
 - a) Related terms
 - b) Regulation of cardiac output
 - c) Circulatory shock
6. Pulse & Heart rate and its regulation
7. Blood pressure
 - a) Definitions
 - b) Factors controlling & Influencing BP
 - c) Regulation of BP
8. Regional circulation
 - a) Coronary circulation
 - b) Cerebral circulation
9. Normal ECG.

UNIT-IV

RESPIRATORY SYSTEM

1. Introduction, structure & function of RS
 - a) Upper respiratory tract
 - b) Lower respiratory tract
 - c) Respiratory membrane
2. Mechanism of breathing
 - a) Mechanics of breathing
 - b) 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 Krishna
6. Physiology: Prep Manual for Undergraduates- Joshi, Vijaya D.
7. Practical Physiology -Joshi, Vijaya D.

Semester	Subject Title	Credit	(L-T-P)
I	MEDICAL BIOCHEMISTRY	4	4-0-0

UNIT-I

CARBOHYDRATE CHEMISTRY

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

LIPID CHEMISTRY

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

UNIT-II

AMINO ACID CHEMISTRY

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

NUCLEIC ACIDS AND NUCLEOTIDE CHEMISTRY

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

UNIT-III

ENZYMES

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

VITAMINS

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

UNIT-IV

INTERMEDIARY METABOLISM

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

UNIT-V

MINERAL METABOLIS

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

CLINICAL BIOCHEMISTRY

- 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-I 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

Semester	Subject Title	Credit	(L-T-P)
I	ENGLISH AND COMMUNICATION SKILLS	2	2-0-0

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

ELCS LAB

CALL LAB: Phonetics - Vowel Sounds (Monophthongs and Diphthongs)

Listening - Introduction to listening, Purpose of Listening, and Barriers to effective listening

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

ELCS LAB

CALL LAB: Phonetics - Consonant Sounds

Listening - Listening for gist and specific information

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
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ELCS LAB

CALL LAB: Intonation

Listening - Listening and identifying facts and opinions
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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

ELCS LAB

CALL LAB: Consonant Clusters

Listening - Listen- Comprehend - Speak, Health Care

UNIT 5: Sister Nivedita: Calcutta's Angel of Mercy (Article/Essay) by Monidipa Dey
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Reading - Intensive and Extensive Reading, reading comprehension passages from OET and IELTS
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Writing - Report writing (Analyzing tests and Reporting patient condition)
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Grammar – Voice, If conditionals

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

ELCS LAB

CALL LAB: Past Tense Markers and Plural Markers

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.

Semester	Subject Title	Credit	(L-T-P)
I	SOCIOLOGY	2	2-0-0

UNIT 1

1. *Introduction:*

- a. Meaning- Definition, Nature and Scope of Sociology
 - b. Methods of Sociological Investigations, Case Study, Social Survey, Questionnaire and Interview methods.
- c. Importance of its study with special reference to Health Care Professionals.

2. *Social Factors in health and disease situations:*

- a. Role of Social factors in health
- b. Role of social factor in illness
- c. Decision making in taking treatment

UNIT 2

1. *Socialization:*

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

2. *Social Groups:*

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

UNIT 3

1. *Family:*

- a. The family, meaning and definition
- b. Functions of family
- c. Changing family patterns
- d. Influence of Family on the individuals health, the effects of sickness in the family.

2. *Community:*

- a. Rural community: meaning and features- Health problems of rural community.
- b. Urban community: meaning and features – Health problems in urbanities.

UNIT 4

1. *Culture and Health:*

- a. Concept of Health
- b. Concept of Culture
- c. Cultural factors affecting Health and diseases

2. *Social Change:*

- a. Meaning of social change
- b. Factors of social change
- c. Human adaptation and social change
- d. Social planning and Health

UNIT 5

1. *Social Problems:*

- a. Population explosion
- b. Juvenile delinquency
- c. Alcoholism
- d. Unemployment
- e. Poverty
- f. Problems of women

2. *Social Security:*

Social security and social legislation

Recommended Books:

- 1. Principles of sociology -----C.N. Shankar Rao
- 2. Sociology for physiotherapy students-- K.P Neeraja

Semester	Subject Title	Credit	(L-T-P)
I	BASICS OF COMPUTERS	2	1-0-2

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, table sand 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.

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, PearsonEducation

6. Hands-on Machine Learning with Scikit-Learn, Keras, and TensorFlow, Aurelien Geron-Oreilly, 2ndEdition.

Semester	Subject Title	Credit	(L-T-P)
I	HUMAN ANATOMY PRACTICAL - I	2	0-0-4

Human anatomy practicals 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 and understanding the musculoskeletal, nervous, and cardiovascular systems.

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

Semester	Subject Title	Credit	(L-T-P)
I	HUMAN PHYSIOLOGY PRACTICAL - I	2	0-0-4

These practical's typically align with the theoretical aspects of physiology and help students apply concepts to real-world clinical scenarios. Key Areas Covered in Human Physiology for this semester includes the following.

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

Semester	Subject Title	Credit	(L-T-P)
I	ENVIRONMENTAL AWARENESS	2	2-0-0

UNIT-I

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-II

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-III

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-IV

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-V

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-VI

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-VII

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-VIII

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-IX

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.

UNITX

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