

The Tamilnadu Dr. M.G.R. Medical University

SYLLABUS FOR THE FIRST YEAR – DEGREE COURSES UNDER ALLIED HEALTH SCIENCES

- 1. B.Sc. Degree in Operation Theatre and Anesthesia Technology**
- 2. B.Sc. Degree in Critical Care Technology**
- 3. B.Sc. Degree in Dialysis Technology**

Subjects – Teaching hours

Anatomy, Physiology and Lab Sciences	-	80 hours
Communication skills in English	-	80 hours
Computer Skills	-	80 hours
Principles of Management	-	30 hours

270 hours

BASIC ANATOMY

THEORY

Introduction to Anatomy

Basic Anatomical terminology``

Osteology- Upper limb – clavicle, scapula, humerus, radius, ulna
Lower limb - femur, hipbone, sacrum, tibia, fibula
Vertebral column

Thorax – Intercostal space, pleura, bony thoracic cage, ribs sternum & thoracic vertebrae

Lungs – Trachea, bronchial tree

Heart – Surface anatomy of heart, chambers of the heart, valves of the heart, major blood vessels of heart, pericardium, coronary arteries.

Skeleto-muscular system – Muscles of thorax, muscles of upper limb (arm & fore arm) Flexor and extensor group of muscles (origin, insertion, action)

Excretory system – Kidneys, ureters, bladder

PRACTICALS

Mannequins to be provided for Teaching

Osteology – Bones identification (right and left side) and prominent features and muscle attachment of the bone, clavicle, scapula, radius, ulna, humerus, femur, hip bone, sacrum, tibia, fibula.

Surface Anatomy,
Radiology, X-ray Chest PA view

PHYSIOLOGY

THEORY

1) The Cell:

- (i) Cell Structure and functions of the various organelles.
- (ii) Endocytosis and exocytosis
- (iii) Acid base balance and disturbances of acid base balances
(Alkalosis, Acidosis)

2) The Blood:

- (i) Composition of Blood, functions of the blood and plasma proteins, classification and protein.
- (ii) Pathological and Physiological variation of the RBC.
- (iii) Function of Hemoglobin
- (iv) Erythrocyte Sedimentation Rate.
- (v) Detailed description about WBC-Total count (TC), Differential count (DC) and functions.
- (vi) Platelets – formation and normal level and functions
- (vii) Blood groups and Rh factor

3) Cardio-Vascular System:

- (i) Physiology of the heart
- (ii) Heart sounds
- (iii) Cardiac cycle, Cardiac output.
- (iv) Auscultatory areas.
- (v) Arterial pressures, blood pressure
- (vi) Hypertension
- (vii) Electro cardiogram (ECG)

4. Respiratory system:

- (i) Respiratory movements.
- (ii) Definitions and Normal values of Lung volumes and Lung capacities.

5. Excretory system:

- (i) Normal Urinary output
- (ii) Micturation
- (iii) Renal function tests, renal disorders.

6. Reproductive system:

- (i) Formation of semen and spermatogenesis.
- (ii) Brief account of menstrual cycle.

7. Central Nervous system:

- (i) Functions of CSF.

8. Endocrine sytem:

Functions of the pituitary, thyroid, parathyroid, adrenal and pancreatic Hormones.

9. Digestive system (for the students of Diploma in Scope Support Technology)

- (i) Physiological Anatomy of the GIT.
- (ii) Food Digestion in the mouth, stomach, intestine
- (iii) Absorption of foods
- (iv) Role of bile in the digestion.

PRACTICAL

- 1) The compound Microscope
- 2) Determination of ESR-By westergren's method
- 3) Determination of Blood Groups.
- 4) Measurement of human blood pressure.
- 5) Examination of Respiratory system to count respiratory rate and measure inspiration and respiration

BIO-CHEMISTRY

Carbohydrates

Glucose and Glycogen Metabolism

Proteins:

Classification of proteins and functions

Lipids:

Classification of lipids and functions

Enzymes:

Definition – Nomenclature – Classification – Factors affecting enzyme activity – Active site – Coenzyme – Enzyme Inhibition – Units of enzyme – Isoenzymes – Enzyme pattern in diseases.

Vitamins & Minerals:

Fat soluble vitamins(A,D,E,K) – Water soluble vitamins – B-complex vitamins- principal elements(Calcium, Phosphorus, Magnesium, Sodium, Potassium, Chlorine and sulphur)- Trace elements – Calorific value of foods – Basal metabolic rate(BMR) – respiratory quotient(RQ) Specific dynamic action(SDA) – Balanced diet – Marasmus – Kwashiorkor

Acids and bases:

Definition, pH, Henderson – Hasselbalch equation, Buffers, Indicators, Normality, Molarity, Molality

BIOCHEMISTRY SYLLABUS FOR PRACTICALS

- 1 Benedict's test
2. Heat coagulation tests

PATHOLOGY

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

2. Inflammation.
 - General features of inflammation
 - Historical highlights
 - Acute inflammation
 - Chemical mediators of inflammation
 - Outcomes of acute inflammation
 - Morphologic patterns of acute inflammation
 - Summary of acute inflammation
 - Chronic inflammation

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

4. Infectious diseases.
 - General principles of microbial pathogenesis
 - Viral infections
 - Bacterial infections-Rheumatic heart disease.
 - Fungal infections
 - Parasitic infections

5. Neoplasia.
 - 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.

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

PRINCIPLES OF MANAGEMENT

(a): PRINCIPLES OF MANAGEMENT

Development of Management: Definitions of Management – Contributions of F.W. Taylor, Henry Fayol and others

Functions of Management: Planning – Organizing – Directing – Controlling

Planning: Types of planning – Short-term and long plans – Corporate or Strategic

Planning – Planning premises – Policies – Characteristics and sources – principles of policy making – Strategies as different from policies – Procedures and methods – Limitations of planning

Organizing: Importance of organization – Hierarchy – Scalar chain – Organization relationship – Line relationship – Staff relationship - Line staff relationship – Functional relationship - Committee organization – Management committees – Departmentation

Motivation: Motivation theories – McGregor's theory X and theory Y – Maslow's and Herzberg's theory – Porter and Lawler model of complex view of motivation – Other theories – Diagnostic signs of motivational problems – Motivational techniques

Communication: Types of communication – Barriers of effective communication – Techniques for improved communication

Directing: Principles relating to Direction process – Principles and theories of leadership – Leadership Styles – Delegation of authority

Controlling: Span of control – Factors limiting effective span of control – Super management, General managers, Middle managers and supervisors – Planning and controlling relationships – Management control process – Corrective measures – Strategic control points – Budgetary control – Types of budgets

Co-ordination: Co-ordination and co-operation – Principles of co-ordination – Techniques of co-ordination charts and records – Standard procedure instructions

(b): PERSONNEL MANAGEMENT

Objective of Personnel Management – Role of Personnel Manager in an organization – Staffing and work distribution techniques – Job analysis and description – Recruitment and selection processes – Orientation and training – Coaching and counseling – disciplining – Complaints and grievances – Termination of employees – Performance appraisal – Health and safety of employees - Consumer Protection Act as applicable to health care services

(c): FINANCIAL MANAGEMENT

Definition of financial Management – Profit maximization – Return maximization – wealth maximization – Short term Financing – Intermediate Financing – Long term Financing – leasing as a source of Finance – cash and Security Management – Inventory Management – Dividend policies – Valuations of Shares – Financial Management in a hospital – Third party payments on behalf of patients. Insurance – health schemes and policies

ENGLISH

Communication:-

Role of communication
Defining Communication
Classification of communication
Purpose of communication
Major difficulties in communication
Barriers to communication
Characteristics of successful communication – The seven Cs
Communication at the work place
Human needs and communication “Mind mapping”
Information communication

Comprehension passage:-

Reading purposefully
Understanding what is read
Drawing conclusion
Finding and analysis

Explaining:-

How to explain clearly
Defining and giving reasons
Explaining differences
Explaining procedures
Giving directions

Writing business letters:-

How to construct correctly
Formal language
Address
Salutation
Body
Conclusion

Report writing:-

Reporting an accident
Reporting what happened at a session
Reporting what happened at a meeting

BASICS OF COMPUTER

COURSE CONTENT:

Introduction to computer – I/O devices – memories – RAM and ROM – Different kinds of ROM – kilobytes, MB, GB their conversions – large computer – Medium, Micro, Mini computers – Different computer languages – Number system – Binary and decimal conversions – Different operating system – MS DOS – Basic commands – MD, CD, DIR,TYPE and COPY CON commands – Networking – LAN, WAN,MAN(only basic ideas)

Typing text in MS word – Manipulating text – Formatting the text – using different font sizes, bold, italics – Bullets and numbering – Pictures, file insertion – Aligning the text and justify – choosing paper size – adjusting margins – Header and footer, inserting page No's in a document – Printing a file with options – Using spell check and grammar – Find and replace – Mail merge – inserting tables in a document.

Creating table in 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 – Auto formatting – Inserting data from other worksheets.

Preparing new slides using MS-POWERPOINT – Inserting slides – slide transition and animation – Using templates – Different text and font sizes – slides with sounds – Inserting clip arts, pictures, tables and graphs – Presentation using wizards.

Introduction to Internet – Using search engine – Google search – Exploring the next using Internet Explorer and Navigator – Uploading and Download of files and images – E-mail ID creation – Sending messages – Attaching files in E-mail – Introduction to “C” language – Different variables, declaration, usage – writing small programs using functions and sub – functions.

PRACTICAL

- Typing a text and aligning the text with different formats using MS-Word
- Inserting a table with proper alignment and using MS-Word

- Create mail merge document using MS-word to prepare greetings for 10 friends
- Preparing a slide show with transition, animation and sound effect using MS-Powerpoint
- Customizing the slide show and inserting pictures and tables in the slides using MS-powerpoint
- Creating a worksheet using MS-Excel with data and sue of functions
- Using MS-Excel prepare a worksheet with text, date time and data
- Preparing a chart and pie diagrams using MS-Excel
- Using Internet for searching, uploading files, downloading files creating e-mail ID
- Using C language writing programs using functions