

GURUKUL EDUCATIONAL AND RESEARCH INSTITUTE

DIPLOMA IN CARDIAC THEATER TECHNICIAN

Subject and Syllabus



2022-23

Syllabus

DIPLOMA IN CARDIAC THEATER TECHNICIAN

DURATION:- 2YEARS

1st YEAR

Basics of Anatomy & Physiology

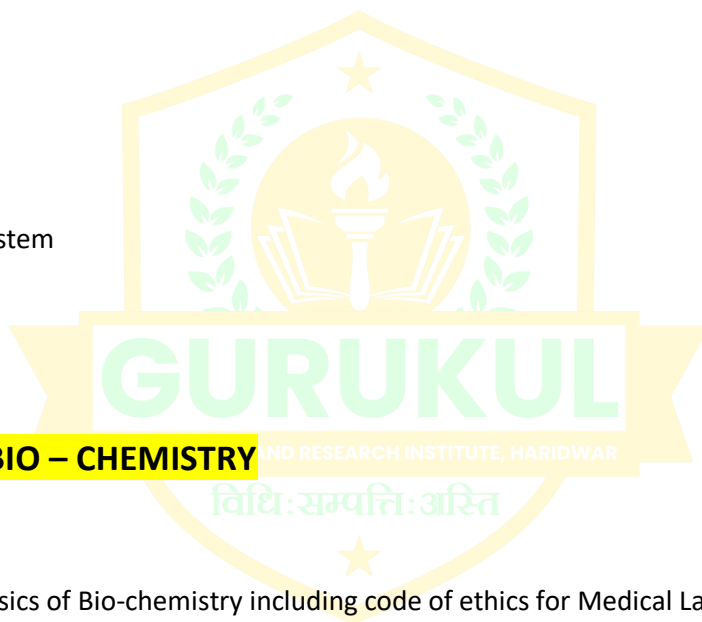
476 BASICS OF ANATOMY

1. Introduction to Human Anatomy
2. Cell- Tissues Properties, Different Tissues
3. Digestive System & Hepatobiliary System
4. Respiratory System
5. Cardio Vascular System
6. Lymphatic System
7. Bones and Joints
8. Nervous System
9. Endocrine System
10. Sense Organs
11. Excretory System
12. Reproductive System



477 BASICS OF PHYSIOLOGY

1. Introduction to Human Physiology
2. Blood
3. Cardio Vascular System
4. Lymphoid System
5. Digestive System
6. Respiratory System
7. Nervous System
8. Endocrine System
9. Excretory System
10. Reproductive System
11. Sense Organs



478 BASICS OF BIO – CHEMISTRY

1. Introduction to Basics of Bio-chemistry including code of ethics for Medical Lab Technicians and Medical Lab Organization.

2. Reception, Registration and bio-chemical parameters investigated.

3. Glassware and plastic ware used in a bio-chemical laboratory.

a. Glassware:

1) Types of glass and composition.

2) Types of glassware used, their identification, application & uses.

3) Cleaning, drying, maintenance and storage of glassware.

b. Plastic ware: Brief outline

4. Instrumental methods of Bio-chemical analysis.

- Colorimetry : Visual and photoelectric methods, instrumentation, principle & laws involved construction, operation, care and maintenance, applications.
- b. Spectrophotometry Principle and theory, types, construction, & applications

5. Basic lab operations like

a. Separation of solids from liquids

- Centrifugation: Principle, Different types of centrifuges care and maintenance, applications.
- Filtration using funnel.
- Weighing : Different types of balances used, care and maintenance.
- Evaporation
- Distillation
- Refluxing
- Drying different salts and dessication.

6. Water Chemicals and related substances

- Purity of chemicals
- Corrosives
- Hygroscopic Substance

7. Prevention, Safety and first aid in lab accidents.

8. Collection of Specimens

- Blood: Types of Specimens, Collection, Precautions during collection processing and preservation.
- Urine: Types of Specimens, Collection, Precautions during collection, Processing and Preservation.

9. Urine biochemical parameters.

10. Units of measurements

11. Solutions : Types based on solute and solvent, Types based on method of expressing concentration, calculations.

12. Carbohydrates: Definitions, Biological importance, Acid value, iodine value, saponification value.

13. Amino acids and Proteins Definition, Biological importance, Classification, Qualitative tests.

14. Diagnostic tests : Blood sugar, Glucose tolerance test, Blood urea, Serum uric acid, Serum creatinine.

15. Vitamins and Minerals

- Vitamins: Water Soluble vitamins, Fat Soluble vitamins, Sources, Daily requirements, Deficiency diseases.
- Minerals : Sources, Daily requirements, Deficiency diseases.

Paper-II

479 BASICS OF PATHOLOGY

Introduction to Pathology in brief

1. **Urine** – Analysis – Physical Examination – specific gravity PH, reaction, colour.

Chemical Examination – Sugar Albumin

bile salts

bile Pigments etc.

Microscopic

Sediment for RBC

WBC

Epitheleal cells

Casts

Crystals

parasites.

Preparation of Reagents, procedure and principle of tests.

2. **Sputum Analysis** – Physical Examination, Preparation and staining smear for Microscopic Examination.

3. **Semen Analysis** – Physical Examination Microscopy – counting, motility, staining, Morphology, abnormal and normal forms

4. **Body Fluids** – Differential count of Peritoneal, pericardial, pleural fluids and CSF, charging chamber, Identifying and counting the cells.



480 BASICS OF MICROBIOLOGY

Introduction to Microbiology in brief

Definition

II. Microscopy

a) Principle working and maintenance of compound Microscope.

b) Principle of Fluorescent microscope, Electron Microscope, Dark Ground Microscope History

History Types of Microscope:

(a) Light Microscope,

(b) DGI,

(c) Fluorescent,

(d) Phase contrast.

(e) Electron Microscope :

a). Transmission,

b) Scanning, Principles of operational mechanisms of various types of Microscopes.

III. Sterilization and disinfection –

classification and Methods of sterilization. Sterilization: Definition, types and principles of sterilization methods:

(a) Heat (dry heat, moist heat with special reference to autoclave,

(b) Radiation,

(c) Filtration, efficiency testing to various sterilizers.

Antiseptics and Disinfectants :

Definition, types and properties, mode of action, uses of various disinfectants, precautions while using the disinfectants, qualities of a good disinfectants, testing efficiency of various disinfectants.

1) Principle and Methods of sterilization by heat

a) By Dry Heat, flaming, Red Heat, Hot air oven, incineration.

b) By Merit Heat-pasteurization, Inspissation, tyndalisation, autoclave

2) Filtration Methods

3) Ionising Radiation – Disinfection, Mode of action and uses of important chemical disinfections – Phenol and Phenolic compounds, alcohols, halogens, dyes and acids and alkalies.

4) Gaseous Methods of sterilization.

IV. Cleaning, drying & Sterilization of Glassware disposal of contaminated material i.e. clinical infective material inoculated culture media. Handling and Disposal of Biomedical waste.

V. Biomedical waste management in a Microbiology Laboratory : types of the waste generated, segregation, treatment, disposal.

VI. Morphology and classification of Bacteria Sp. of cell, capsule, flagella, spore, Anaerobic Methods of cultivation of Bacteria.

Paper-III

A. Hospital Awareness

A brief idea of hospital as an organization management different units of a hospital effective communication skills, communication channel

Maintenance of records

Effective leadership

General patient care

Medical terminologies

Vital signs

Unit preparation

Transporting & Transferring patients

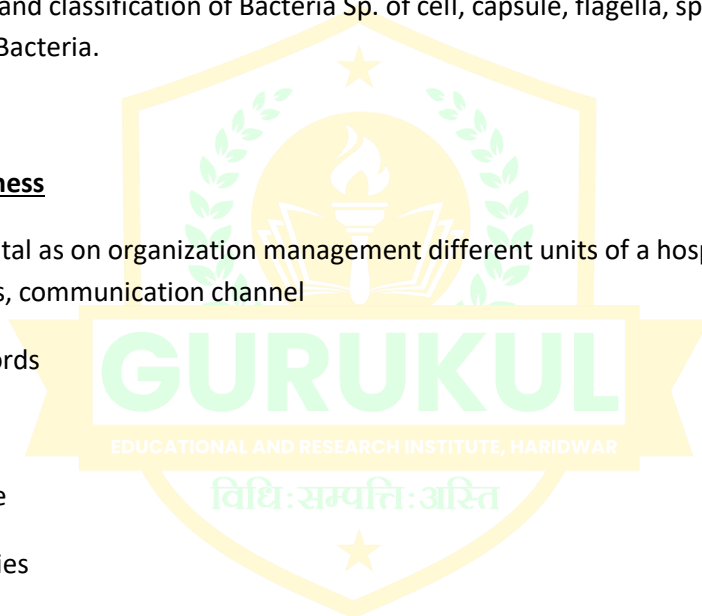
Sterilization Techniques

Control of infection

Medication – Oral & parenteral

Admission – Discharge procedure Bandages

Practicals : Posted in ward & taught clinically



A. Surgical Department

Familiarization of different tubes

- Drainage tube
- Post Operative Exercises
- Post OP Management of Patient
- Shock of Management
- Changing Surgical Dressing.
- Preoperative preparation of patient
- Preanesthetic preparation
- Assisting in operation
- Anaesthesia
- CSSD
- Recovery room
- Movement of papers
- Scheduling of theaters
- Supplying of articles
- Specific area practices
 - As scrubnurse
 - As circulating nurse

D).Communication and Computer Skills, Audio & Visual Aids.

COMMUNICATION:

Process

Types of communication

Strategies for effective Communication

Barriers of communication

SOFT SKILLS :

Presentation with the use of visual aids such as

power point

Conversation

Extempore speech, usage of effective language

for communication of health work.

Case studies and situational analysis

Survey and Reporting

COMPUTER :

Computer basic

MS – Office

MS – Word

MS – Excel

MS – Power Point

INTERNET CONCEPTS:

Browsing Down-

Loading Use of Slide Project

