

II semester

MICROBIOLOGY

SYLLABUS FOR BSc AHS

Objectives: The syllabus in Microbiology is designed as to give the students a thorough knowledge in basics of Medical Microbiology.

Theory:

- 1) A brief introduction to Microbiology, eminent personalities in Microbiology and importance of this subject in Medical field.
- 2) Microscopes, staining techniques and morphology of bacteria
- 3) Sterilization
- 4) Disinfection.
- 5) Different culture media used in Microbiology with different culture methods-Aerobic and Anaerobic
- 6) Immunity
- 7) Antigen antibody reactions
- 8) Hypersensitivity reactions.
- 9) Common bacteria causing human infections-wound infection and Respiratory tract infections
- 10) Urinary tract infections and Diarrheal diseases.
- 11) Blood stream infections and Meningitis.
- 12) Tuberculosis.
- 13) Hospital acquired infections
- 14) Basic concept of biomedical waste disposal, segregation and treatment
- 15) Concept of Universal Precaution.
- 16) Introduction to virology- Polio , Rabies and Dengue
- 17) Hepatitis Virus.
- 18) HIV virus.
- 19) Important parasitic infections- Amoebiasis, Malaria, Round worm, Hook worm, Filariasis
- 20) Important fungal infections.

PATHOLOGY- Syllabus

Aims:

- Should have a general understanding of the organisation routine functioning and operational standards of laboratories.
- Should be aware of the role of the laboratory in patient care, and realize the importance of team building, together with technology evolution.
- Should be familiar with specimen collection procedures and aware of pre analytical, analytical, analytical, and post analytical stages of processing of specimens and errors which can occur at each of these stages.
- Should be familiar with principles of equipment maintenance, principles of laboratory safety and medico legal concerns.
- Should be introduced to the concept of quality assurance.

Pathology -Theory:

1. Knowledge of lab organization, reporting and recording procedures.
2. Ethics of laboratory practice, confidentiality of reports. Medico legal aspects of record
3. keeping
4. Method of collection transport, packing and storing of specimens, the concept of pre
5. analytical, analytical and post analytical stages
6. Importance of labeling and identification.
7. Concept of universal precautions, biohazard.
8. Handling of waste , waste segregation and management including disposal
9. Laboratory accidents, prevention, first aid.
10. Stores supplies, indenting shelf life, grades of chemicals.
11. Composition of blood normal values, and normal morphology.
12. Different types of blood samples.
13. Anticoagulants, mechanism of action and uses.

14. Collection , transport, preservation and processing of various clinical specimens
15. Urine examination- collection and preservation, Physical, chemical and microscopic examination for abnormal constituents
16. Examination of Body fluids
17. Examination of Cerebrospinal fluid (CSF)
18. Sputum examination
19. Examination of feces
20. Principles and methods of ensuring of quality assurance in the laboratory.

Demonstration:

1. Venipuncture and collection of blood samples
2. Preparation of blood films
3. Staining of blood smears
4. Urine analysis- Physical, Chemical, Microscopic
5. Blood grouping and Rh typing

Biochemistry

AIM& OBJECTIVE:

- ▶ To study about the basis of biochemistry, biophysical aspects of biochemistry, instruments, hazards and safety measures in biochemistry laboratory.

THEORY:

1.Introduction-Scope of biochemistry and clinical biochemistry objectives and scheme of clinical biochemistry teaching

2.Ethics and discipline: laboratory ethics and discipline, importance of patients and patients management

3.Hazards and safety: physical, chemical and biological hazards in clinical biochemistry laboratory.

Awareness, responsibility, measures and equipment of laboratory safety.

Prevention, communication and control of laboratory hazards.

Different ways of disposal of laboratory waste (hazardous material)

Different first aid measures to be taken immediately after accidents.

4.BASIC BIOCHEMISTRY: Biochemical organization of the cell, tissues, organs and human organism

5. BIOPHYSICAL ASPECTS OF BIOCHEMISTRY-theory of acids and bases, ionization of acid, dissociation of water, hydrogen ion concentration, pH dissociation of weak acid, buffer solution, determination of pH titration using indicators.

6. CARBOHYDRATES: Chemistry, classification, physical and chemical properties biological importance of carbohydrates

7.PROTEINS:classification of aminoacid, classification of proteins, properties of aminoacids and proteins, biological importance of proteins, and hydrolytic products of proteins

8. LIPIDS:classification of fatty acid, classification of lipid ,properties, biological functions, biological importance of phospholipids and steroids

9.NUCLEOPROTEINS:Purine and pyrimidine, nucleoside, nucleotide, nucleic acids, structure of nucleic acid, biological importance of nucleotides

10.General overview of Vitamins: RDA, Sources & deficiency manifestations

11. General over view of Minerals: RDA, Sources & deficiency manifestations

12.Valency, Molecular weight & Equivalent weight of elements and compounds. Normality, Molarity, Molality.

PRACTICAL DEMONSTRATION

- Analytical balance - Weighing of chemicals to prepare standard and different types of solutions. Care while weighing acids, deliquescent and hygroscopic compounds.
- Colorimeter- Absorbance readings of a colored solution and graphing
- pH meter- Checking pH of urine and buffer

PHARMACOLOGY SYLLABUS

General pharmacology

CLASS 1: Definition of drug & sources of drug & drug information.

CLASS 2: Drug dosage forms- Oral forms & Labelling of drugs.

CLASS 3: Parenteral & Topical Dosage forms.

CLASS 4: Routes of Drug administration.

CLASS 5: Absorption of drug.

CLASS 6: Distribution ,

CLASS 7 : Metabolism of drugs

CLASS 8 : Excretion

CLASS 9: Factors modifying drug action.

CLASS 10: Mechanism of Action, Adverse Drug Reaction & Pharmacovigilance.

CLASS 11: Pharmacodynamics

CLASS 12: Drug development & Drug interaction.

CLASS 13: Autonomic Nervous System

CLASS 14: Gastrointestinal Tract

CLASS 15: Respiratory System

CLASS 16: Local & General Anaesthetics

CLASS 17: Histamine & Antihistamine, Prostaglandins

CLASS 18: NSAID

CLASS 19: Anti hypertensive drugs.

CLASS 20: Antibiotics I & Antibiotics resistance.

CLASS 21: Antibiotics II

CLASS 22: Blood

CLASS 23: Insulin & Oral Hypoglycemic Drugs

CLASS 24: Vitamins, Iron, Calcium, Toxicology

CLASS 25: Diuretics

CLASS 26: Sedative hypnotics

CLASS 27: Miscellaneous

ENGLISH & COMMUNICATION SKILLS

ENGLISH

Unit I : Basic English

Review of Grammar o Sentence formation oBuilding Vocabulary o Phonetics

Unit 2: Writing Skills:

ParagraphWriting, Letter Writing, Notes Taking, Report Writing, Applying for job, Covering Letter, Resume / CV preparation

Unit 3: Listening Skills:

Types of Listening (theory /definition) Tips for Effective Listening Academic Listening-(lecturing) Listening to talks and presentation

Unit 4: Spoken English

- Oral Report
- Discussion
- Debate
- Telephone conversation

Reading purposefully Understanding what is read Drawing conclusion Finding and analysis

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

Unit V: Listening Comprehension

- Media, audio, video, speeches etc.

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

INTRODUCTION TO COMPUTERS

SYLLABUS:

INTRODUCTION TO COMPUTERS

UNIT I: INTRODUCTION

Computer basics- Types of computers – hardware components – input devices– output devices – storage devices – memory – units and sizes – factors affecting performance – operating systems – applications software – networking – LAN and WAN – Accessories - backup – computer virus – software copyright.

UNIT II: WORD PROCESSING

Windows – Office automation – WORD processor – open a new document – toolbars – menus – font dialog box – enter text –scroll –spelling checker – Autocorrect – undo and redo –bullets and numbered lists – indenting – moving and copying – find and replace – autosshapes - saving document – preview and print .

Unit III: ELECTRONIC SPREADSHEET AND DATA PRESENTATION

EXCEL spreadsheet – grid of rows and columns - active cell – selecting range – entering data – editing data – row and column labels – adjusting width –creating and copying formulae – relative– logical functions – lookup function – creating chart – bar chart – pie chart - print and save.

POWERPOINT presentation – creating slide shows – building outline – switching levels in outline – adding pictures – slide designs – design templates –formatting –color scheme – customized backgrounds – inserting content – hyperlink – revolution in education.

Unit IV: DATABASE MANAGEMENT SYSTEM

ACCESS database– concept – template – primary key – records and fields – Student roster database – input mask – adding records – viewing data – updating entries – searching and querying – sorting – Table, forms and reports.

Theory: 30 hours Practical: 30 hours

UNIT V: APPLICATIONS IN HEALTH CARE AND MEDICINE

INTERNET – e-governance – access to information –communication facility – mechanics of E-mail - social transformation– electronic billing – drug information – information flow in lab and radiology - storage of medical records – networking the organization– patient care - intelligent monitoring – scholarly information –health informatics – robotic assisted surgery – Clinical decision support systems –Telemedicine -use of search engines