RECOMMENDATIONS OF THE COMMITTEE FOR B.Sc Allied Sciences

CURRICULUM OF B. Sc ALLIED SCIENCES (1st Year)

Syllabus B.Sc. Allied Health Sciences (common for all courses)

Schedule for the first year (common for all courses)

1. **Duration of the Course:** Duration of the entire course shall be for a period of 4 years including one year of Internship

2. **Medium of Instruction:** The medium of instruction and examination shall be in English.

3. **Scheme of examination:**

There shall be three examinations, one each at the end of 1st, 2ndand 3rd Year.There shall be University theory examinations at end of each year. There shall be no University Practical Examination in First Year but University Practical examinations will be conducted after 2nd and 3rd year.

4. **Attendance**

Every candidate should have attended at least 80% of the total number of classes conducted in an academic year from the date of commencement of the term to the last working day as notified by University in each of the subjects prescribed for that Year separately in Theory and practical. Only such candidates are eligible to appear for the university examinations in their first attempt. Special classes conducted for any purpose shall not be considered for the calculation of percentage of attendance for eligibility. A candidate lacking in prescribed percentage of attendance in any subjects either in Theory or practical in the first appearance will not be eligible to appear for the University Examination in that subject.

5. Internal Assessment (IA):1st Year B.Sc.

Theory - 20 marks
Total : 20 marks

There shall be a minimum of two tests, preferably first one in first term and the second one before the University examination (Pre-final examination) in Theory of each subject in an academic year. The average marks of the two tests will be calculated and reduced to 20. The marks of IA shall be communicated to the University at least 15 days before the commencement of the University examination. The University shall have access to the records of such periodical tests. The marks of the internal assessment must be displayed on the notice board of the respective colleges within a fortnight from the date test is held. If a candidate is absent for anyone of the tests due to genuine and satisfactory reasons, such a candidate may be given a re-test within a fortnight.

Professor of ENT
Osmania Medical College
Govt. ENT Hospital, Koti, Hyd

Dr. T. SHANKAR M.S
Professor of E.N.T
CHAIRMAN B.O.S
(B.Sc. Allied Health Sciences)
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6. Subject and hours for Theory and Practical

S No	Subject	Number of hours of teaching (Practical and theory)
Allied subjects to be completed in first 6 months		
1	English	25
2	Community Medicine & Medical Ethics	25
3	Principles of Nursing	15
4	Medical Records	10
CoreSubjects to be completed in first 12 months		
1	Anatomy including Histology	75
2	Physiology	75
3	Biochemistry & Microbiology	75
4	Pathology (Clinical Pathology, Haematology& Blood Banking)	75
5	Microbiology	75
	Total Hours	**450**

7.Teaching Schedule:

S No	Academic Year (12 months)	Timings	
			Theory Classes
1	First year	9:00 AM – 4:00 PM	

8..Pattern of Examination – Common subjects for all the specialties during the first year

Academic Year	Subjects			
	Allied	**Core**	**Theory**	**Practical Exam**
First Year	English	Anatomy including Histology	One paper in each subject	No Practical Exam
	Community Medicine & Medical Ethics	Physiology		
	Principles of Nursing and Medical Records	Biochemistry		
		Microbiology		
		Pathology		
	Exams at the end of first term	Exams at the end of		

Professor of ENT
Osmania Medical College
Govt. ENT Hospital, Koti, Hyd

Dr. T. SHANKAR M.S
Professor of E.N.T
CHAIRMAN B.O.S
(B.Sc. Allied Health Sciences)
KNRUHS, WARANGAL.

	(6 months)	the year		

9.Periodicity of the Examination–There shall be only two examinations in each academic year. The annual examination shall be held at the end of each academic year, with the exit examination being conducted in the third year.Supplementary examination will be held in the middle of each academic year, not earlier than four months and not later than six months of the main exam.

10. Distribution of marks – All Subjects:

		Written Exam		IA Theory	Total
Paper	**Subject**	**Duration (Hours)**	**Marks**	**Marks**	**Marks**
	Main Subjects *				
1	Basic Anatomy (Including Histology)	3	80	20	100
2	Physiology	3	80	20	100
3	Biochemistry	3	80	20	100
4	Pathology	3	80	20	100
5	Microbiology	3	80	20	100
	Subsidiary Subject**				
1	English	3	80	20	100
2	Community Medicine & Medical Ethics	3	80	20	100
3	Principles of Nursing and Medical Records	3	80	20	100
		University Theory Exam		Internal Assessment	
		(Min 50%)		(Min 50%)	

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KNRUHS, WARANGAL.

Note: I A = Internal Assessment

*Main Subjects shall have University Examination. There shall be no University Practical Examination

**Subsidiary subjects: Examination for subsidiary subjects shall be conducted by respective colleges.

ENGLISH

Total Teaching hours: 25

Unit1.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.

Unit2.Comprehension passage

Reading purposefully, understanding what is read, Drawing conclusion, Finding and analysis.

Unit3.Explaining

How to explain clearly, Defining and giving reasons, explaining differences,explaining procedures and Giving directions.

Unit4.Writingbusinessletters

How to construct correctly, Formal language, Address, Salutation, Body, Conclusion.

Unit5.Report writing: Report an accident

Reporting what happened at a session

Unit6.Reportingwhathappenedatameeting

Unit 7. Language activity

Syllable division, Precis–Writing, Common errors, Expansion of proverbs, Resume writing, One-word substitutes

Unit8.Grammar

Recommendedtextbook

1. Paths to skills in English. Orient Blackswan. Sundaravalli, AS. Kamalakar et al.
2. English Grammar in use. Raymond Murphy. Cambridge University Press.
3. Practical English Usage by Michael Swan 20

Dr. T. SHANKAR M.S
Professor of E.N.T
CHAIRMAN B.O.S
(B.Sc. Allied Health Sciences)
KNRUHS, WARANGAL.

Professor of ENT
Osmania Medical College
Govt. ENT Hospital, Koti, Hyd

COMMUNITY MEDICINE

Total teaching hours: 20

Unit1.Concepts of health and disease

- Dimensions and determinants of health.
- Indicators of health.
- Health service philosophies.
- Concept of disease, its causation and natural history.
- Concept of disease control and prevention.
- Disease classification.

Unit2. Principles of epidemiology and epidemiological methods

Unit 3. Infectious disease epidemiology, Dynamics and Model of transmission of disease.

Unit 4. Health programmes in India

- Malaria, TB, AIDS, Universal immunisation programme, minimum needs programme

Unit 5.Disinfection

- Common infections, Disinfection, Disinfestations and Sterilization at the health centre level.

Unit 6.HospitalWasteManagement

- Hazards of health care waste
- Disposal of wastes in Hospital and Primary Health Centre

Unit 7.Healthservices

- Brief description of organization of health services at the centre and state levels.

Unit 8.PrimaryHealthCare

- Definition, components and principles of primary health care.
- Millennium Development Goals.
- Primary Health Centre -The functions, staffing pattern and the role of paramedical in primary Health Centre.

Unit 9.NutritionalHealth

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- Vitamins and Minerals protein Energy malnutrition obesity & Nutritional Assessment.

Unit 10.Epidemiology of Communicable and Noncommunicable disease polio, measles

Unit11.Demography&Populationcontrol

- The factors influencing population growth, death-rate,birth-rate, Age pyramid and methods of contraception.
- Sources of Health information – Census, SRS

Unit12.Environmentalsanitation

- Water borne diseases, Methods of water purification and disinfection, collection of water samples, their transport and bacteriological analysis
- Air pollution
- Noise pollution
- Radiation and hazards
- Methods of excreta disposal and solid waste disposal.

Recommendedtextbook

1. Park's text book of Preventive and social Medicine – Latest edition

MEDICAL ETHICS

Total teaching hours: 5

Unit1.Introductiontomedicalethics

- What's special about medicine?
- What's special about medical ethics?
- Who decides what is ethical?
- Does medical ethics change?
- Does medical ethics differ from one country to another?
- The role of the WMA
- How does the WMA decide what is ethical?
- How do individuals decide what is ethical?

Unit2. Major principles of medical ethics.

Unit 3.Perspective of medical ethics

- The Hippocratic oath
- The Declaration of Helsinki
- The WHO Declaration of Geneva, International code of Medical Ethics (1993)
- Medical Council of India Code of Ethics (2002)

Unit4.Ethicsoftheindividual

- The rights of the patient
- Truth and confidentiality

Professor of ENT
Osmania Medical College
Govt. ENT Hospital, Koti, Hyd

Dr. T. SHANKAR M.S
Professor of E.N.T
CHAIRMAN B.O.S
(D.Sc. Allied Health Sciences)
KNRUHS, WARANGAL.

- The concept of disease, health and healing
- The right to health and responsibilities of individuals

Unit5.Theethicsofhumanlife

- Beginning-of-life issues
- Pre natal sex determination
- The family and society in medical ethics
- Euthanasia, cancer and terminal care. Death and dying. Use of life-support systems, the right to die with dignity
- Suicide–theethical outlook.
- Communication and consent,
- Decision-making for incompetent patients
- Confidentiality

Unit6. Ethics in relation to society, colleagues and research

- Contract and confidentiality, malpractice and negligence
- Increasing the awareness and knowledge of students of the value dimensions of interactions with the patients, colleagues, relations and public.
- Dual loyalty, Resource allocation. Professional Ethics.Respect and equal treatment
- Relationships with physician colleagues, teachers andstudents. Relationships with other health professionals. Cooperation. Conflict resolution
- Reporting unsafe or unethical practices.
- Dutiesandresponsibilities of the technologists.

PRINCIPLES OF NURSING

Total teaching hours: 15

Unit I. Health care

- Health care services, promotive, preventive, Curative & rehabilitative services
- Health care infrastructure - primary, secondary and tertiary level

Unit 2. Hospital

- Functions, Departments - OPDs Wards ICUs, OT & Labs
- Health Team - Members and their functions
- Communication among health team members
- Categories of nursing personnel and their roles
- Hospital Admission and Discharge
- Documentation and Reporting

Unit 3. Health Assessment

- Health History
- Physical Examination - inspection, palpation
- Percussion & Auscultation
- Vital signs (Temperature, Pulse, Respirations & Blood pressure)

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- Nutritional Assessment

Unit 4. Concept of asepsis

- Medical Asepsis
- Surgical Asepsis
- Infection Control

Unit 5. Administration of Medication

- Purposes, Broad Classification & Forms of Drugs
- Storage & Maintenance of Drugs
- Routes of Administration

Unit 6. Mobility & Immobility

- Body Alignment, Comfort Devices & Positions

Unit .7 Communication & Health Education

- Types, Process Elements and Skills of communication.
- Communication with patient and family members

Recommended text books

1. Kozier and Erb's Fundamentals of Nursing. Audrey Berman et al. Pearson.
2. Principles and Practice f Nursing. SR Nancy. NR publishing house.

ANATOMY

Total Teaching hours: 75

Unit1.HumanBodyasawhole

Definition of anatomy,List the sub-divisions of anatomy, Anatomical terms of location and position of various parts and organs in the human body, Fundamental planes of the body, Levels of organization of human body, Structure of cell, Basic Tissues of the body-classification and preparation of tissue for observation under microscope–describe properties of various basic tissues of the body with examples–Epithelial tissue, connective tissue, muscular tissue, nervous tissue along with illustrations of histological slides of basic tissues.

Unit2.Locomotor System

Classification of different types and description of different parts of bones, Identification of major bones and their parts, Classification of various types of joints, Understanding blood supply of a longbone, Description of asynovial joint, Classification of different types of synovial joints with type of movements and examples and Classification different types of muscles. Names of muscles as functional groups, Important muscles in the body - Trapezius, Deltoid, Pectoral is major, Gluteus maximus, Hamstring muscles, Soleus, sternocleidomastoid, oblique muscles of abdomen, muscles of tongue,scapular muscles, Description of Axilla, cubital fossa, popliteal fossa, Triangles of neck, Flexor and Extens or Retinaculum, Palmarand Plantar Apo neurosis. Description of Articular surface, Ligaments, Relations, Blood supply, Nerve supply, Movements and Clinical Anatomy of Shoulder

Professor of ENT
Osmania Medical College
ENT Hospital, Koti, Hyd

Professor & HOD
CHAIRMAN B.O.S
(B.Sc, Allied Health Sciences)
KNRUHS, WARANGAL.

joint, Elbow Joint,Wristjoint,1stcarpo-metacarpaljoint, HipJoint, Knee Joint, Ankle Joint along with Illustrations- major bones, important muscles, and joints.

Unit3.Nervous System

Description of the parts of nervous system, Structure of nervous tissue, Spinal cord-coverings, extent, general features, sub-divisions, structural organization of grey matter and white-matter, Blood supply, Formation of tracts–Posterior column, pathway, pyramidal tract and their clinical importance, Injuries to spinal cord, Brainstem–components, Blood supply, important functional components and effect of their injury, Cerebellum–location, parts, functional subdivisions, connexions, blood-supply and functional importance, Cerebrum–surfaces, poles, lobes, bloodsupply, sulci, gyriand important functional areas and their clinical importance, Thalamus, hypothalamus, basalganglia, corpus striatum, hippo campus and amygdale–their location and function, Cranial nerves–names, location of nucleus and the functional components, Spinal nerves– Course of a typical spinal nerve, Formation of plexuses–brachial, lumbar–important nerves of upper-limb, lower limb with Illustrations–Brain, spinal cord and their sections.

Unit4.Circulatory System

Description of circulatory system. Pulmonary, portal and systemic circulations. Structure of cardiac muscle, blood vessels. Thoracic cavity–Bonycage, muscles–inter-costal muscles, diaphragm. Mediastinum–sub-divisions,contents. Heart-coverings,externalfeatures,chambers,bloodsupply, nervesupply. Major arteries of upper limb, lower-limb,head and neck, abdomen and pelvis. Important veins–superior and inferior venacava, portal-vein, veins of upper limb and lower limb- varicose veins and their importance. Lymphatic system–components,Describe in brief anatomy and microscopic structure of lymphoid organs–lymph node ,tonsil, thymus, spleen, thoracic duct with Illustrations - thoracic cavity, media-stinum, heart, major vessels, lymphoid organs.

Unit5.RespiratorySystem

Describe the parts of respiratory system. Nasal cavity, para nasal air sinuses, nasal septum, lateral wall of nose. Pharynx–extent,sub-divisions,muscles.Larynx–cartilages,muscles,parts, nerve supply. Trachea and bronchial tree–extent, measurements, histological structure of trachea–subdivisions of bronchial tree–broncho-pulmonary segments and their clinical importance. Pleura–types, reflections, recesses. Lung–location, relations,lobes,fissures, surfaces. Illustrations –Cut section of head & neck, trachea, lungs.

Unit6.Digestive System

Describe the abdomen–quadrants, musculature of wall, Formation in guinal canal, rectuss heat hand theirimportance.Componentsofdigestivesystem.Mouth-Tongue,palate–Structureoftongue. Salivaryglands–parotid,sub-mandibular–Briefanatomyandstructure.Stomach–position,parts,blood-supply, nerve supply, lymphatic drainage, relations, structure. Small-intestine–sub-divisions, micro-scopic structure. Large intestine in general-sub-divisions,microscopicstructure.Specific –caecum and appendix. Accessory organs of digestive system– Liver, pancreas, extra hepatic biliary apparatus-Gross features, relations, blood supply, microscopic structure. Illustrations of abdominal wall, inguinal canal, various organs of digestive system.

Unit7.ExcretoryandReproductiveSystems

Professor of ENT
Osmania Medical College
Govt ENT Hospital, Koti, Hyd

Dr. T. SHANKAR M.S
Professor of E.N.T
CHAIRMAN B.O.S
(I.Sc. Allied Health Sciences)
KNRUHS, WARANGAL.

Describe the parts of excretory system. Kidney–Gross anatomy and microscopic structure.Ureter, urinary bladder and urethra–gross anatomy in brief. Male reproductivesystem–parts–external genitalia–Testis and duct system in detail. Female reproductive system-parts–external genitalia –Ovaries and duct system in detail. Accessory organs of reproduction–prostate gland, mammary gland-gross anatomy and their structure. Illustrations–urinary system, reproductive system of male and female.

Unit8.Endocrine System

List the endocrine glands and their location. Thyroid and parathyroid glands–location, relations, blood supply, functions, clinical importance. Pituitary gland – location, parts, relations, blood supply, functions, clinical importance. Suprarenal gland-location, parts, relations, blood supply, functions, clinical importance -Illustrations – Demonstration of Thyroid, Pituitary, supra renal glands.

Recommendedtextbook

1. B.D. Chourasia –General Anatomy.

ReferenceBooks

1. PR Ranganath, Suruchi Singhal, Leelavathy N, Vani Vijay Rao, Roopa R-Basics in Human Anatomy For BSc paramedical Courses, Jaypee publishers.

PHYSIOLOGY

Total Teaching hours: 75

Unit1.General Physiology

The structure and function of cell, Cell structure and functions, Transport across membranes, Body water and bloody fluids.

Unit2.Blood and BodyFluids

Composition and functions of blood, Plasma proteins, Erythrocytes–morphology and functions, Platelets-morphology and functions, Blood groups, Coagulation of blood, the immune system.

Unit3.Nerve Muscle Physiology

Nerve structure and function, classification of nerve fibres, Mechanism of impulse formation and conduction. Muscles-classification, structure, Neuro muscular junction,Musclecontraction–mechanism, types.

Unit4.DigestiveSystem

Physiological anatomy of gastro intestinal tract, physiology of salivary secretion, mouth and oesophagus, the stomach, pancreas, l iver and gall bladder, small intestine, large intestine, digestion and absorption. GIT hormones.

Unit5.Cardiovascular system

Professor of ENT
Osmania Medical College
Govt. ENT Hospital, Koti, Hyd

Dr. T. SHANKAR M.S
Professor of E.N.T
CHAIRMAN B.O.S
(3.66: Allied Health Sciences)
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Physiological anatomy of the heart, properties of the cardiac muscle, cardiac cycle, Electro cardio gram, principles of circulation Heartrate, arterial pressure, cardiac output, cardio vascular regulatory mechanisms, regional circulation. Effect of exercise on CVS &respiration.

Unit6.Skin

Structure of sweat glands; temperature regulation.

Unit7.Excretory System

Physiological anatomy of the kidney mechanism of formation of urine, renal clearance, counter current mechanism, regulation of volume and concentration of the body fluids, physiology of micturition, kidney function tests.

Unit8.Endocrine System

Posterior pituitary hormones and their actions, Hypo thalamohypophyseal inter-relationship, Diabetes Insipidus. Anterior pituitary hormones and their functions. Dwarfism, gigantism, acromegaly. Thyroid hormones, bio synthesis and functions. Cretinism, Myxoedema, Goitre and Grave's disease. Parathyroid hormones, functions, tetany. Insulin, glucagon actions and diabetes mellitus. Adrenal medullary hormones and their actions. Adrenal cortex hormones and their functions.

Unit9.Reproductive System

Male reproductive organs-spermatogenesis and testosterone actions. Female reproductive organs-menstrual cycle, ovarian, uterine.Cervical,vaginalandbreastchanges,hormonalcontrol.Contraceptive methods of couple (rhythm method). Male and female contraceptivemethods.

Unit10.Respiratory System

Structure of upper and lower respiratory tract. Muscles of respiration and mechanism of Respiration. Lung volumes and capacities–definitions, normal values intra pulmonary and intra pleural pressures, surfactants Oxygen transport, Carbon-di-oxide transport. Nervous and chemical regulation of respiration Hypoxia, cyanosis and artificial respiration.

Unit11.Nervous System

Structure of neurons .Properties of neurons (excitation and conduction).Synapses and synaptic transmission, reflexes and properties of reflexes. Sensory endings and sensory mechanisms Spinal cord-pathways in the spinal cord. Brainstem, thalamus, basalganglia, cerebellum, cortex and reticular formation. Cerebro spinal fluid.Contro lof posture and control of voluntary motor activity Autonomic nervous system.

Unit12.Special Senses

Vision, Audition, olfaction, gustation and vestibular apparatus.

Recommended textbook

1. Basics of Medical Physiology By Dr.D.Venkatesh.

Reference Books

1. Text book of Human Physiology Dr.D. Venkatesh.
2. Text book of physiology Prof AK Jain.

Professor of ENT
Osmania Medical College
Govt. ENT Hospital, Koti, Hyd

Dr. T. SHANKAR M.S
Professor of E.N.T
CHAIRMAN B.O.S
(B.Sc. Allied Health Sciences)
KNRUHS, WARANGAL.

BIOCHEMISTRY

Total Teaching hours: 75

Unit1.H+,Acids, Bases, Buffers

Equilibrium constant, dissociation of water, H+concentration, pH, acids-strong and weak, bases, titration behaviour, Henderson-Hassel back equation, buffers, pH measurement, physiological buffers.

Unit2.Membrane and Cell

Organelles, functions, membrane structure, transport across membranes, ionophores, membrane proteins, transporters.

Unit3.ChemistryofCarbohydrates

Classification, important monosaccharide's, stereo isomerism, anomerism. Reaction with acids, amines, oxidizing agents, reducing agents. Osa-zones, Disaccharides, polysaccharides.

Unit4.Chemistryoflipids

Definition, classification, nature of fatty acids, triacylglycerol, saponification and iodine number, rancidity, antioxidants, complex lipids, steroids.energetics, Lipolysis.

Unit5.Chemistry of aminoacids, peptides, proteins

Structure of 20 aminoacids, grouping isomerism, charge properties, ninhydrin reaction, peptide bond, examples of peptides, Proteins–classification,Structure-primary,secondary,tertiaryandquaternary forms, de-naturation.

Unit6.Chemistry of Nucleic Acids including protein synthesis

History, bases, nucleosides, nucleotides. DNA and gene. Types of RNAs, Nucleotides coenzymes.

Unit7.Haemoglobin

Structure and functions of haemoglobin, Hb derivatives, degradation of Hb, Jaundice, Haemoglobinopathies.

Unit8.Enzymes

Professor of ENT
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CHAIRMAN B.O.S
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KNRUHS, WARANGAL.

History, catalyst, classification, efficiency, specificity, basic account of mechanism of action. Factors affecting enzyme activity. Units of measurement,Inhibitors–competitive,non-competitive,examples. Coenzymes, proenzymes, isoenzymes, Clinical enzymology, normal values.

Unit9.Vitamins

History,Vitamins A, D, E and K. B-complex vitamins–thiamine, riboflavin, niacin, pyridoxine, folic acid, pantothenicacid, biotin, B-12,VitaminC. Brief account of chemistry, source, requirements, deficiency diseases, biochemical functions, Hyper vitaminosis.

Unit10.Mineral metabolism

Bulkand trace elements. Sodium, potassium, Calcium, Phosphorous, Iron. Brief account of iodine, magnesium, copper, zinc, fluoride, manganese, selenium and molybdenum.

Unit11.Energy Metabolism

Calorimetry, basal metabolism, specific dynamic action, energy requirements under different conditions. Hormonal influence.

Unit12.Nutrition

Distribution of energy in dietary factors, Nitrogen balance, Protein quality, Kwashiorkor and Marasmus. Protein supplementation, Recommended dietary allowance and diet planning.

Unit13.Immunology:

Innate & acquired immunity, humoral & cell mediated immunity, antigen & antibodies.

Recommendedtextbook

1. Biochemistry by U. Sathyanarayana.

MICROBIOLOGY

Total Teaching hours: 75

Unit1.Introduction and History of microbiology.

Unit2.Classification, shape and arrangements of micro-organisms, special characteristics, spores, capsules, enzymes, motility and reproduction.

Unit3.Disinfection and antiseptics.

Unit4.Sterilization and asepsis.

Unit5.Anti-bacterial agents.

Fundamental aspects and susceptibility tests.

Professor of ENT
Osmania Medical College
Govt. ENT Hospital, Koti, Hyd

Dr. J. SHANKAR M.S
Professor of E.N.T
CHAIRMAN B.O.S
(Allied Health Sciences)
KNRUHS, WARANGAL.

Unit6.Infection.

Sources of infection, portals of entryand spread of infection.

Unit7.Non-specific immunity.

Immunity – natural and acquired; Immunisation schedule.

Unit8.Allergy and Hypersensitivity.

Unit9.Outline of common pathogenic bacteria, diseases produced by them, treatment and Prevention.

Respiratory tract infections, meningitis, enteric infections, anaerobic infections, urinary tract infections, leprosy, TB and miscellaneous infections, wound infections, sexually transmitted infections, hospital acquired infections.

Unit10.PathogenicYeasts and Fungi.

Unit11.Virology.

Viral infections with special mention of hepatitis, poliomyelitis, HIV andrabies, FLU(Influenza), Dengue, Chikungunya.

Unit12.Basic Parasitology.

Recommendedtextbooks

1. Anantha narayana PanikerText book of Microbiology.

Referencebooks

1. SC Parija, Text book of parasitology.
2. Monika Chesbrow District laboratory practice in Tropical countries II volume.
3. Baveja Medical Parasitology.

PATHOLOGY

Total Teaching hours: 75

Unit1.Introduction

Concept of diseases, classification of lesions

Unit2.Bacterial,viral and parasitic infections–A general outline

Unit3.Inflammation and repair

Unit 4. Degeneration, necrosis and gangrene

Unit 5. Haemorrhage, shock, embolism and thrombosis.

Unit 6. Tuberculosis

Unit 7. Leprosy and Typhoid.

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Unit 8. Deficiency diseases

Unit 9. Tumours – Terminologies, Nomenclature. Differences between benign and malignant tumours

Unit 10. Tumours – Etiology, pathogenesis andspread of tumours

Unit 11. Anaemias

Unit 12. Coronary HeartDisease (Ischaemic Heart Disease) to include atherosclerosis

Unit 13. Congenital and Valvular Heart Diseases

Unit 14. Bone and Joints – Autoimmunediseases, septic arthritis, osteomyelitis.

Unit 15. Rheumatoid Arthritis

Unit 16. Diseases of the Kidney

Unit 17. Diseases of other parts of the Urinary System

Unit 18. Central Nervous System. CNS infections and Neurologic disorder

Unit 19. Diseases of muscle including poliomyelitis, myopathies

Unit 20. Diseases of Oesophagus, Stomach and Intestine

Unit 21. Diseases of Liver and Pancreas.

Recommended text book

1. Text book of pathology by Harsh Mohan.

ReferenceBooks

1. Practical Haematology by Dacie&Lewi"s.
2. Haematology practice by Dr.Tejendra Singh.
3. Histopathology Techniques by Bancraft.
4. Clinical Diagnosis and laboratory methods by Todd &Sanfort.

Approved & Syllabus

Professor of ENT
Osmania Medical College
Govt ENT Hospital, Koti, Hyd

Dr. T. SHANKAR M.S
Professor of E.N.T
CHAIRMAN B.O.S
(B.Sc. Allied Health Sciences)
KNRUHS, WARANGAL.