

9.6 PATHOLOGY

GOALS

The broad goal of teaching undergraduates Pathology is to impart the knowledge skills and attitudes in the learner to understand the etiopathogenesis, morphology and pathological concepts related to various common diseases.

Learning Objectives

At the end of the course, the learner shall be able to:

1. Know the principles of collection, handling, storage and dispatch of clinical samples from patient, in a proper manner.
2. Perform and interpret in a proper manner the basic clinico-pathological procedures.
3. Have an understanding of the common hematological disorders and the investigations necessary to diagnose them and determine their prognosis.
4. Understand the concept of cell injury, the change produced thereby, in different tissues and organs and the body capacity for healing.
5. Understand normal haemostatic mechanism, the derangements of these mechanisms and the effect on human system.
6. Understand the etiopathogenesis, the pathological effects, and the clinico pathological correlation of common infectious and non-infectious diseases.
7. Understand the concept of neoplasia with respect to etiology, gross and microscopic features, diagnosis and prognosis of neoplasia in different tissues and organs of the body.
8. Correlate normal and altered morphology (gross and microscopy) of different organ systems in different diseases to the extent needed for understanding of the disease processes and their clinical significance.
9. Have knowledge of common immunological disorders and their effects on human body.

Course content

1. Cell injury

- Cause and mechanism: Ischemic, Toxic injury and Apoptosis
- Reversible cell injury: Types morphology, hyaline, fatty change
- Irreversible cell injury: Types of necrosis, gangrene
- Calcification: Dystrophic and Metastatic calcification

2. Inflammation and repair

- Acute inflammation: features, causes, vascular and cellular events.
- Morphological variants of acute inflammation
- Inflammatory cells and mediators
- Chronic inflammation: causes, types, non – specific and granulomatous with common examples
- Wound healing by primary and secondary union, factors promoting and delaying the process and complications.

3. Immunopathology

- Immunopathology: organization, cells, antibodies and regulations of immune responses
- Hypersensitivity: types and examples, antibody and cell mediated
- Tissue injury with examples.
- Autoimmune disorders like systemic Lupus Erythematosis
- Organ transplantation: immunological basis of rejection and graft versus host reaction.

- Amyloidosis, classification, Pathogenesis, morphology.
- HIV-AIDS, etiology, modes of transmission, pathogenesis, pathology, complications, diagnostic procedures and handling of infected materials and health education

4. Infectious diseases

- Mycobacterial diseases: tuberculosis and leprosy
- Bacterial diseases: Pyogenic infections, typhoid, diphtheria, gram –veinfections, bacillary dysentery, syphilis
- Viral: polio, herpes, rabies, measles: Rickettsial and Chlamydial infections
- Fungal diseases and opportunistic infections
- Parasitic diseases: malaria, filariasis, amoebiasis, Kala azar, cysticercosis, hydatid disease

5. Circulatory disturbances

- Oedema: pathogenesis and types
- Chronic venous congestion: lung, liver, spleen
- Thrombosis and embolism: formation, fate and effects
- Infarction: types, common sites, gangrene
- Shock: pathogenesis, types, morphological changes

6. Growth disturbances

- Atrophy, hypertrophy, hyperplasia, Metaplasia, malformation, agenesis, dysplasia
- Neoplasia: causes, classification, histogenesis, biological behavior, benign and malignant, carcinoma and sarcoma
- Malignant neoplasia: grades and stages, local and distant spread
- Carcinogenesis: Environmental carcinogen, chemical, viral, occupational, hereditary and basics of molecular basis of cancer.
- Tumor and host interaction: systemic effects including para neoplastic syndrome, tumor immunology.
- Premalignant lesions
- Laboratory diagnosis: cytology, biopsy, tumor markers
- Tumors and tumor like conditions of soft tissues.

7. Miscellaneous disorders

- Autosomal and sex-linked disorders with examples. Genetics-cytogenetics, molecular genetics, non-Mendelian disorders (details of diseases not needed –only inheritance pattern) – lysosomal storage diseases
- Protein energy malnutrition and vitamin deficiency disorders
- Disorders of pigments and mineral metabolism such as bilirubin, melanin, haemosiderin.
- Environmental pathology – pathology of radiation injury and pollution injury (air and food)

8. Haematopathology

- Anaemia: classification and clinical features
- Nutritional anemia: Iron deficiency, folic acid/vit B12 deficiency anaemia including pernicious anemia
- Hemolytic anaemia: classification and investigation

- Hereditary hemolytic anaemia; thalassemia, sickle cell anemia, hereditary spherocytosis and G 6 P D deficiency.
- Acquired Hemolytic anemia: malaria, Kala Azar, autoimmune, alloimmune, drug induced, microangiopathic
- Haemostatic disorders: platelet deficiency, ITP, drug induced, secondary
- Coagulopathies: coagulation factor deficiency, hemophilia, DIC and anticoagulant control
- Leucocytic disorders: Leucocytosis, leucopenia, leukemoid reaction.
- Acute and chronic leukemia : classification and diagnosis
- Multiple myeloma and dysproteinemias
- Blood transfusion: grouping and cross matching untoward reactions, transmissible infections including HIV and hepatitis. Blood components
- Myelodysplastic syndrome
- Myeloproliferative disorders: polycythemia, myelofibrosis

9. Cardiovascular Pathology

- Acute rheumatic fever: etiopathogenesis and morphological changes and complications including rheumatic heart disease.
- Infective endocarditis: etiopathogenesis and morphological changes and complications.
- Atherosclerosis and ischemic heart disease: myocardial infarction
- Hypertension (pathology in various organs including kidney) and hypertensive heart disease
- Myocarditis
- Pericarditis
- Cardiomyopathy
- Vasculitis, aneurysm

10. Respiratory pathology

- Structure of bronchial tree and alveolar walls, normal and altered Inflammatory disease of bronchi: chronic bronchitis, bronchiectasis
- Pneumonias: lobar, broncho, interstitial
- Lung abscess: etiopathogenesis and morphology and complications
- Pulmonary tuberculosis: primary and secondary, morphologic types including pleuritis
- Concepts of obstructive and restrictive lung disorders – chronic bronchitis emphysema, Asthma.
- Emphysema: type and pathogenesis.
- Occupational lung disorders: anthracosis, silicosis, asbestosis, mesothelioma.
- Atelectasis and hyaline membrane disease.
- Tumors: Epithelial Malignant Neoplasia of Lung, Etiopathogenesis
- Nasopharyngeal and laryngeal tumors

11. Renal & Urinary tract Pathology

- Basics of impaired function and urinalysis
- Glomerulonephritis: classification, primary Proliferative and non-proliferative, secondary (SLE, polyarteritis, Amyloidosis, diabetes)
- Clinical presentation of renal disorders including nephritic, nephrotic syndrome, nephritic-nephrotic syndrome, acute renal failure, recurrent hematuria, CRF
- Acute renal failure: acute tubular and cortical necrosis
- Pyelonephritis, reflux nephropathy, interstitial nephritis
- Nephrolithiasis and obstructive nephropathy

- Renal malformations (including dysplastic kidney) and polycystic kidney
- Renal cell tumors: renal cell carcinoma, nephroblastoma.
- Progressive renal failure and end stage renal disease
- Renal vascular disorders
- Urinary bladder: cystitis, carcinoma
- Urinary tract tuberculosis

12. Pathology of Gastrointestinal tract

- Oral pathology: leukoplakia, carcinoma oral cavity and carcinoma esophagus
- Peptic ulcer: etiopathogenesis and complications, gastritis types
- Tumors of stomach: benign, polyp, leiomyoma, adenocarcinoma, other gastric tumors.
- Inflammatory disease of small intestine: typhoid, tuberculosis, Crohn's disease, appendicitis.
- Inflammatory disease of large intestine: amoebic colitis, bacillary dysentery, ulcerative colitis
- Large and small intestine tumors: polyps, carcinoid, carcinoma, lymphoma
- Pancreatitis
- Salivary gland tumors
- Ischemic and pseudomembranous enterocolitis, diverticulitis
- Malabsorption – celiac disease, tropical sprue and other causes
- Pancreatic tumors: endocrine, exocrine and periampullary

13. Liver and Biliary tract pathology

- Jaundice: types, etiopathogenesis and differentiation
- Hepatitis: acute and chronic, etiology, pathogenesis and pathology
- Cirrhosis: etiology, classification, pathology, complications
- Portal hypertension: types and manifestation
- Diseases of gall bladder: cholecystitis, cholelithiasis, carcinoma
- Tumors of liver: hepatocellular carcinoma, Metastatic tumours, tumor markers

14. Lymphoreticular System

- Lymphadenitis: non – specific, granulomatous
- Non-Hodgkin's lymphoma: classification, morphology
- Hodgkin's lymphoma: classification, morphology
- Thymus-hyperplasia (myasthenia gravis), thymomas
- Diseases of spleen: congestive splenomegaly and infarction spleen. Hypersplenism. Conditions producing rupture spleen, involvement in storage diseases.

15. Reproductive system

- Disease of cervix: cervicitis, cervical carcinoma, etiology, cytological diagnosis
- Hormonal influences of different phases of menstrual cycle and the abnormality associated with it.
- Diseases of uterus: endometrial hyperplasia and carcinoma, adenomyosis, smooth muscle tumors
- Trophoblastic disease: hydatidiform mole and choriocarcinoma
- Diseases of breast: mastitis, abscess, fibrocystic disease Neoplastic lesions: fibroadenoma, carcinoma, phylloides tumor.

- Prostate: nodular hyperplasia, carcinoma
- Ovarian and testicular tumors
- Carcinoma of penis
- Pelvic inflammatory disease including salpingitis
- Genital tuberculosis.

16. Osteopathology

- Osteomyelitis: acute, chronic, tuberculosis
- Metabolic diseases: rickets/osteomalacia, osteoporosis, hyper parathyroidism
- Neoplasms: osteosarcoma, osteoclastoma, Ewing's sarcoma, chondro sarcoma and metastatic tumours
- Arthritis: rheumatoid arthritis, osteoarthritis and tuberculous arthritis.

17. Endocrine Pathology

- Diabetes mellitus: types, pathogenesis, pathological changes in adrenals, kidney and other organs.
- Non neoplastic lesion of thyroid: Iodine deficiency goiter, autoimmune thyroiditis, thyrotoxicosis, myxedema
- Tumors of thyroid: follicular adenoma Carcinomas: papillary, follicular, medullary, anaplastic
Lymphoma of thyroid
- Adrenal diseases: cortical hyperplasia, atrophy, tuberculosis, tumors of cortex and medulla
- Parathyroid hyperplasia and tumors

18. Neuropathology

- Inflammatory disorders: pyogenic and tuberculous meningitis, brain abscess, tuberculoma
- WHO classification of brain tumors
- CNS tumors – primary-glioma and meningioma and Metastatic tumours, schwannoma and neurofibroma
- CSF and its disturbances: cerebral edema, raised intracranial pressure
- Cerebrovascular disease: atherosclerosis, thrombosis, embolism, aneurysm, hypoxia, infarction and hemorrhage.
- Degenerative diseases: Alzheimer's disease and parkinsonism
- Retinoblastoma and malignant melanoma choroid

19. Dermato-pathology

- Skin tumors: squamous cell carcinoma, basal cell carcinoma and malignant melanoma.
- Inflammatory dermatoses of skin –psoriasis, lichen planus, bullous diseases

Examinations Skills

The students should be trained to perform independently the following

1. Be able to collect, store and transport Materials for various pathological tests Including histopathology, Cytopathology, Clinical pathology, hematology and Biochemistry
2. Interpret abnormal laboratory values of Common diseases
3. Do complete urine examination including Microcopy

4. Do/ perform and interpret hemoglobin estimation, TLC, DLC, ESR, PCV, blood smear preparation (thick and thin) and staining Reporting peripheral smears
5. Do blood grouping
6. Adapt universal precautions for self-protection against HIV and hepatitis

Practical:

One – third of allotted practical hours to be devoted to

- a. Performing a complete urine examination and detecting abnormalities and correlating with pathological changes.
- b. To perform with accuracy and reliability basic hematological estimations: TLC, DLC, peripheral smear, staining, reporting along with history.

One third of allotted practical hours to be devoted to

- a. Identify and interpret gross and microscopic features of acute inflammations in organs such as appendix, lungs, meninges,
- b. Cellular components of chronic and granulomatous inflammation
- c. Granulation tissue, callous
- d. Typhoid, tuberculosis, amoebic ulcers in intestine
- e. Rhinosporidiosis, actinomycosis, malaria, kala-azar, filaria
- f. Amoebic liver abscess, malaria liver and spleen, filarial lymphadenitis, cysticercosis
- g. Fatty liver, Amyloidosis of spleen, kidney and liver
- h. Types of necrosis : caseous, coagulative, liquifactive
- i. Identify and interpret gross and microscopic features of organs in commonly occurring neoplastic and non-neoplastic diseases
- j. Study cytology slides-fibroadenoma, squamous cell carcinoma, granuloma, Adenocarcinoma in fluid, papillary carcinoma thyroid

One third of allotted practical hours to be devoted to

- a. Discussion of case studies -clinical, gross and microscopic features and other parameters wherever applicable -to learn clinicopathological correlations inclusive of autopsy studies and cytology slides / cases.

Clinicopathology posting Clinical pathology for two weeks may be taken from the dept. willing to provide slots/can be arranged by reallocating the timings of theory classes and it may be done at the level of individual Institutions in accordance with the availability of slots in various departments.

SUGGESTED TOPICS FOR INTEGRATED TEACHING/AUTOPSY/CPC

Integrated seminars

- a. Rheumatic heart disease
- b. Ischemic heart disease
- c. Hypertension and Hypertensive disease
- d. Tuberculosis lung
- e. Nephrotic syndrome
- f. Inflammatory disease of small and large bowel

- g. Cirrhosis
- h. Metabolic bone disease
- i. Diabetes mellitus
- j. HIV/ AIDS
- k. Iron deficiency anemia
- l. Jaundice
- m. Malaria, Dengue, Chikungunya, Avian Flu, swine flu
- n. CML, Hemolytic anemia ,deficiency anemia, Leukemia.
- o. immunology
- p. infectious diseases
- q. clinical pathology(selected topics)

A minimum of seven topics in the integrated teaching should be organized with the help of medical education department and other clinical/nonclinical departments.

TEACHING LEARNING METHODS.

- Structured interactive sessions
- Small group discussion
- Practical including demonstrations using micro image projection system.
- Problem based exercises
- Autopsy case studies
- Self learning tools
- Seminar and symposia
- E-modules (can be done by renovating part of museum as a digital lab)

LEARNING RESOURCE MATERIALS

- Text books
- Reference books
- Practical note books
- Internet resources

EVALUATION:

There should be regular formative assessment. In Formative assessment, day to day performance should be given greater importance and forms the basis of internal assessment.

Internal assessment

The internal assessment marks for Pathology are 15 for Practical and 15 for Theory Since the minimum percentage required for appearing for University exam is 35%, the total minimum marks required for internal assessment would be 5.5 out of 15, There need to be a separate minimum for Practical and Theory internal assessment. The total marks for University exam in Pathology is 150 (Theory 80 (2 papers) + Viva 15 + Practical 25 + internal assessment 30).

The pass has to be decided as follows:

1. Total aggregate marks should be 75 out of 150marks or more for pass.

2. Theory and Practical Internal assessment marks should be added to the marks obtained in Theory and Practical University exams respectively for deciding the pass

3. For Theory (80 + 15 viva+ 15 marks internal assessment = 110) the minimum for pass should be 55marks.

4. For Practical (25 + 15 marks internal assessment = 40) the minimum for pass should be 20marks.

If moderation is given (in the event of no double valuation) it should be added to

Theory marks only since the logic for moderation is ambiguity in question paper No moderation need to be given for practical exam.

Before printing, question Paper scrutiny should be strictly enforced in University exams since question papers shows many mistakes, which necessitates moderation

Marks for internal assessment

Theory - 15 marks (including viva)

Practical - 15 marks

One exam for theory at the end of each semester (viva to be conducted preferably with each exam)

The last exam will be as per University exam pattern-theory, practical and viva

Internal assessment may be calculated as follows

Theory =15 marks (minimum 3 exams)

Final theory exam - 5marks

Best of other two exams - 5 marks

Seminar presentation/class tests - 2 marks

Viva - 3 marks

Practical = 15 marks

Records = 1 mark (Histopathology, clinical pathology and Autopsy/CPC records)

Records to be maintained and evaluated – Histopathology record, clinical pathology record, a common record of Post mortem findings in 10 cases and 5 clinicopathological conferences

Practical = 14 marks

The details of marking scheme for Pathology Practical would be Internal Assessment University exam

	exam marks	marks
Peripheral smear Reporting	20	10
Clinical Pathology exercise	20	10
(1 out of 6)		
Blood grouping	20	10
Urine analysis	20	10
Spotters (20x3)	60	(20x3) 60
Records (4+3+3)	10	
(HP + CLIP + Ax/CPC) TOTAL	150	100
To be converted to	15	25

Marks for Record has to be added to Internal assessment in Practical only and not in the University Practical since it will result in duplication.

University examinations

Marks break up are

Theory 80 marks

Theory internal assessment 15 marks

Viva 15 marks

Total for theory 110 marks

Practical 25 marks

Practical internal assessment 15 marks

Total for practical 40 marks

Grand total for Pathology 150 marks

Pattern of theory paper (University)

There will be 2 theory papers of 2 hours duration

The theory papers for University are Paper I 40 marks and Paper II 40 marks.

The content area would be Paper I = Clinical pathology (disease aspects of hematology will be included in paper II only) + General Pathology Paper II = Systemic Pathology + Hematology

Detailed pattern of theory questions

Out of 40 marks for each paper the marking scheme would be :

Answer in single sentence- (4x1/2) =2 marks

STRUCTURED(Case Study) ESSAY = 6 marks

Write short answers on: 4x2 = 8 marks

STRUCTURED ESSAY = 8 marks

Write short notes on: (4x4) =16 marks

Section A and B are needed in each paper only if there is no double valuation so that each examiner can value one paper

If there is section A and Section B then the marking scheme for each paper will be as follows:

Section A

Saq+ Single word type + structured essay + 2 short notes =4+4+6+6=20

Section B

SAQ+ 4 short notes 8+12=20

Paper I

Section A	=	20 marks
Short notes	=	4 marks
Single word type	=	4 marks
Problem based structured essay	=	6 marks
SAQ-2 questions	=	6 marks
Section B	=	20marks
Standard/modified essay	=	8 marks
SAQ-4questions	=	12 marks

Paper II

Section A	=	20 marks
Short notes Single word type	=	4 marks
Problem based structured essay	=	6 marks
SAQ-2 questions	=	6 marks
Section B	=	20 marks
Standard/modified essay	=	8 marks
SAQ-4questions	=	12 marks

Practical-OSPE-(objective structured practical examination)

Total marks = 25 marks

No marks for records in the University practical

Practical marks to be split up as follows

Procedural stations =four =15 marks

Response stations/spotters=20 stations = 10

Procedure stations (15 minutes per station) (**questions can be asked during the procedure**) Blood grouping

Urine analysis (including sediments demonstrated as charts)

Peripheral smear preparation (thick and thin) /staining / Hb estimation/TLC/ESR/PCV

Peripheral smear reporting (one out of 5)

HMA

AML

CML

Neutrophilia

Eosinophilia

Response station (spotters) (2minutes each=20 stations) (with questions)

Specimens-mounted and wet =7

Histopathology slides =5

Hematology slide =2(one bone marrow)

Cytology slide =1

Histogram interpretation =1

Interpretative clinical pathology charts with photos =1

Clinicopathological correlative exercise (specimens/slide combinations

With clinical history) =2

Instruments =1

Viva =15 marks

Total 4 stations for viva

Stations will be for Clinical pathology and hematology

General pathology

Systemic pathology I

Systemic pathology II

Practicals' guidelines

The slides for histopathology will be divided into 30 for spotting and drawing in records and 20 for demonstration in class.

They would be

HISTOPATHOLOGICAL SLIDES			
For diagnosis/spotting		For demonstration	
1	Acute Appendicitis	1	CVC Lung
2	Granulation tissue	2	CVC Liver
3	Calcinosis cutis	3	Filarial Lymph node
4	T.B. lymph adenitis	4	Infarction (Spleen/placenta)
5	Lepromatous Lepresy	5	Actinomycosis/Aspergillosis
6	Rhinospndrosis	6	Fatty liver
7	Capillary Haemangioma	7	Warthin's tumor
8	Cirrhosis Liver	8	Neurofibroma
9	Lipoma	9	Interdermal anevus
10	Leiomyoma	10	NHL
11	Fibroadenoma	11	HCC
12	Pleomorphic Adenoma	12	Cavernous Haemangioma
13	Schwanoma	13	Secretory endometrium

14	Osteochondroma	14	Adenoma thyroid
15	Malignant Melanoma skin	15	Molluscum contagiosom
16	Squamous cell carcinoma skin	16	Vesicular mole
17	BCC	17	Adenomyosis/endometriosis
18	MNG	18	Mets lymphnode from SCC
19	Hodgkin's lymphoma	19	Bronchopneumoma
20	Papillary carcinoma thyroid	20	Nephro blastoma
21	Hashimoto's thyroiditis		
22	Giant cell Tumor bone		
23	Osteosarcoma		
24	Adenocarcinoma colon		
25	Teratoma ovary		
26	Infiltrating duct carcinoma breast		
27	Renal cell carcinoma		
28	Tuberculoid Leprosy		
29	Atheroma aorta		
30	Meningioma		

History for Histopathology slides can be given by examiner for spotting.

The specimens for histopathology will be divided into 50 for spotting /diagnosis and 23 for demonstration categories.

They would be

Specimens

GIT for spotting /diagnosis for demonstration

1. Chronic Gastric Ulcer
1. Gangrene intestine with round worms
2. Carcinoma Stomach with omental – metastasis
- 3 Lipomatous polyp intestine
4. Polyp small intestine
- 5 Typhoid ulcer intestine
- 6 Multiple Polyposis large intestine
7. Intussuption intestine
- 8 Gangrene intestine
- 9 Tuberculous ulcer intestine with stricture
10. Amoebic ulcer large intestine
- 11 Acute appendicitis
12. Carcinoma colon

HEPATOBIILIARY SYSTEM & PANCREAS

- | | |
|---------------------------------------|--------------------------|
| 1. Cirrhosis liver (Macronodular) | 1. Fatty liver |
| 2. Calculous cholecystitis | 2. Amyloidosis liver |
| 3. Calcifying Pancreatitis | 3. Amoebic liver abscess |
| 4. CVC liver | |
| 5. Angioma liver | |
| 6. Hemochromatosis liver- Perls stain | |

SPLEEN

1. CVC Spleen
2. Infarction Spleen

FGS

1. Carcinoma Cervix
2. Leiomyoma uterus
3. Benign cystic Teratoma ovary
4. Adenomyosis uterus
5. Adenocarcinoma uterus
6. Vesicular mole
7. Choriocarcinoma uterus

MGS

1. Carcinoma Penis

BREAST

1. Fibro adenoma breast
2. Carcinoma breast

EYE

1. Retinoblastoma
2. Melanoma – Eye

RESPIRATORY SYSTEM

1. Fibrocaceous tuberculosis lung
2. Pulmonary artery embolism
3. Lung abscess
4. Bronchogenic Carcinom
5. Lobar pneumonia
6. Hydatid cyst lung

CVS

- | | |
|---------------------------------|---------------------------|
| 1. Atheroma aorta with thrombus | 1. Aneurysm aorta |
| | 2. Fibrinous pericarditis |
| | 3. Mural Thrombus Heart |

LYMPHNODES

1. Caseating TB adenitis
2. Lymphoma

THYROID

- | | |
|------------------------|----------------------------|
| 1. Multinodular goitre | 1. Diffuse colloid goitre |
| | 2. Hashimoto's thyroiditis |
| | 3. Adenoma thyroid |
| | 4. Carcinoma thyroid |

SALIVARY GLAND

1. Pleomorphic adenoma

BONE

- | | |
|---------------------------|----------------------|
| 1. Sequestrum | 1. Melanoma deposits |
| 2. Osteochondroma | 2. Malunion |
| 3. Giant cell tumour bone | |
| 4. Osteogenic sarcoma | |

CNS

1. Suppurative Meningitis

SKIN AND SUBCUTANEOUS TISSUE

1. Calcinosis Cutis
 2. Lipoma
 3. Squamous cell Carcinoma Foot
 4. Basal Cell Carcinoma
 5. Melanoma Foot
1. Filariasis skin

URINARY SYSTEM

1. Renal Cell Carcinoma
2. Nephroblastoma
3. Carcinoma bladder
4. Hydronephrosis
5. Nephrolithiasis

The slides for hematology will be divided into 10 for spotting and 10 for demonstration. They would be

Hematology Spotters			
For spotting		Demonstration	
1	HMA	1	Filaria
2	AML	2	Lymphocytosis with atypical lymphocyte
3	CML	3	Spherocyte
4	Neutrophilia	4	Reticulocyte
5	Eosinophilia	5	Thalassemia with target cells
6	Megakaryocyte	6	Toxic granules
7	LE cell	7	Myeloperoxidase stain
8	Multiple myeloma	8	Megaloblast
9	Normoblast	9	Sickle cells
10	Malaria – PV/PF	10	CLL

Cytology slides (for spotting)

1. Fibroadenoma
2. Granulomatous reaction lymph node
3. Squamous cell carcinoma sputum
4. Cervical smear Invasive squamous cell carcinoma
5. Adenocarcinoma in body fluids
6. Papillary carcinoma thyroid

Recommended Textbooks

Pathologic Basis of Disease-Robbins and Cotran 7th edition
Text Book of Pathology-Harsh Mohan 6th edition
General and Systematic Pathology-5th edition-JCE Underwood
Haematology-G E De Gruchy
Text and Practical Haematology MBBS-Tejinder singh
Manual of Basic Techniques for Health laboratory-WHO

MODEL QUESTION PAPER

PATHOLOGY Paper I (Clinical Pathology and General Pathology)

Time: 2 hours

Total marks: 40

Answer in single sentence

1. Define metaplasia.
2. List two infective ulcers of the intestine
3. Define Type II hypersensitivity reaction.
4. Mention two tests for proteinuria

(4x1/2=2 marks)

STRUCTURED (Case Study) ESSAY

5. Male 15 yrs. Presented with fever, sore throat, cervical lymph node enlargement.
Investigations: TC 14,000/cmm, DC-p20L75E5. Peripheral smear-No immature cells seen.

- What is your diagnosis?
- Describe the characteristic peripheral smear findings.
- What is the etiology of this condition?
- What is the test to confirm the diagnosis?
- Name two organs involved in this condition

(1+2+1+1+1= 6 marks)

Write short answers on:

6. Ghons complex.
7. Ketonuria
8. Scurvy
9. Fat embolism

(4x2=8 marks)

STRUCTURED ESSAY

10. Define inflammation.

Describe briefly the cellular and humoral mediators of inflammation.

Mention the different morphological patterns of acute inflammation with examples.

(1+4+3=8 marks)

Write short notes on:

11. Pathogenesis of reversible cell injury.
12. Blood grouping and cross matching.
13. Routes of metastasis.
14. CSF examination.

(4x4=16)

MODEL QUESTION PAPER
PATHOLOGY Paper II
(Hematology and Systemic Pathology)

Time: 2 hours

Total marks: 40

Answer in single sentence

1. MEN type-I
2. Mott cell.
3. Caplan's syndrome.
4. Schiller- Duval body

(4x1/2=2 marks)

STRUCTURED(Case Study) ESSAY

5. A 50 year old man developed sudden chest pain with vomiting. He was dysnoeic. O/E he was febrile. ECG- showed ST elevation and T wave inversion. TC-15,200/cmm, ESR: 40mm/hr. The patient died 12 hours later.

- What is your diagnosis? Give reasons.
- What are the lab.investigations to be done at the time of admission.
- Describe the gross and microscopic features of the organ primarily involved .
- List four major complications.

(1+2+2+1=6marks)

Write short answers on:

6. Peripheral smear findings in Megaloblastic anaemia
7. List the hepatocyte changes in acute viral hepatitis.
8. Classification of renal cell carcinoma
9. Ring sideroblast

(4x2=8 marks)

STRUCTURED ESSAY :

10. Classify tumors of the lung.

Briefly discuss the etiopathogenesis of carcinoma of lung

Describe the gross and microscopy of the most common malignant tumour of lung.

(2+3+3=8)

Write Short notes on:

11. Etiopathogenesis of Peptic ulcer.
12. Lab. Investigations in Multiple myeloma
13. Medullary carcinoma of thyroid.
14. Paget's disease of bone.

(4x4=16)

9.7 - PHARMACOLOGY

I. Goal:

The broad goal of teaching Pharmacology to undergraduates is

- To impart knowledge, skills and attitudes to the students so that they can prescribe drugs safely, effectively and maintain competency in professional life.
- To inculcate in them a rational and scientific basis of therapeutics.

II. Educational Objectives.

a) Knowledge

At the end of the course, the learner shall be able to

- describe the pharmacokinetics and pharmacodynamics of essential and commonly used drugs
- list the indications, contraindications, interactions and adverse reactions of commonly used drugs
- indicate the use of appropriate drug in a particular disease with consideration of its cost, efficacy and safety for individual needs, and mass therapy under national health programmes
- integrate the list the drugs of addiction and recommend the management
- classify environmental and occupational pollutants and state the management issues
- explain pharmacological basis of prescribing drugs in special medical situations such as pregnancy, lactation, infancy, old age, renal and hepatic failure
- explain the concept of rational drug therapy in clinical pharmacology with special focus to usage of antimicrobial drugs.
- prescribe drugs for the control of fertility and be aware of the effects of drugs on the foetus.
- describe the clinical presentation and management of common poisoning including the bites and stings.
- state the principles underlying the concept of 'Essential Drugs'
- evaluate the ethics and modalities involved in the development and introduction of new drugs
- understand principles of Evidence based Medicine
- understand the principles of pharmacoconomics

(b) Psychomotor Skills:

At the end of the course, the learner shall be able to:

- prescribe drugs for common ailments
- identify adverse reactions and interactions of commonly used drugs
- interpret the data of experiments designed for the study of effects of drugs and bioassays which are observed during the study
- scan information on common pharmaceutical preparations and critically evaluate drug formulations
- load the required dose of medicines accurately in hypodermic syringes; inject medicines by the intradermal, subcutaneous, intramuscular and intravenous routes using aseptic techniques.
- Set-up an intravenous drip and adjust the drip rate according to required dosage.
- calculate the drug dosage using appropriate formulae for an individual patient.

- administer the required dose of different drug formulations using appropriate devices and techniques (e.g., hypodermic syringes, inhalers, transdermal patches etc.)
- Advice and interpret the therapeutic monitoring reports of important drugs
- recognize and report adverse drug reactions to suitable authorities.
- analyse critically, drug promotional literature for proprietary preparations in terms of
 - (a) Pharmacological actions of their ingredients
 - (b) Claims of pharmaceutical companies
 - (c) Economics of use
 - (d) Rational or irrational nature of fixed dose drug combinations.
- retrieve drug information from appropriate sources especially electronic resources

(c) Attitudes & Communication skills:

At the end of the course, the learner shall be able to

- communicate with patients regarding proper use of drug
- take adequate precaution during prescribing drug(s)
- understand the legal aspects of prescription
- counsel patients for compliance
- take adequate care to write prescriptions legibly
- understand rationality of polypharmacy
- update themselves regarding recent advances

(d) Integration

Practical knowledge of rational use of drugs in clinical practice will be acquired through integrated teaching vertically with pre-clinical & clinical subjects and horizontally with other para-clinical subjects.

DETAILED SYLLABUS

1. Period of training: 3rd, 4th & 5th Semester
2. Duration of training: one and a half years
3. Eligibility: Must have cleared Phase I (Anatomy, Physiology, Biochemistry)
4. Time available for teaching: 300 hours

Lectures: 125 hours Practicals: 75 hours

Innovative sessions & Internal Assessments: 100 hours

DETAILS OF LECTURES Topic Time (hours) Part I (Drug Oriented teaching)

1. General Pharmacology and basic concepts of clinical Pharmacology 16 hours

- Introduction – definition, scope, various branches, drug nomenclature, orphan drugs
- Mechanism of drug action (Molecular mechanism is desirable to know)
- Scope & relevance of clinical pharmacology
- Routes of administration of drugs, new drug delivery system.
- Pharmacokinetics – Absorption, distribution, metabolism and excretion.
- Factors modifying drug action and drug dosage
- Drug interactions and pharmacogenomics
- Adverse drug reactions and Pharmacovigilance; Therapeutic drug monitoring and adherence

- Essential drugs and fixed drug combination including pharmacoconomics
- Rational use of drugs

2. Autonomic nervous system

12 hours

- Cholinergic neurotransmission and cholinergic drugs
- Anticholinergics
- Adrenergic neurotransmission and adrenergic drugs
- Antiadrenergic drugs Skeletal muscle relaxants NO, VIP (self-study)

3 Autacoids and related drugs

3 hours

Histamine receptor antagonists, their pharmacological actions, indications, adverse effects and precautions

Pharmacology of drugs on prostaglandins and leukotrienes

5HT receptors and their antagonists including treatment of migraine

4 Central nervous system

24 hours

Drugs used in epilepsy; selection of appropriate drug for various types of epilepsy and adverse drug effects

Sedative – hypnotics used currently in clinical practice, indications contraindications, adverse effects, drug interactions

Opioid analgesics: Pharmacological actions, indications, contraindications adverse effects and drug interactions of commonly used analgesics

NSAIDS: Pharmacological action, indications, contraindications, adverse effects and drug interactions of commonly used drugs.

Drug used in the treatment of parkinson's disease: anticholinergic agents, dopamine agonists, MAOI, COMTI: Their indications, contraindications, adverse effects and drug interactions.

Disease modifying agents in the treatment of rheumatoid arthritis.

Pharmacology of ethanol and methanol poisoning

Agents used in the treatment of gout (acute and chronic)

Antidepressants

Drugs of addiction abuse and dependence (self-study)

Drugs in manic depressive illness and psychosis

General anaesthetics; cardinal features, merits and demerits of commonly used anaesthetics ,drug interactions

Preanaesthetic agents; uses, indications, contraindications adverse effects and drug interactions.

Local anaesthetic agents: Pharmacological basis, adverse drug reactions, indications and complications of spinal anaesthesia

Drugs for treatment of Alzheimer's disease and cognitive enhancers – (seminar)

5 Cardiovascular System

15 hours

Anti-hypertensive drugs: MOA; adverse drug reactions drug interactions and basis of combining commonly used drugs

Pharmacology of calcium channel blockers Drugs affecting Renin-Angiotensin system Approaches to treatment of myocardial infarction. Drug used in treatment of angina pectoris.

Drug treatment of peripheral vascular disease (self-study)

Pharmacology of vasodilators and cardiac glycosides; usage in CHF

Treatment of Paroxysmal supraventricular tachycardia, atrial dysrhythmias, sudden cardiac arrest and ventricular fibrillation.

Diuretics: Mechanism of action, pattern of electrolyte excretion under their influence, short term side effects and long term complications of diuretic therapy, therapeutic uses of diuretics; antidiuretics.

6. Drugs affecting blood and blood formation

6 hours

Anticoagulants: MOA of heparin and oral anticoagulants indications, monitoring of therapy and treatment of bleeding due to their overdose, drug interactions.

Drugs inhibiting platelet aggregations, their indications and precaution for their use

Antianaemic drugs (seminar)

Treatment of shock (seminar)

Fibrinolytics and antifibrinolytics: indications, adverse reactions.

Hypolipidemics: MOA, adverse reactions and indications

7. Respiratory system

2 hours

- Drug use in treatment of bronchial asthma
- Antitussives, expectorants & mucolytics (seminar)

8. GIT

3 hours

- Pharmacotherapy of peptic ulcer: MOA, adverse drug reactions, contraindication and precautions

Antiemetics: MOA, uses, side effects.

Drug used in ulcerative colitis and irritable bowel syndrome

Management of constipation and diarrhoea (seminar)

9. Drugs acting on Endocrine system

9 hours

- Thyroid hormones and antithyroid drugs: pharmacological action, indications, contraindications and side effects
- Drugs use for pharmacotherapy of diabetes mellitus, mechanism of actions, contraindications, precautions during the use and side effects. Management of iatrogenic hypoglycemia and diabetic ketoacidosis.
- Sex hormones, their analogues and antagonists, uses in replacements and pharmacotherapy. Outlining the rationale for such use, C/I and side effects.
- Pharmacological approaches to contraception, side effects, precautions during use and C/I.
- Uterine relaxants, and uterine stimulants, indications, side effects, C/I
- Hormones of adrenal cortex, their synthetic analogues, pharmacological actions, therapeutic uses, precautions, side effects and contraindications. Hormones and drugs affecting calcium metabolism, therapeutic indications, contraindications and side effects
- Drugs used in the treatment of infertility (self-study)

10. Chemotherapy

17 hours

- General principles of chemotherapy, rational use of antimicrobial agents, indications for prophylactic and combined uses of antimicrobials including pre and probiotics

- Chemotherapeutic agents: penicillins, cephalosporins, aminoglycosides, broad spectrum antimicrobial agents, quinolones, sulphonamides macrolides and other newer drugs: their mechanism of actions, s/e, indications, resistance, and drug interactions
 - Antiseptics, disinfectants and their use based on their pharmacological properties. (Seminar)
- Anticancer drugs, mechanism of action, indications, s/e, C/I, precautions

Toxicology

General principles of treatment of poisoning

Management of overdose with commonly used therapeutic agents

Heavy metal poisoning and heavy metal antagonists (seminar)

Miscellaneous

Vaccines (self-study)

Drugs modulating Immune system (seminar)

Vitamins, Nutritional supplement (self study)

Gene therapy (seminar)

Drugs acting on skin & mucus membrane (seminar)

Sports medicine (self-Study)

Antioxidants (self-Study)

Part II (Clinical Pharmacology and Therapeutics)

National Health programmes like:

1. Tuberculosis
2. Leprosy
3. HIV
4. Malaria
5. Syphilis and gonorrhoea & STD (seminar)
6. Upper and lower respiratory infections;
7. OCP
8. Filariasis
9. Anaemia
10. Diabetes Mellitus

Infective/Parasitic conditions

1. Influenza
2. Urinary Tract infections (seminar)
3. Typhoid and other GIT infections
4. Amoebiasis
5. Worm infestations (seminar)
6. Fungal infections
7. Herpes and Hepatitis, other antivirals

Medical emergencies

1. Acute myocardial infarction, acute angina attack, circulatory failure, sudden cardiac arrest, hypertensive emergencies

2. Acute anaphylaxis and other acute allergic states
3. Snake bites and insect bites
4. Acute poisoning and drug overdosage
5. Status epilepticus, febrile convulsions, acute mania
6. Acute severe asthma, acute rheumatic fever, acute gout
7. Acute colicky pains-intestinal, biliary, renal
8. Post-partum haemorrhage, uterine inertia

Other topics

1. Treatment of pain
2. Treatment of insomnia
3. Treatment of cough
4. Treatment of fever of unknown origin (PUO)
5. Drugs used in labour
6. IV fluids
7. Clinical uses of glucocorticoids
8. P-drug or how to select a drug for a given patient in a given situation
9. Essential drugs
10. Drug therapy in special situations (pregnancy, lactation, children, geriatrics, renal and hepatic diseases)

Details of Practicals

1. Dosage forms Oral, Parenteral, Topical & Others
2. Routes of drug administration, setting up an intravenous drip
3. Calculation of drug dosage
4. Sources of drug information-how to retrieve information
5. ADR monitoring
6. Critical appraisal of drug promotional literature
7. Essentials of Clinical trials
8. Communicating to patients on the proper use of medication.
9. Prescription writing, prescription auditing based on rational drug use and FDC
10. Essential drugs list
11. Use of drugs in pregnancy, lactation, children and elderly
12. Use of drugs in liver disease and renal disease
13. Preparation of percentage solution antivirals
14. Preparation and use of oral rehydration solution
15. Informed Consent Form
16. Computer assisted learning (CAL)
17. Experimental pharmacology charts interpretation
18. Drug/drug and Drug/Food interaction.
19. Selection of P-drug

Teaching-Learning methods:

Small group discussions, tutorials, project work and seminars. An overlap between theory and practical classes will serve to reinforce and complement the two. Points not covered in theory can be covered during practical classes.

Project work

Each student has to collect data of one clinical case and write it down as project. Topics for Seminars (2 hours each)

1. Antianaemic drugs
2. Antitussives
3. Shock
4. Alzheimer's disease and cognitive enhancers, neurodegenerative disorders.
5. Anthelmintics
6. Calcium metabolism
7. Dermatology – drugs acting on skin and mucous membrane
8. UTI & STD
9. Irritable bowel syndrome, ulcerative colitis & Eye disorders
10. Immuno Pharmacology
11. Laxatives and antidiarrhoeals
12. Alcohol
13. Osteoporosis, obesity, genetherapy
14. Heavy metal poisoning and heavy metal antagonists
15. Antiseptics
16. Superinfection, prophylactic use and misuse of antibiotics

Topics for self-study

1. Treatment of rhinitis
2. Carminatives, digestants & antiflatulents
3. Vitamins and antioxidants
4. Vaccines
5. Drug induced blood dyscrasias
6. Treatment of vertigo
7. Other protozoal infections
8. Drugs in pregnancy and infants.
9. NO, VIP
10. Drugs of addiction
11. Drug treatment of peripheral vascular disease
12. Anterior pituitary hormones
13. Drugs used in the treatment of infertility
14. Reactive oxygen species

Recommended books for undergraduates

1. Essentials of Medical Pharmacology by K.D.Tripathi (Prescribed)
2. Medical Pharmacology 3rd edition by Dr Padmaja Udaykumar (Prescribed)
3. Principles of Pharmacology by H.L.Sharma, K.K.Sharma (Prescribed)
4. Pharmacology and Pharmacotherapeutics. R.S Sathoskar and Bhandarkar (Prescribed)
5. Basic and Clinical Pharmacology Lange publications by Bertram G Katzung (Reference)
6. Pharmacology by HP Rang. M M Dale, J.M Ritter, P.K.Morore (reference)

Evaluation

Internal Assessment – 3 sessional examinations

One exam for theory at the end of each semester

The last sessional exam will be model examination (as per University pattern) – theory, Practical and viva voce

Internal assessment for theory = 15 marks

Internal Assessment is calculated with following break up

Final theory -Paper I and Paper II = 80 marks

Seminar presentation and post-test = 20 marks

Project = 10 marks

Viva voce = 20 marks

Best of first two theory exams out of (n-1) = 20 marks

Total = 150 marks

Internal assessment for theory = $150 / 10 = 15$ marks

Internal assessment for practicals = 15 marks

Record = 5 marks

Practicals = 25marks

Total $25+5= 30/ 2= 15$ marks

University examinations marks break up are

Theory -two papers of 40 marks each - 80 marks

Practical - 25 marks

Viva voce - 15 marks

Internal assessment

(Theory-15; practical 15) - 30 marks

Total - 150 marks

Pattern of Theory paper for final sessional exam and University exam

There will be 2 papers of 40 marks each. No division of question papers into section A and section B

Duration is 2 hours/ paper

Paper I

(Topics: General Pharmacology, ANS, CVS, blood, diuretics, CNS, autacoids, respiratory)

I. Name the following - $\frac{1}{2} \times 10 = 5$ marks

II. Rational basis for use of drugs/ drug interactions /drug combinations - $1 \times 4 = 4$ marks

III. Write 2 uses and 2 adverse effects/preferred drug and route $1 \times 4 = 4$ marks

IV. Structured essay question (1) = 5 marks

V. Clinical problem (1) = 5 marks

VI. Choose the drug and justify - $1 \times 5 = 5$ marks

VII. Write briefly on (4 Nos) - $3 \times 4 = 12$ marks

Paper II

(Topics: GIT, Hormones, antibiotics, chemotherapy and miscellaneous)

- I. Name the following $\frac{1}{2} \times 10 = 5$ marks
- II. Specify the important spectrum of antibiotics $1 \times 5 = 5$ marks
- III. Write 2 uses and 2 contraindications/ precautions $1 \times 4 = 4$ marks
- IV. Rational basis for use of drugs/comment on the interactions produced $1 \times 4 = 4$ marks
- V. Structured essay question (1) - 5 marks
- VI. Clinical problem (1) - 5 marks
- VII. Write briefly on (4 Nos) - $3 \times 4 = 12$ marks

Practicals

Total marks = 25 marks

Practical I - Objective Structured Practical Examination (OSPE)

Response stations -10

Time at each station is 5 minutes.

1. Prescription writing for prescription for common ailments -1 = 2 marks
2. Prescription for special groups – pregnant woman, children, elderly and patients with renal or hepatic disease) -1 = 2 marks
3. Exercise on Drug interaction – 1 = 2 marks
4. Drug dosage calculation -1 = 1 mark
5. Dosage forms -1 = 1 mark
6. Drugs -3 nos from different: groups = 3 marks
7. Device -1 = 1 mark
8. Diagram/Picture of plants or ADR-1 = 1 mark
9. Calculation of percentage solutions (normal saline, 5% dextrose/half normal saline/others) /ORS procedure) -1 = 1 mark
10. Sources of drug information– 1 = 1 mark

Total = 15 marks

Practical II- (Interactive sessions)

1. Clinical Pharmacology chart – 1 = 2 marks
2. Interpretation of experimental chart -1 = 3 marks
3. Interpretation of data (providing lab: reports) -1 = 1 mark
4. Criticize and rewrite informed consent form – 1 = 3 marks
5. ADR (clinical problem) -1 = 1 mark

Total = 10 marks

VIVA VOCE

Total 4 stations each student to be examined by all the four examiners

Total 15 marks

Model Question Paper
Second Professional MBBS Degree Examination
Pharmacology Paper I
(New scheme)

Time: 2 hours

Maximum marks: 40

Answer all questions.

I. Name the following

1. DOC for petit mal epilepsy
2. Drug producing phocomelia
3. Cerebroselective anticholinesterase
4. One 5HT₃ antagonist
5. Antidepressant effective in chronic pain
6. A Clot specific fibrinolytic agent
7. DOC for anaphylactic shock
8. The diuretic used in cerebral edema
9. Transdermal patch used in angina pectoris
10. Shortest acting cardio selective beta blocker

(½ x 10 = 5 marks)

II. Give the rationale for use of following drugs

- a. Sumatriptan in acute attack of migraine
- b. Promethazine in motion sickness
- c. Haloperidol in acute schizophrenia
- d. Fluticasone inhalation in bronchial asthma

(1 x 4 = 4 marks)

III. Write two uses and two adverse effects of the following drugs

- a) Lithium
- b) Amlodipine
- c) Verapamil
- d) Neostigmine

(1 x 4 = 4 marks)

IV. Enumerate 4 groups of antihypertensives with one example for each. Mention 4 drugs safe for use in pregnancy. Write the pharmacological action, adverse effects and drug interaction of any one antihypertensive

(2+1+ 2= 5 marks)

V. Read the clinical problem and answer the following questions

Ramesh, 28 years was administered an injection of Adrenaline with Lignocaine at base of his thumb for nail extraction. Later he developed severe gangrene of thumb

- a. Why has gangrene developed? How could this have been avoided?
- b. Write the mechanism and pharmacological actions of adrenaline and lignocaine
- c. List the other two surface anaesthetics and write their adverse effects

d. Write the cardiac use of lignocaine with dose and rationale.

(1+2+1+1=5 marks)

VI. Choose the appropriate drug and justify

- a. Dopamine/ adrenaline in cardiogenic shock
- b. Diazepam/ alprazolam in depressed person with anxiety
- c. L-dopa/ trihexyphenidyl in drug induced parkinsonism
- d. Ketamine / Fentanyl in dissociative anaesthesia
- e. Digoxin/ adenosine in atrial fibrillation

(1 x 5 = 5 marks)

VII Write briefly on

- a. Uses and adverse effects of skeletal muscle relaxants
- b. Teratogenicity
- c. Ketamine
- d. Chlorpromazine

(3 x 4 = 12marks)

Second Professional MBBS Degree Examination
Pharmacology Paper II
(New scheme)

Time: 2 hours

Maximum marks: 40

Answer all questions.

I. Name the following

- a) The laxative preferred in a patient with hepatic coma
- b) Longest acting penicillin
- c) DOC for VRSA
- d) Site of action of caspofungin
- e) Route of administration of Streptomycin
- f) Insulin in diabetic pregnant woman
- g) A cephalosporin causing Disulfiram like reaction
- h) The Tetracycline active against Mycobacterium leprae
- i) The drug used to treat antibiotic associated pseudomembranous colitis
- j) The antifungal preferred in fungal meningitis

(1/2 x 10 = 5 marks)

II Specify the important spectrum of the following antimicrobial agents

- a. Ceftriaxone
- b. Azithromycin
- c. Vancomycin
- d. Linezolid

e. Rifampin

(1x 5=5marks)

III. Write two important uses and two contraindications of

1. Ketoconazole
2. Methotrexate
3. Tetracycline
4. Metronidazole

(1x4= 4marks)

IV. Comment on the interaction produced by the following drugs

1. Propranolol and Glibenclamide
2. Sulfamethoxazole and Trimethoprim
3. Ciprofloxacin and theophylline
4. Dapsone and pyrimethamine

(1x4=4marks)

V. Read the case history and answer the following questions

Ramesh 40 years, is an alcoholic and a smoker. He gives history of nausea, abdominal pain, heart burn, loss of appetite and one episode of haematemesis. Endoscopy confirms peptic ulceration

- 1) Prescribe a drug for the above condition with dosage schedule
- 2) Write its mechanism of action and adverse effects
- 3) What advice on life style modification should be given to him?
- 4) List two drugs from different groups which can cause peptic ulceration

(1½+1½ + 1+1= 5 marks)

VI. Classify oral Hypoglycemic drugs. Write the mechanism of action, adverse effects and drug interactions of any one drug. Name two drugs which cause hyperglycemia

(2½ +1½ +1= 5marks)

VII Write briefly on

- a. Protease inhibitors
- b. Cyclophosphamide
- c. OCP
- d. Newer Insulins

(3x4= 12 marks)

9.8 - COMMUNITY MEDICINE

A. VISION

To develop a group of medical graduate for being proactive in identifying and responding to public health challenges the society is facing.

B. MISSION

To bring out a group of Medical Graduates who can practice the science of medicine with Social responsibility and social accountability and provide cost effective, value based primary health care.

C. GOAL

To equip the students to function efficiently and effectively as first level physicians in the community in accordance with the committed vision and mission of community medicine.

D. DEPARTMENTAL OBJECTIVES**B.1. GENERAL OBJECTIVE**

To train Medical Students with knowledge, attitude and skills required to become doctors with empathy, love, who can effectively function as healthcare providers, decision makers, communicators, community leaders and managers in rural and urban settings.

B.2. SPECIFIC OBJECTIVES**B.2.1. KNOWLEDGE**

1. To identify the multi-factorial determinants & dimensions of health and disease, dynamics of community behaviours and human society
2. To understand the structure and process of the health care delivery system
3. To identify the health needs of the community in general and vulnerable groups in particular
4. To understand the science of applied epidemiology and biostatistics and describe their application to health and disease in the community or hospital situation
5. To understand the environmental and occupational factors in health and disease
6. To identify the role of nutritional factors in health and science
7. To understand the concept of heredity and inheritance in relation to individual and community health
8. To understand the objectives, strategy, implementation monitoring and evaluation of all National Health Programmes (NHP)
9. To understand the population dynamics and their impact on health and disease
10. To enumerate the principles and components of primary health care and national health and related policies to achieve millennium development goals (MDG)
11. To understand the principles and techniques in health management and health economics
12. To understand the social dynamics and social factors in relation to health and disease
13. To understand the social dynamics & social factors in relation to health and disease
14. To understand the Gender issues in health and diseases
15. To understand the Developmental Health Interface & health of deprived

B.2.2. ATTITUDE

1. To see “the human being in disease, “not the disease in Human being” and provide health care in an environment of care and compassion
2. To safe guard human dignity, equity and solidarity adhering to professional ethics.

3. To acknowledge and respect the differences in the needs, values and cultures of different communities
4. To assume social responsibilities at all times and take initiative in times of natural disasters, calamities and accidents
5. Readiness to work in rural, tribal, urban slum areas and other constrained situations where services are most needed

B.2.3. SKILLS

1. To diagnose and manage common health problems and emergencies using drugs rationally.
2. To identify community Health problems, prioritize them and chalk out solutions with local resources and community participation.
3. To deliver evidence based, need oriented, primary health care in a competent manner in diverse settings.
4. To work effectively as a health care team member with the community hand in hand with various sectors to bring about health promotion.
5. Use epidemiology and biostatistics as scientific tools to study the phenomenon of health and disease and make rational decisions relevant to community and hospital situation.
6. To collect, compile, analyze and interpret health related data for disease surveillance and health promotion initiatives.
7. To communicate effectively and appropriately with people at large and patients and their families in particular
8. To impart health education using appropriate tools and educational methods with special reference to national health issues.
9. To implement, monitor and evaluate National Health Programmes.
10. Be capable of syntheses between cause and illness in the environment of community and individual health, and respond with leadership qualities to institute remedial measures for these.
11. To manage human resources, money, material, time and information required for delivering health care

C. INTEGRATION

Horizontal as well as vertical integrated teaching are conducted with in-house sister departments and extramural organizations (Government and non-Government) which are involved in the delivery of primary health care, implementation of National Health Programmes and/or running social welfare institutions.

COURSE CONTENTS

I.	CONCEPT OF HEALTH & DISEASE
Sl. No.	Course contents
1	Definition, concepts & evolution (history) of Public Health

2	Definition of health, holistic concepts of health including the concept of spiritual health, appreciation of health as a relative concept, dimensions & determinants of health
3	Characteristics of agent, host and environmental factors in health and disease and the multi factorial etiology of disease.
4	Understanding the concept of prevention & control of disease.
5	Understanding the natural history of disease and application of interventions at various levels of preventions
6	Introduction to various health indicators
7	Health profile of India-already in Chapter XIV
II	SOCIAL AND BEHAVIORAL SCIENCES
Sl no	Course contents
1	Concept of Sociology & Behavioral Science, Clinico-socio-cultural and demographic evaluation of the individual, family and community.
2	A sssessment of barriers to good health and health seeking behavior
3	Role of family in Health and Disease
4	Socio-cultural factors related to health and disease in the context of urban and rural societies
5	Assessment of socio-economic status, effect of health and illness on socio economic status
6	Doctor-patient relationship
7	Social Psychology, Community Behavior and community relationship, hospital sociology and psychology
8	Social security-Health Insurance: Organized sector, unorganized sector, special groups (Eg: elderly)
9	Impact of urbanization on health and disease-will be covered in chapter XIII
10	Poverty link to health and disease and poverty alleviation programmes
11	Intelligence – IQ and EQ
12	Personality – Types, Interpersonal relationships

13	Attitude, Behavior, habits
14	Emotions, Frustrations, role of emotions in health & coping with emotions
15	Conflicts-internal, interpersonal & conflict resolutions, defense mechanisms
16	Stress & coping skills – integrated (Psychiatry)
17	Ethics
18	Learning – Types and skills
19	Development & Health interface-Poverty & Health, Poverty alleviation programme. Health of the marginalized, Sustainable & inclusive development
20	Gender & Health including gender based violence, Epidemiology of violence and its prevention and control Life skill education
III	ENVIRONMENT AND HEALTH
Sl no	Course contents
1	Water: Concepts of safe and wholesome water, sanitary sources of waterborne diseases, water purification process. Water quality standards.
2	Physical, Chemical & bacteriological standards of drinking water quality and tests of assessing bacteriological quality of water.
3	Health hazards of air, water, noise, radiation pollution.
4	Concepts of water conservation, rainwater harvesting & Global warming.
5	Concepts of solid waste, human excreta and sewage disposal.
6	Awareness of standards of housing and his effect of housing on health.
7	Role of vectors in the causation of diseases.
8	Identifying the features of vectors and their control measures.
9	Life cycles of vectors and advantages and limitations of various vector control measures.
10	Mode of action, application cycle of commonly used insecticides and rodenticides.
11	Urban waste management.
12	Recent issue in environmental health

	a Stockholm convention b. Basel convention c. Kyoto Protocol.
13	Radiation Prevention and Control

IV. HEALTH PROMOTION AND EDUCATION/COMMUNICATION FOR BEHAVIOURAL CHANGE. (INFORMATION, EDUCATION, COMMUNICATION)

- a. Understand the concepts of health Promotion and education, IEC, Behavioral change communication, Counseling
- b. Principles & methods of health promotion and education.
- c. Barriers of effective communication and methods to overcome them.
- d. Various methods of Health education with their advantages and limitations.
- e. Organizing health promotion and education activities at individual, family and community settings.
- f. Evaluation of health promotion and education programme.

V. NUTRITION

- 1 Common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions
- 2 Nutritional assessment of individual families and the community by using appropriate method such as; anthropometrics, clinical examination 24 hour dietary recall and other methods of diet survey etc.
- 3 Plan and recommend a suitable diet for the individual and families as per local availability of food and economics status etc.
- 4 Common nutrition related health disorders (like protein energy, malnutrition, obesity, childhood obesity, Vitamin A deficiency, anemia, iodine deficiency, fluorosis, food toxin diseases) and their control and management.
- 5 Food fortification, additives and adulteration food hygiene.
- 6 Social and cultural factors in nutrition and Health.
- 7 Important natural nutritional programmes.
- 8 National Nutrition policy.
- 9 Nutritional surveillance, education and rehabilitation.
- 10 New WHO Growth Charts.
- 11 Principles of Therapeutic Diet

VI. OCCUPATIONAL HEALTH

Course Contents

- 1 Relate the history of symptoms with specific occupations including agricultural related occupation.
- 2 Employees state insurance Act. Scheme.
- 3 Specific occupational health hazards, their risk factors and its preventive measures.
 - Primary
 - Secondary and tertiary prevention including personal protective devices

- 4 Concepts of ergonomics.
- 5 Diagnostic criteria of various occupational related diseases.
- 6 Other legislations related to occupational health.
- 7 Digital Health Computer associated Illness.

VII. BIO-STATISTICS

- a. Collection, Classification, analysis, interpretation and presentation of statistical data.
- b. Application of Statistical methods in various study designs.
- c. Common sampling techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion.
- d. Apply in common tests of significance in various study designs

VIII. BASIC EPIDEMIOLOGY

- 1 Epidemiology: definition, concepts, uses and its role in health and diseases.
- 2 Use of basic epidemiological tools to make a community diagnosis of the health situation, in order to formulate appropriate intervention measures.
- 3 Definition of the terms used in describing diseases transmission and control.
- 4 Modes of transmission and measures for prevention and control of communicable and non-communicable diseases.
- 5 General Principles of prevention and control of communicable, non communicable diseases and other health conditions of public health importance.
- 6 Principal Sources of Epidemiological data.
- 7 Definition, Calculation and interpretation of morbidity and mortality indicators standardization (Direct & Indirect)
- 8 Screening of health related attributes & issues need, uses and evaluation of screening tests.
- 9 Investigation of an epidemic of communicable disease and to understand the principals of control measures.
- 10 Epidemiological study design & Research Methodologies
- 11 Concepts of association, Causation and biases
- 12 Application of computers in epidemiology

IX. EPIDEMIOLOGY OF SPECIFIC DISEASES: COMMUNICABLE & NON COMMUNICABLE

Communicable and non-communicable diseases of public health importance, relevant to the region, for which National Disease control/Eradication Programmes have been formulated.

Communicable Diseases: Intestinal infections: Poliomyelitis, Viral hepatitis, Diarrhoea, Cholera, Helminthisis, typhoid, Amoebiasis & Giardiasis, Food Poisoning.
Respiratory Infections: Acute Respiratory infections, Measles, Diphtheria, Whooping cough, Tuberculosis, SARS, Influenza, Meningococcal meningitis, Mumps.
Vector borne infections: Malaria, Filariasis, KalaAzar, Dengue, Yellow Fever, Chickengunya fever. Surface infections:
Sexually transmitted diseases, Syndromic approach, HIV & AIDS, Tetanus Leprosy, scabies, Pediculosis. Zoonosis: Rabies, Japanese encephalitis Plague Kyasanur Forest Diases, Leptospirosis, Anthrax.
Hospital Acquired Infections
New Emerging Diseases

Non Communicable Lifestyle Diseases: Coronary heart diseases, Hyper tension, Stroke, Rheumatic heart disease, cancers, obesity, Diabetes, Blindness, Injury and accidents.

- 1 Extent of problem, epidemiology and natural history of diseases
- 2 Public health important of particular diseases in local area.
- 3 Influence of social ,cultural and ecological factors on the epidemiology of particular diseases
- 4 Diagnosing diseases by clinical methods, using essential laboratory techniques at primary care level.
- 5 Treatment of a case, as per National programme guidelines, and also follow up of case
- 6 National health programme for health diseases.
- 7 Understand the principles of measures to control a diseases epidemic
- 8 Principles of planning, implementing and evaluating control measures for diseases at community level bearing in mind the public health importance of the diseases.
- 9 Training of health workers in diseases surveillance, control and treatment, health education.
- 10 Management information system in a particular diseases
- 11 Prevention and control of new emerging diseases and life style related health problems.
- 12 International classification of diseases.

X. DEMOGRAPHY AND VITAL STATISTICS

- 1 Concepts of demography, demographic cycle, Vital Statistics.
- 2 Definition, Calculation and interpretation of demographic indices like birth rate, death rae, fertility rates.
- 3 Declining explosion, population dynamics of India.gy.
- 4 Population exploration, population dynamics of India
- 5 Population control measures. Family planning methods including NSVand emergency contraception
- 6 National population Policy.
- 7 Sources of Vital Statistics like census, SRS NFHS, NSSO etc.

XI. REPRODUCTIVE AND CHILD HEALTH

1. Current statistics of reproductive and child health.
2. Screening of high risk groups and common health problems.
3. Local customs and practices during pregnancy, child birth and location child feeding practices.
4. IYCF (Infant and young child feeding practices)
5. Organization , implementation and evaluation of reproductive child health (RCH) components, including child survival and safe motherhood(CSSM),Universal immunization Programme(UIP), Integrated child development services scheme (icds), integrated management of Neonatal and childhood illness (IMNCI), Janani Suresh Yojna (JSY)& Accredited Social Health Activist (Asha) under national rural health mission(NRHM) and other existing Programmes.
6. Various Family Planning methods, their advantages and Shortcomings.
7. Medical Termination of Pregnancy and Act(MTO Act& Pre Natal Diagnostic Test Act(PNDT Act)

8. Adolescent Health
9. Handicapped Child. Community based Rehabilitation
10. Gender issues and Women empowerment.
11. Organizations, technician and operational aspects of the National family welfare Programme.
12. Genetics Health

XII. SCHOOL HEALTH

1. Objectives and components of school Health programme
2. Activities of the Programme:
 - a. Periodic Medical Examination of the children and the teachers
 - b. Immunization of the children in the school.
 - c. Health promotion and education.
 - d. Mid-day meals.

XIII. URBAN HEALTH

1. Common health problems (Medical, Social, environmental, Economical, Psychological) due to Urbanization of Urban Slum dwellers
2. Organization of health services for and in urban slums
3. National policy on urban health.

XIV. HEALTH CARE SYSTEM IN INDIA

1. Concepts of Primary Health care and Comprehensive health care.
2. Health profile of India
3. Health Care Delivery System in India and Infrastructure at peripheral, Primary, Secondary and tertiary care level
4. Job responsibilities of different category of workers in health System
5. Voluntary Health agencies working in India.

XV. HEALTH PLANNING, MANAGEMENT AND ADMINISTRATION

1. Concepts of Planning, Management, Public Health administration.
2. Components of health planning activity.
3. Classification and Understanding of various qualitative and quantitative Health management techniques.
4. Overview of administration at village, block, district, state and central level in India.
5. Integrated Disease Surveillance Project (IDSP)
6. Health Related Millennium Development Goal
7. National health Policy & National Rural Health mission(NRHM)
8. Concepts of Health Economics I health Planning and management.
9. Concepts, Scope and methods of Health Audit.
10. Role of Planning Commissions and Five year plan in development of health sector in India
11. Various health committees of government of India and their important recommendations
12. Decentralization and PRI Institutions.

XVI. DISASTER MANAGEMENT

1. Principles of disaster preparedness and application of these in disaster management.
2. Bio-terrorism
3. Pandemic Preparedness

XVII. LEGISLATION AND PUBLIC HEALTH

1. Census act 1948
2. Registration of Birth and Death Act 1969
3. The Epidemic Diseases Act, 1897.
4. The Transplantation of Human Organs Act, 1994
5. The prevention of food Adulteration Act 1954
6. The International Health Regulations
7. The Cigarettes and Other Tobacco product Act 2003
8. The Narcotic and Psychotropic substance Act 1958
9. The Cigarettes and Other Tobacco product Act 2003
10. The Narcotic and Psychotropic substance Act 1958
11. The Medical Termination of Pregnancy Act 1971(MTP Act)
12. The Dowry Prohibition Act
13. The Immoral Traffic (Prevention) Act 19
14. The Medical Termination of Pregnancy Act 1971(MTP Act)
15. The Dowry Prohibition Act
16. The Immoral Traffic (Prevention) Act 1956
17. The Prenatal Diagnostic Techniques (Regulation and Prevention of Misuse) Act 1994
18. The Juvenile Justice Act 2000-
19. –Child Labour (Prohibition and Regulation) Act 1986
20. The Persons with Disabilities (Equal opportunity, Protection of wrights and full participation) Act 1995
21. The Factories Act 1948
22. The Employees State Insurance Act 1948
23. The Environment (Protection) Act 1986
24. The Bio-Medical Waste (Management and Handling) Rules 2000
25. The Consumer Protection Act 1986

XIX. INTERNATIONAL HEALTH

1. Role of various multilateral, bilateral international health organizations like WHO, UNICEF Etc.
2. Organizational structure of these organizations
3. New International health Regulation (IHR)

XX. HEALTH CARE WASTE MANAGEMENT

1. Classification/Category, sources, health hazards and treatment of Bio-Medical Waste.
2. Application of these principles in different setting of health care delivery system.

XVIII. HEALTH CARE OF ELDERLY

Course contents

1. Health problems of Aged
2. Preventive Geriatrics
3. Care of Aged

XIX. MENTAL HEALTH AND BEHAVIORAL PROBLEMS

1. Importance of mental health care in primary care settings.
2. Comprehensive Mental HEALTH Care at primary care settings.
3. Common Mental Health disorders.
4. Substance use disorders Tobacco, Alcoholism and Drug addition
5. Gender Issues and Women Empowerment
6. Gender Based violence, Domestic Violence, Epidemiology Prevention and Control

XX. DEVELOPMENT AND HEALTH INTERFACE

Course contents

1. Poverty and Health
2. Poverty Alleviation Programme
3. Health of a marginalized
4. Sustainable and inclusive Development

XXI. GENETICS

Course contents

1. Epidemiology of Genetic Diseases
3. Screening of Genetic Diseases
4. Prevention and Control of genetic Diseases

XXII. DISABILITY

1. Types of Disability
2. Rehabilitation Clinical and community level.
3. Palliative Care

SKILLS

The student should be able to do:

1. Elicit Clinico-social history. Describe agent host and environmental factors determining health and disease.
2. Identify, prioritize and manage common health problems of community.
3. Apply elementary principles of epidemiology in carrying out simple epidemiological studies.

4. Work as a team member in rendering health care.
5. Carry out health promotion and education effectively in the community.

Skills in relation to specific topic

1. Communication:

Should be well versed with the art of interviewing techniques of elicit the desired information & with art of counseling to counsel. The student should be able to communicate effectively with family members at home, patients at clinics for at home; and community, Individuals, family or a group for health promotion and education, and also with peers.

2. Team Activity

Work as an effective member of the team; in planning and carrying out field work like school health, conduct health camps etc.

3. Environmental Sanitation:

Able to assess environmental risk factors plan and suggest action

Able to collect water and stool samples analysis for micro biological

Able to identify insects of public health importance, able to use effective insecticides.

Purification of water-small scale.

Vector Survey and control measures.

4. Communicable and Non-Communicable disease.

- Eliciting Clinico-social history and examining the patients for diagnosis and treatment.
- Assessing the severity and /or classifying dehydration in diarrhea, upper respiratory tract infection, dog bite, leprosy, classify tuberculosis (Categorization) and STD.
- Fixing, Staining and examining peripheral smear for malaria, sputum for AFB, hemoglobin estimation, urine and stool examination.
- Adequate and appropriate treatment and follow up of public health diseases and of locally endemic diseases.
- Advice regarding prevention and prophylaxis against common and locally endemic diseases.
- Use of proper screening methods in early diagnosis of certain diseases, applicable at primary care level.
- Able to detect outbreak in early stage, spot mapping, investigation of outbreak, notification of notifiable diseases.
- Surveillance skills development, calculating various health indicators and their interpretations.

5. Reproductive and Child Health:

- Antenatal-examination of women, application of at risk approach in antenatal care.
- Intranatel care –conducting a normal delivery, referral indications.
- Postnatal –assessment of new-born and mother, promotion of breast feeding, advice on wearing and on family planning.

- Immunization-able to immunize the eligible using desired routes, for providing vaccines.

Adverse Event

Reporting

- Contraception-able to advice appropriate method.
- Able to insert any Intra Uterine Device (IUD) Condom demonstration.
- Able to collect water and stool samples for microbiological analysis.
- Able to identify insects of public health importance, able to use effective insecticides, purification of water-small scale.

6. Statistics:

- Able to draw sample using simple sampling techniques.
- Apply appropriate test of significance.
- Calculation of various health indicators and presentation of data

7. Nutrition:

Conduct complete nutritional assessment of individual using clinical, anthropometric and diet survey tools.

Ability to use and interpret road to health card.

Advice appropriate balance diet and suggest any dietary modification.

Nutritional promotion and education to specific groups and related to specific nutritional diseases. Prescribe a therapeutic diet.

8. Occupation health:

Screening of workers for any occupation related health problem.

9. Managerial Skills:

Able to make community diagnosis and take remedial measure for improving health of community.

Organize antenatal, under five clinics, health education camps.

Ability to manage Health Management Information System, including maintenance of health records at primary care level.

Able to show effective leadership, supervision skill not only at primary care level but also in inter-sect oral coordination.

Ability to manage money, material and manpower at primary care level.

Ability to do cost effective analysis as per primary care needs. Ability to implement cost containment measures in public health

Community Participation and cooperation skills.

10. Basic Laboratory investigation at primary care level

Hemoglobin estimation

Urine examination for normal and abnormal constituents.

Thick and thin blood smear for malaria parasite examination

Peripheral smear for type of anemia

Acid fast staining

Estimation of chlorine demand and residual chlorine.

Identification of life cycle stages of various insects of public health importance

11. Minor surgical procedures at primary care level

All type of injection techniques

Universal precautions and safe injection practices (use of AD syringes)

Common wound dressings

Incision and Drainage of abscess under local anesthesia.

Stitching of clean lacerated wounds

12. First Aid, Initiation of emergency care, Triage and referral

13. Transportation of injured and seriously ill patients from site of first contact. Community

14. Participatory Rural appraisal

Social Mapping

Focus group Discussion

Key informant Interview

15. Health Education

Health Education to various Groups BCC (individual and group Assignments).

16. Animal bite Management.

D1. DETAILS OF INTERACTIVE LECTURES

TOPICS

Introduction

Objectives of Medical education need for value based medical education history of medicine with reference to community medicine

Concept of Health

Concept of Diseases

Concept of control & prevention

Learning –Type & skills-How to learn effectively

Intelligence-IQ, EQ

Personality-Type interpersonal relationships

Attitude, Behaviour, Habits

Emotions, Frustrations, role of emotions in health & coping with emotions - 1hr

Conflicts-internal, Interpersonal & conflict resolutions, defence mechanisms - 1hr

Stress & coping skills-Integrated (psychiatry)

Ethics

Gender Health Including Gender Based Violence

Life Skill Education

Epidemiology

Epidemiology-Introduction, tools & Measures of Mortality
Standardization Direct & Indirect
Measures of Morbidity
Descriptive studies
Case control studies
Cohort studies
Experimental studies
Association & Causation
Application of epidemiology
Screening for diseases
Infections Diseases Epidemiology_ concepts
Dynamics of Diseases Transmission & Concepts of prevention & control
Investigation of an epidemic (integrated with Microbiology)
Health services

Communicable Diseases

Smallpox & Chicken pox
Measles, Mumps, Rubella
Diphtheria, pertussis, Meningococcal meningitis
Influenza & SARS
ARI & ARI control Programme
TB-Epidemiology & Control
Poliomyelitis
Viral hepatitis
Typhoid fever, Cholera & ADD
Food poisoning & Food toxicants
Dengue fever, Chikungunya
Malaria
Filaria
Rabies
JE & KFD
Leptospirosis
Plague and Yellow fever
Leprosy
Trachoma & tetanus
STD-Syndromic approach
AIDS
Emerging & Re-emerging infections
Hospital acquired infections & Health care Waste Management
Non Communicable Diseases
Coronary Heart Diseases & Rheumatic Heart Diseases
Hypertension & stroke
Cancers
Diabetes mellitus & obesity
Blindness & control Programme
Accidents (Integrated)

Demography & Family Planning

Demographic cycle, Trends & National population Policy
Family Planning Methods Including Non scalpel Vasectomy, Emergency
Contraception and MTP Act

Maternal and Child Health

Maternal health-ante, intra, postnatal care & problem
(Integration with O &G)
Growth & Development/Growth Charts, WHO Grow Chart
(Integration with paediatrics)
Behavioural problems & Juvenile Delinquency
Indicators of MCH Care
Geriatric problems (Size, need for special care, National policy of elderly)
Adolescent problems

Nutrition

PEM& Child hood obesity
Nutritional requirements-RDA-integrated (Biochemistry)
Nutritional Disorders-integrated (Biochemistry)
National Nutritional Programmes.
Nutritional status assessment & Surveillance
Ecology of malnutrition, PFA

Social science

Concepts in sociology Family in Health & Diseases & cultural factors
Social problems-overview Social security measures

Development and Health

Development and Health Interface
Poverty and health, poverty alleviation programmes Health of Marginalized
Sustainable and Inclusive Development

Genetics

Epidemiology of Genetic Diseases
Screening of genetic diseases
Prevention and control of genetic disease

Mental and Behavioral Problems

Importance of mental health care in primary care settings
Comprehensive Mental HEALTH Care at primary care settings.
Common Mental Health disorders.
Substance use disorder
Tobacco
Alcoholism and Drug addition

Gender and Health

Gender Issues and Women Empowerment

Gender Based violence, Domestic Violence -causes, Prevention and Control
(Integrated Surgery, O&G, Legal and Police Department)

Environmental Health

(1) Pollution Air, Water and soil

(2) Waste Disposal in urban & rural areas

(3) Recent issues & advances in environmental health policies

Eg. Basel Convention

Stockholm Convention

(4) Emerging environmental health issues-eg: e wastes

Occupational health

1. Occupational health problems

2. Prevention of occupational diseases ergonomics

Communication process

Communication process, Types, barriers & Health Communication

Health education-Definition & Principles

Health Planning, Health System & Health economics

Health Planning & Planning Cycle

Health System & Health Care Delivery system

(Rural, urban, tribal)

Health Information system

Health committees

Concepts of health care-primary health care

Health care for all

National Health Policy, Millennium development goals

Role of Voluntary agencies in Health, New International Health regulations

Panchayati Raj

Management & Managerial Techniques

Health economics & cost containment issues health care

National Health Programmes

Revised National TB Control Programme

National Anti-Malarial Programme

National Filaria Control Programme

(Mass Drug Administration & Morbidity Management)

National Vector borne disease control programme

National AIDS Control Programme

National Mental Health Programme & District Mental Health Programme

Evolution of Family Planning Programme & Reproductive & Child Health Programme

National Rural Health Mission and Indian Public Health Standards

Disaster management, Pandemic preparedness

Bioterrorism

Legislation and Public Health

1. Census act 1948
2. Registration of Birth and Death Act 1969
3. The Epidemic Diseases Act, 1897.
4. The Transplantation of Human Organs Act, 1994
5. The prevention of food Adulteration Act 1954
6. The International Health Regulations
7. The Cigarettes and Other Tobacco product Act2003
8. The Narcotic and Psychotropic substance Act 1958
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19. Child Labour (Prohibition and Regulation) Act1986
20. The Persons with Disabilities (Equal opportunity, Protection of wrights and full participation) Act 1995
21. The Factories Act 1948
22. The Employees State Insurance Act 1948
23. The Environment (Protection) Act 1986
24. The Bio-Medical Waste (Management and Handling) Rules 2000
25. The Consumer Protection Act1986

PRACTICALS/FIELD VISITS

Practical should offer first-hand experience in the community through visits, mock sessions and hands-on exercises. Visits may be planned based on public health importance, relevance and feasibility. For each visit objectives may be specified and orientation given prior to the visit. Five minutes may be allotted for presenting report of previous day's activities, learning experiences and suggestions. Integrated and interactive team teaching may be employed wherever possible.

Phase I

30hrs

Visit to community and families
 Visit to support and auxiliary health facilities
 Identify a community Health Problem
 Community living programmes
 Hands-on exercise on first aid

Phase II

170 hrs

Family studies – Community diagnosis
 Basic clinical skills training-history taking skills
 Innovative community based problem solving exercises

Biostatistics-hands-on exercises-central
 tendencies/dispersion/sampling/hypothesis/significance tests
 Community interaction, identification and solving community with community participation
 health problems
 Entomology including field assignments –vector survey/control measures
 Epidemiological exercises – Mortality, Morbidity, Risk/ Screening, including study designs
 and standardization
 Visit to public health institutions
 Visit to social welfare organizations
 Implementation of National Health Programmes through CHC/ PHC and sub centre visits
 Visits to institutions of medico social importance
 Pain & palliative care centre
 Vocational Rehabilitation Centre
 Water works
 Anganwadi
 Analyst lab
 De addiction centre
 Food inspector's Office etc.
 BCC (IEC) Strategies-individual & group assignments
 Review of current health issues & policies
 Review of museum specimens, poster presentations
 Participation in health related activities in the community
 Research methodologies – Participation in workshop & Project work, computer skills
 Nutrition skills – Diet survey, balanced diet, Nutritional requirements, RDA, Nutritional
 disorders, Community Nutrition programme
 Balanced diet and therapeutic diet
 Food Hygiene
 PFA act
 Universal Precautions & Safe Injection Practices
 Health Care Waste Management
 Participatory techniques in health
 Health Planning & Management exercises
 Disinfection
 Immunization agents & Immunity-Vaccines, Cold Chain
 Hazards of immunization including adverse event reporting
 Fertility related statistics and Family Planning methods
 Growth Charts
 Art of Interviewing
 Doctor-Patient relationship and Hospital sociology
 Sanitary well, well Chlorination Procedure
 Purification of water – large and small scale
 Water Quality Standards and surveillance
 Sanitary Survey

METHOD OF ASSESSMENT

Modified essay question
 Short answer questions
 Problem solving exercises
 OSCE, OSPE
 Epidemiological exercises

Records review
Research, Project Reports
Viva Voce

TEACHING LEARNING METHODS

Structured interactive sessions
Small Group discussion
Focussed Group Discussion (FGD)
Participatory learning appraisal (PLA)
Institutional visits
Practical including demonstrations
Problem based exercises
Video Clips
Written case scenario
Self-learning tools
Interactive learning
E-modules

TIME OF EVALUATION

Examination of Community Medicine should be at the end of 7th Semester and formative and summative assessment during internship so that we have a basic doctor, competent to provide primary care.

LEARNING RESOURCE MATERIALS

Text books
Reference books
Practical note books
Internet resources
Video films etc

SUGGESTED TOPICS FOR LEARNING THROUGH e-MODULES:

History of Medicine and Public Health
Environmental Health
Nutrition (Except public Health Nutritional Programme)
Epidemiological methods
Screening
Planning Cycle
Health management techniques
Entomology
Biostatistics
Demography
Disaster management
Biomedical waste management
International health
National Health Organizations

TOPICS FOR INTEGRATED TEACHING WITH DEPARTMENT OF COMMUNITY MEDICINE AS PARTICIPANT

Nutrition

Iron deficiency anemia

Communicable diseases with National Health Programmes like

- -HIV/AIDS
- -Tuberculosis
- -Malaria
- -Polio
- -Diarrheal diseases
- -Leprosy
- -Zoonotic diseases

Lifestyle related diseases with preventive aspects like

- Diabetes
- Hypertension
- Stroke
- Obesity
- Cancers
- Jaundice

Alcoholism Death
and Dying

Geriatric Medicine

Adolescent Health

Rational Drug Use

Contraception

Industrial health

Ethical issues

TOPICWISE MARKS DISTRIBUTION IN COMMUNITY MEDICINE

	Paper I	Marks
1	Concept of Community Medicine	5
2	Sociology & Developmental Health Interface	5
3	Environment including entomology	10
4	Biomedical Waste management, Occupational Health	5
5	Nutrition & Genetics	10
6	Basic Epidemiology	15
7	Health Promotion & Education	5

8	Demography , Biostatistics & Health Information System	5
	Total	60
	Paper II	Marks
1	Communicable diseases including Emerging & re-emerging diseases	15
2	Non-Communicable diseases, Disability, Rehabilitation	10
3	& RCH & Health of Elderly	10
4	Health care delivery system & Urban health Disaster Management Health Planning, management& Financing	10
5	Mental & behavioral health problems	5
6	National Health Programs & NRHM Health legislation & International Health	10
7	Health legislation & International Health	5
	Total	60

Each Paper should have:

- Structured essay one question: 10 marks
- Remaining structured short essay question: 50 divided marks
- Around 50 %problems based competency testing (Cognitive domain) in theory question paper
- Each paper shall be of 3 Hours duration Distribution of Marks

1. Theory

Theory	Max.Marks
Theory Paper I	60
Paper II	60
Internal assessment	20
Oral	10
Total	150

2. Practical

Practical and oral should be conducted in one day

Exercise	Max.Marks
Epidemiological exercise	3
Statistics	4

Clinic social case study & OSCE	8
Spotting & OSPE	5
Diet prescription	3
Project defense & Record	7
Internal assessment	20
Total	50

Grand Total (Theory & Practical) – 200

E. TEXT BOOKS RECOMMENDED:

E1. Prescribed Books

- a. Park's Text book of preventive and Social Medicine, K. Park (18th edn.) Banaridas Bhanot
- b. Textbook of Parasitology, Protozoology and Helminthology – Chatterji K D
- c. Introduction to Health Statistics – Swaroop S E & S. Livingstone Ltd.
- d. A treatise on Hygiene and Public Health – Ghosh B N Scientific Publising Company, Calcutta
- e. Text Book of Social & preventive medicine -Mahajan
- f. Epidemiology for undergraduates – Marine Rajan Joseph – Jaypee Publishers (2007) 1st edn.
- g. Syamalan's Statistics in Medicine (2006); National Health Programme by Jugal Kishore
- h. National Health Programme by D K Taneja
- i. Textbook of preventive & Social Medicine by Sunder lal, Adarsh, Pankaj
- j. Textbook of preventive & Social Medicine by T Bhaskar Rao
- k. Biostatistics by A Indrayan
- l. Methods in Biostatistics by B K Mahajan
- m. Textbook of Preventive & Social Medicine by Gupta & Ghai
- n. Text book of Preventive & Social Medicine by Gupta & Mahajan
- o. Essentials of Community Medicine by Suresh Chandra
- p. Introduction to Biostatistics by Sathya Swaroop
- q. Community Medicine with Recent Advances by AH Suryakantha

E2. Reference Books:

- a. Preventive Medicine and Public Health Appleton Century Crofts – Maxcy, Kennith F Rosenau
- b. Preventive Medicine for the doctor in his community – Level H R & Clark E G; Mc Graw Hill Book Company
- c. Theory & Practice of Public Health – Hobson W Oxford University Press
- d. American P H Association Communicable Disease Control in man
- e. Manson's tropical diseases – Wilcock's & Manson
- f. Oxford test book of Public Health 4th edn.

9.9 - OPHTHALMOLOGY

I. Goal

The broad goal of the teaching of students in Ophthalmology is to provide such knowledge and skills to the student that shall enable him/her to practice as a clinical and as a primary eye care physician: and also to function effectively as a community health leader to assist in the implementation of National Programme for the prevention of blindness and rehabilitation of the visually impaired.

II. Objectives

At the end of the course, the student shall be able to:

1. Identify common diseases of the eye
2. Diagnose and treat common diseases of the external eye-conjunctivitis, stye, extraocular foreign body, corneal abrasion, Vitamin A deficiency
3. Recognise and initiate treatment (prior to referral) for sight threatening diseases like acute glaucoma, keratomalacia, corneal ulcer , ocular trauma, alkali/chemical injuries.
4. Demonstrate knowledge of blindness and its causation. Be an active participant in the implementation of the National Programme for Control and prevention of Blindness
5. Integration: To provide an integrated approach towards other disciplines especially ENT, General Surgery, General Medicine etc.

III. Course Contents

The student should have knowledge on the following topics taken during their course.

IV. Topics

Title

Acute conjunctivitis, Trachoma, Allergic conjunctivitis, Pingecula, Pterygium, Xerosis/bitot spots, Dry eye, Angular conjunctivitis, neonatal conjunctivitis, subconj hemorrhager, D/D of conjunctival and limbal nodule

Chronic conjunctivitis, Dry eye, Membraneous conjunctivitis, Inclusion conjunctivitis

Corneal Inflammations: Corneal Ulcers-bacterial, , fungal, viral, Mooren's Ulcer Vitamin A Deficiency and keratomalacia, Exposure keratitis, Neuroparalytic keratitis, Corneal blindness, Eye banking, eye donation, Keratoplasty, Arcus senilis, Corneal oedema

Deep / interstitial keratitis, degenerations and dystrophies, Overview of keratorefractive surgery.

Scleritis, episcleritis

Iridocylitis, Panophthalmitis, Endophthalmitis

Systemic associations of uveitis,Choroiditis, Coloboma iris, ocular albinism,

Vitreous hemorrhage-causes

Synchisis syntillans, Asteroid hyalosis

Angle closure glaucoma, Open angle glaucoma, steroid induced glaucoma, lens induced glaucoma including surgery and management

Cataract and management , cong. Conditions, surgery and complications, lens abnormality
 Secondary glaucomas, Congenital glaucoma
 Fundus changes in Diabetes, Hypertension, anaemias, Pregnancy induced hypertension,
 Hematological disorders, Myopia
 Photocoagulation
 Retinal vascular diseases-
 Central retinal artery occlusion, Central retinal vein occlusion, Retinal detachment
 Retinopathy of prematurity, Retinitis pigmentosa, retinoblastoma
 Pappilledema, Optic neuritis, Optic atrophy
 Awareness of amblyopia, Types of squint
 Paralytic, non-paralytic)
 Common causes of proptosis, Orbital cellulites, Cavernous sinus thrombosis
 Dacryocystitis-congenital, Acute, chronic, Epiphora
 ectropion entropion, trichiasis, ptosis, Lagophthalmos, symblepharon, blepharitis, Chalazion,
 Refractive error, Myopia, hypermetropia, Astigmatism, Presbyopia, aphakia/pseudophakia,
 Anisometropia, overview of keratorefractive surgery
 Chemical injuries, Open globe injuries, closed globe injuries and first aid treatment including
 sympathetic injuries.
 Siderosis bulbi, Chalcosis, medico legal aspects
 Definition and types of blindness.
 Causes of blindness
 Promotion of eye donation
 NPCB, Vision 2020,
 Eye camps
 Symptomatic disturbances of vision, Overview of Recent advances in Ophthalmology
 Lasers in Ophthalmology
 Enucleation – Indication , technique
 Eye & systemic diseases including AIDS
 Causes of sudden /partial/ painless dimension of vision
 Ocular malignancy-retinoblastoma and malignant melanoma of choroid
 Pharmacology
 Chronic side effects of systemic medication, local anaesthetics, viscoelastics, steroid and
 NSAIDS

V. Skills

At the end of the course, the student shall be able to:

- a. Elicit a history pertinent to general health and ocular status.
- b. Assist in diagnostic procedures such as visual acuity testing, examination of eye, Schiötz tonometry, staining for corneal pathology, confrontation perimetry, direct ophthalmoscopy examination, squint examination.
- c. Interpreting FFA, Optical Coherence Tomography (OCT), Humphrey Perimetry, Corneal Topography, Gonioscopic findings and observing laser and surgical procedures
- d. Diagnose and treat common problems affecting the eye.
- e. Interpret ophthalmic signs in relation to common systemic disorders
- f. Assist/ observe therapeutic procedures such as subconjunctival injection, corneal conjunctival foreign body removal, nasolacrimal duct syringing and tarsorrhaphy
- g. Provide first aid in ophthalmic emergencies.
- h. Assist to organize community survey for visual check up.
- i. Assist to organize primary eye care service through primary health centres.

- j. Use effective means of communication with the public and individual to motivate for surgery in cataract and for eye donation.
- k. Establish rapport with his seniors, colleagues and paramedical workers, so as to effectively function as a member of the eye care team.
- l. Assist in speciality clinics – namely, Cornea, Retina, Glaucoma, Squint & Low Vision Aid clinic

VI. Knowledge

At the end of the course, the student shall have knowledge of:

- a. Common problems affecting the eye.
- b. Principles of management of major ophthalmic emergencies
- c. Main systemic diseases affecting the eye.
- d. Effects of local and systemic diseases on patient's vision and the necessary action required to minimize the sequelae of such diseases.
- e. Adverse drug reactions with special reference to ophthalmic manifestations
- f. Magnitude of blindness in India and its main causes.
- g. National programme for control of blindness and its implementation at various levels.
- h. Eye care education for prevention of eye problems.
- i. Role of primary health centre in organization of eye camps.
- j. Organisation of primary health centre and the functioning of the ophthalmic assistant.
- k. Integration of the national programme for control of blindness with the other national health programmes.
- l. Eye bank organization

VII. Details of Lectures

Basic Anatomy, Physiology of eye, adnexa, lacrimal apparatus and orbit
 Diseases of eyelids, lacrimal apparatus, orbit, Disease of conjunctiva
 Disease of cornea, Disease of sclera, Disease of uveal tract, Disease of lens
 Glaucoma, Vitreous, Injuries of the eye, Intraocular tumours, Retina, Optic nerve
 Refractive errors/Refraction, Squint, Operations of the eye, Basic of neuro-ophthalmology,
 Systemic disease and eye, Adverse drug reactions, Ophthalmic emergencies, Magnitude of blindness
 National Programme for control of blindness, Eye bank organization/ Eye donation,
 Organisation of eye camps, Rehabilitation of the blind.

VIII. Clinical teaching during posting Clinical posting in batches during 5th & 7th Semester.

Theory Lectures, Tutorials, Group discussions, Integrated teaching, Seminars, Approx. 100 Lectures of one hour each.

IX. Details of practicals

X. Clinical postings

8.00 am to 9.00am - Clinical lecture

9.00am -12.am - Case demonstration in outpatient department discussions during clinical postings, case records, seminars, discussions, clinical exam

12-1 pm: Clinical lecture

Minimum one day per week is devoted for live operative surgery demonstration and discussion.

Separate clinical record/ log books

PATTERN OF EXAMINATION

Theory –one paper 40 marks

(Should contain one question on pre-clinical and para-clinical aspects, of 10 marks)

Oral (viva) - 10 marks

Clinical - 30 marks

Internal assessment - 20marks (theory-10; practical-10)

Total - 100 marks

Question paper

Section –A

- | | |
|---------------------------|-----------------|
| 1. Draw&label | 2 marks |
| 2. Short answer questions | 1 x 4 =4 marks |
| 3. Short notes | 2 x 4 =8 marks |
| 4. Short answer questions | 3 x 2 = 6 marks |

Section –B

- | | |
|--|-------------------|
| 1. Structured question (clinical
Problem solving) | 1+2+2+3+2=10marks |
| 2. Short answers | 2x2 =4marks |
| 3. Short answer questions | 2x3 =6marks |

9.10 - OTORHINOLARYNGOLOGY

A. Goal

The broad goal of teaching undergraduate students Otorhinolaryngology is to ensure that they acquire adequate knowledge, skills and attitude for optimum treatment(including emergencies), rehabilitation of common otorhinolaryngologic disorders and assessment of the need for referral to specialised care.

B. Objectives

Objectives are categorised as objectives for

1. Knowledge
2. Skills
3. Attitude

1. Knowledge

At the end of the course, the student shall be able to:

- a. describe the basic physiology of common ear, nose and throat diseases including emergencies.
- b. adopt rational use of commonly used drugs, keeping in mind their adverse reactions
- c. suggest common investigation procedures and interpret their findings

2. Skills

At the end of the course the student shall be able to:

- a. examine and diagnose common ear, nose and throat problems including the pre-malignant, malignant disorders of head and neck
- b. manage ear, nose and throat problems at the first level of care and be able to refer whenever necessary
- c. observe and assist in carrying out minor surgical procedures like ear syringing, ear dressing and nasal packing
- d. assist in certain procedures such as tracheostomy, endoscopies and removal of foreign bodies
- e. communicate effectively with other members of medical profession including nursing, para medical, technical staff and other members of health care teams in a collaborative manner
- f. communicate effectively and appropriately with patients and their attendants

3. Attitude

At the end of the course the student shall understand the need to have the following attitudes

- a. attitudes needed to work as a team member
- b. attitudes needed to lead a team
- c. attitudes needed to win patient confidence
- d. attitudes needed for continuing improvement of clinical knowledge and skills The undergraduate training in ear, nose and throat will provide an integrated approach towards disciplines, especially neurosciences, ophthalmology and general surgery.

C. Detailed syllabus

1. Overview of course

Duration of the course-2 months (distributed in 2 semesters - first half in 5th semester and second half in 7th semester)

THEORY+INNOVATIVE SESSION -110 hrs

PRACTICALS -180 hrs

2. Details of lectures

2.1 Ear

2.1.1 Introduction to diseases of ear Topics: · Diseases of external ear: (with special mention on wax, otomycosis, foreign body, keratosis and malignant otitis externa · Diseases of middle

ear: Acute otitis media, otitis media with effusion, chronic suppurative otitis media - TTD, AAD, complications of middle ear infections. Deafness - classification, causes, investigations, early detection of deafness in children and rehabilitation (special mention to audiometry, otosclerosis, learning and speech rehabilitation).

Diseases of inner ear: Vertigo - classification, causes, investigations and management (special mention of Meniere's disease, positional vertigo and acoustic neuroma).

2.2 Nose and paranasal sinuses

Rhinitis - etiology, classification and management (special mention of allergic rhinitis, atrophic rhinitis and allergic fungal rhino-sinusitis).

Acute sinusitis (in detail), chronic sinusitis (in detail).

Complications of infections of nose and paranasal sinuses

Facio-maxillary injuries (in detail), epistaxis, DNS and nasal polyp (special emphasis on FESS)

Tumours of nose and PNS (special mention of inverted papilloma, naso-pharyngeal angiofibroma and malignancy)

2.3 Throat

Tonsils and adenoids (special mention of Quinsy, patches in oral cavity and pharynx) Neck space infections - Ludwig's angina, retropharyngeal and parapharyngeal abscess

Hoarseness - diagnosis and management

Stridor - diagnosis and management

Malignant lesions of larynx and laryngo-pharynx.

Dysphagia - causes, investigations and management (special mention of malignancy)

Foreign bodies of aero-digestive tract - diagnosis, management and complications, endoscopies in ENT.

3. Details of practicals

Clinical postings

8:00 - 9:00 am: Clinical lecture

9:00 - 12:00 am: Case demonstration in out-patient department, clinical discussions

12:00 - 1:00 pm: Clinical lecture, Minimum one day per week is devoted to live operative surgery, demonstration and discussion

Separate clinical record books should be kept and at least ten cases to be included

4. Text books recommended and other learning resources

Prescribed text books

1. Logan Turner's text book of Otorhinolaryngology
2. Diseases of ear, nose and throat - P L Dhingra (Elseviers publications)
3. Text book of ear, nose, throat and head and neck diseases - P Hazarika, D R Nayak, R Balakrishna (CBS publishers)
4. Current diagnosis and treatment Otolaryngology Head and Neck surgery - Anil K Lalwani (McGraw Hill company Inc)
5. Scot Brown's Otorhinolaryngology, Head and Neck surgery 7th edition - (Edward Arnold publishers limited)
6. Diseases of ear, nose and throat: B K Roy Chowdhury (Bijoya publications)

7. ENT simplified: Batchi Hathiram and D S Grewal. (Bhalani publishers)
8. Text book of ENT diseases - K B Bhargava, S K Bhargava, T N Shah (Usha publications)

Other resource materials

- 9.1.1.1 Skill laboratory
- 9.1.1.2 CDs and DVDs
- 9.1.1.3 Internet

D. Evaluation

Evaluation has to be both formative and summative in order to achieve the objectives mentioned earlier.

There has to be internal evaluation as well as external evaluation. Evaluation will be done through examinations.

1. Internal Examinations

Theory - 2 papers

EXAM I – After completion of the 4th semester postings in ENT

Duration - 3 hours -Topic - Otology

EXAM II -At the end of 7th semester postings Duration - 3 hrs

Topic - whole subject of ENT.

Practicals - 3 numbers

1 practical examination each should be conducted at the end of the 1 month posting in each semester.

Practical exam 1 – I long case viva 1 final practical exam similar to the University examination.

PATTERN OF QUESTION PAPER

THEORY

Time: 3 hrs

Max. Marks: 40

SECTION A			
1	Long answer question/structured essay	2x (3marks)	6 marks
2	Draw and label	2x(2 marks)	4 marks
3	Short answer questions	4x(1 mark)	4marks

4	Write short notes on	3x (2 marks)	6 marks
SECTION B			
6	Structured question (clinical problem solving)	1+2+2+2+3 marks	10marks
7	Short answer questions	4x(1 marks)	4 marks
8	Write short notes on	2x (3 marks)	6 marks

PRACTICALS

1. Two structured cases of 10 marks each - $10 \times 2 = 20$ marks
2. OSCE - 5 stations of 4 marks each - $4 \times 5 = 20$ marks
3. Internal assessment - 10 = marks

MODEL QUESTION PAPER
3rd Professional MBBS Degree Examination -Part 1
OTORHINOLARYNGOLOGY

(Draw diagrams wherever necessary)

Time: 2 Hours

Max. Marks – 40

SECTION - A

I. Write Briefly on

1. Cochlear implants
2. Aetiology, clinical features and treatment of vocal nodule

(2 x 3 = 6)

II Draw & Label

1. Organ of Corti
2. Lateral wall of Nose

(2 x 2 = 4)

III Short Answer Question

1. Fossa of Rossemuller
2. Complications of adenoidectomy
3. Killian's dehiscence
4. Little's area

(4 x 1 = 4)

IV Write short notes on

1. Cortical mastoidectomy
2. Inverted Papilloma
3. BPPV

(3 x 2 =6)

SECTION - B

V. A 6 year old boy is brought to the outpatient department with complaints of snoring and recurrent nasal discharge of 6 months duration. Since 2 months, parents also noticed inattentiveness and decreased hearing in the child.

1. What is the probable diagnosis?
2. What are the clinical signs in the ear?
3. How will you confirm the diagnosis?
4. What is the treatment?
5. What all complications can occur if left untreated?

(1+2+2+3+2=10)

VI. Short answer question

1. Carhart's notch
2. Laryngeal crepitus
3. Peritonsillar abscess
4. Osteomeatal unit

(4 x 1 = 4)

VII. Write Short notes on

1. Myringotomy
2. Pure tone Audiometry
3. Foreign body nose

(3 x 2 = 6)

9.11 - MEDICINE AND ITS ALLIED SPECIALITIES**MEDICINE****A. GOAL**

The broad goal of teaching of undergraduate students in Medicine is to have the knowledge, skills and behavioural attributes to function effectively as the first contact physician/ family doctor.

B. OBJECTIVES**(1) Knowledge**

At the end of the course, the student shall be able to:

- a. Diagnose common clinical disorders with special reference to infectious diseases, nutritional disorders, tropical and environmental diseases;
- b. Outline various modes of management including drug therapeutics especially dosage, side effects, toxicity, interaction, indications and contraindications:
- c. Propose diagnostic and investigative procedures and ability to interpret;
- d. Provide first level management of acute emergencies promptly and efficiently and decide the timing and level of referral of required.;
- e. Recognize geriatric disorders and their management.

2. Skills

At the end of the course, the student shall be able to:

- a. Develop clinical skills (history taking, clinical examination and other instruments of examination) in various common medical disorders and emergencies.
- b. Refer a patient to secondary and/or tertiary level of health care after having instituted primary care.
- c. Perform& interpret simple routine investigation like hemogram, stool, urine, sputum and biological examinations
- d. Assist the common bed-side investigate procedures like pleural tap, lumbar puncture, bone marrow aspiration/biopsy and liver biopsy.

3. Integration

- a. With community medicine and physical medicine and rehabilitation to have the knowledge and be able to manage important current national health programs, also to be able to view the patient in his/her total physical, social and economic milieu:
- b. With other relevant academic input which provide scientific basis of clinical medicine eg: anatomy, physiology, biochemistry, microbiology, pathology and pharmacology.

C. DETAILED SYLLABUS	
DETAILS OF THE COURSE	
Duration of the course	:5 semesters – III, V, VI, VIII & IX
Total number of theory	: 300
Lectures	: 100
Innovative sessions	: 200
Practicals	: Clinical posting as per schedule attached
(Project work, Seminars, Structured	, Integrated teaching, Formative evaluation, Revision)

LECTURES

I. Nutrition and Nutritional disorders

- a) Nutrition requirements
- b) Protein calorie malnutrition in adults
- c) Obesity
- Vitamin deficiencies
- Vitamin excess
- Hypo and Hypervitaminosis A&D

II. Fluid and electrolyte balance

- a) Hypovolemia and Dehydration
- b) Acidosis
- c) Alkalosis
- d) Hyponatremia + Hypernatremia
- e) Hypokalemia + Hyperkalemia

III. Disturbance of body temperature

Infections

- Approach to fever and PUO
- URI including sinusitis
- LRTI – Bronchitis and Community acquired pneumonia
- Tuberculosis
- Gastroenteritis, Cholera, Food poisoning
- Amoebiasis
- Helminthic infections, Bacillary dysentery
- Acute Viral Hepatitis
- Chronic Viral Hepatitis
- Malaria, Filariasis
- Chickenpox, Herpes Zoster
- Dengue fever, Chickungunya
- Typhoid
- Leptospirosis
- Common exanthematous fevers
- Skin & Soft tissue infections including, Cellulitis
- UTI
- HIV AIDS
- Sepsis
- Rabies
- Tetanus
- Common fungal infections
- Influenza and other respiratory viral infections
- Brucellosis, Rickettsia
- Meningitis
- Common gram negative infections
- Common gram positive infections

IV. Immunology

Role of B and T Lymphocytes

Immunoglobulin

Immune Reaction

Anaphylaxis, Urticaria, Angioedemas

Primary Immune Deficiency Disorders

Genetics

Clinical Genetics

Environmental and occupational problems

a) Common Poisonings Organophosphate and carbamate Sedatives, hypnotics, Antipsychotics, TCA

Rat poison + paracetamol Formic acid, Methyl alcohol, Odollum

b) Bites and stings Snake bite Scorpion sting + others

c) Alcohol abuse

d) Radiation hazards

e) Hanging, Drowning, Electrical injuries

VIII. Medical disorders in Pregnancy

IX. CVS

Coronary circulation

Coronary artery diseases

ECG and X-ray interpretation

Rheumatic fever and RHD

Congenital heart disorders

Corpulmonale

Hypertension and Hypertensive heart disease

Cardiac failure

Peripheral Vascular Diseases

Infective Endocarditis

Cardiomyopathies

Pericardial disease

Rhythm disturbances

DVT + Pulmonary embolism

X. GI System

Approach to patient with Jaundice

Approach to patient with Ascites

Physiology of Absorption and Investigation procedures

Acid peptic diseases

Malabsorption syndrome and Tropical sprue

Drug/toxin induced hepatitis & NASH

IBS

Inflammatory bowel disease
Disease of colon and rectum
Abdominal Tuberculosis
Chronic liver disease
Upper GI bleed
Haemochromatosis & Wilson's Disease

XI. Respiratory system

Bronchial asthma
COPD
Suppurative lung disease
Pleural diseases
Bronchogenic carcinoma
Respiratory failure
ILD

XII. Haematology

Bleeding disorders
Coagulation disorders
Acute Leukemias
Chronic Leukemias
Haemolytic anemias
Fe deficiency anemia
Macrocyte and Megaloblastic anemia
Plasma cell disorders
Polycythemia
Lymphoma
Aplastic anemia + Agranulocytosis
HUS & TTP

XIII. Renal Medicine

Acute renal failure
Chronic renal failure
Glomerular disease
Nephrotic syndrome
RFT

XIV. Central Nervous System

Functional
Anatomy
Physiology and Investigation
Migraine and cluster headache
Seizures and Epilepsy
Ischemic stroke
Hemorrhagic stroke
Approach to a case of vertigo
Extrapyramidal disorders
Peripheral Neuropathy

Spinal cord disorders
Motor neuron disease and Myasthenia
CNS Tuberculosis
Demyelination
Cerebellar disorders
Dementias, Delirium
Pituitary dysfunction and Tumor
Endocrine disease related to Gonads

XV. Geriatrics

Normal ageing and age related common problems
Drug therapy in elderly

XVI. Critical care

Severe sepsis and shock
Acute LVF + Acute severe asthma
Cardiopulmonary resuscitation
Status epileptics
Approach to coma
Management of hepatic encephalopathy
DIC
Emergency management of Acute coronary syndrome
Bioterrorism and disaster management

XVII. Rheumatology

Rheumatoid arthritis
SLE
Spondylo arthropathies
Degenerative Joint disorders
Approach to chronic backache
Inflammatory muscle disease

XVIII. Endocrine disease

Diabetes Mellitus
Hypothyroidism
Hyperthyroidism
Thyroiditis & other thyroid disorders
Parathyroid disorders + Tetany
Metabolic bone disease + Osteoporosis + Vitamin Deficiency
Cushings disease + Syndrome
Addison's disease

XIX. Pain and principles of palliative care

Assessment and treatment of chronic pain

XX. Clinical Pharmacy and Therapeutics

General principles of drug therapy
Common drug interactions
Common adverse reactions
Monitoring drug therapy
Rational prescription writing

TEXT BOOKS RECOMMENDED

1. Principles and practice of Medicine by Davidson
2. Davidsons clinical cases by Mark W Stratchan and S.K.Sharma
3. Text Book of Medicine by Kumar and Clark
4. Clinical Medicine by Dr.K.V.Krishnadas
5. Macleods clinical examination
6. Hutchison's textbook of clinical methods

REFERENCE TEXT BOOKS

1. Harrison's Principles of Internal Medicine
2. Text Book of Medicine Cecil & Loeb

PSYCHIATRY LECTURES -20 HOURS

- a. Classification of psychiatric disorders
- b. Aetiological factors in psychiatric disorders
- c. Clinical interview & Mental state examination
- d. Organic brain syndrome
- e. Substance abuse
- f. Bipolar disorders
- g. Depressive disorders
- h. Schizophrenia
- i. Major manifestation of psychiatric illness
- j. Treatments used in psychiatric illness
- k. Neurotic, stress related and somatoform disorders
- l. Sleep disorders
- m. Legal aspects of psychiatry

RADIOLOGY LECTURES (INCLUDING RADIOTHERAPY)-20 HOURS

Production of X-rays
Biological changes
Skeletal Radiology
Chest & Mediastinum
Gastrointestinal system
Hepatobiliary system
Genitourinary system
Neuroimaging modalities
Emergency Radiology

DERMATOLOGY LECTURES -30 HOURS

Infections of Skin
 Eczematous dermatitis
 Bullous skin lesion Collagen disorder
 Pigmentary disturbances
 Maculo papular,
 squamous lesion
 Neoplastic lesions
 Lesions of skin appendages
 Gastrogenic disorders
 Leprosy & national leprosy Control programmes

INNOVATIVE SESSION

(Project work, Seminars, Structured discussion, integrated teaching, Formative evaluation, Revision and Morning sessions)

I. Common symptoms of disease/clinical approach to

- a) Pain
- b) Fever
- c) Respiratory symptoms
- d) Pallor, Jaundice, Oedema
- e) GI symptoms
- f) Haemetemesis, Malaena, Bleeding PR/ Haematochezia
- g) rinary symptoms
- h) Neurological symptoms
- i) Musculoskeletal symptoms
- j) Weight loss and gain

II. Applied Basic Sciences topics with relevance to Medicine

Cardiac cycle and ventricular functions
 Cardiac biomarkers,
 (LFT/RFT/PFT)
 Normal CSF
 Blood supply of brain
 Lobar function of brain
 Functional anatomy of spinal cord
 Functional anatomy of cranial nerves
 Bronchopulmonary segments
 Pulmonary circulative
 Lympatic drug of Lung Structure and functions of Nephrons Digestion and absorption
 Haemopoesis and Iron metabolism
 Thyroid functions and hormones Calcium metabolism
 Physiology of pain

III. Project work

IV. Seminars

V. Structured discussion

VI. Formative evaluation**VII. Morning sessions****VIII. Revision****EXAMINATION**

At the end of the course the student should have sufficient

- a) Knowledge to diagnose clinical disorders with special reference to Infectious Diseases, nutritional diseases, outline various modes of management including drug therapy.
- b) Skills in history taking, clinical examination and diagnosis.
- c) Refer a patient to secondary, tertiary care centre.
- d) Perform simple routine investigations
- e) Assist the common bed side investigative procedures like pleural tap, lumbar puncture

Part – II		
a)	Medicine	
	Theory – two papers 60 marks each	120 marks
	Paper I – General Medicine	
	Paper II – General Medicine (including psychiatry, dermatology and STD)	
	(Shall contain one question on basic sciences and allied Subjects)	
	Oral (Viva) interpretation of Xray , ECG etc.	20 marks
	Clinical (bedside)	100 marks
	Internal Assessment	60 marks
	(Theory – 30: Practical – 30)	
	Total	300 marks
	Paper -I	
	General Medicine – Section – A	
I.	10 marks x 1 = 10 marks	
	(problem oriented question)	
II.	2 marks x 10 = 20 marks)	

(short answers)		
Section -B		
III. structured question	10 marks x 1 = 10 marks	
IV. short question	2 marks x 10 = 20 marks	
Paper – II		
General Medicine including Psychiatry, Dermatology and Radio diagnosis		
Section – A		
1. Problem oriented question	10 marks x 1 = 10 marks	
II. Short answer question	2 marks x 10 = 20 marks	
Section – B		
II. Structured question	10 marks x 1 = 10 marks	
III. short answer question	2 marks x 10 = 20 marks	

Problem oriented and structured questions must be from General Medicine. There should not be more than one question each from radiology, dermatology and psychiatry.

Practicals:

I. Long case (one) -50 marks Assessment should be based on

1. Case sheet writing Methodology, Symptoms Signs Diagnosis
2. Elicitation of findings
3. Differential diagnosis
4. Suggested investigation for diagnosis
5. Treatment of the situation

II. Short Cases - (two) 25 marks x 2 = 50 marks

Assessment based on

1. Elicitation of findings

9.12 -SURGERY AND ITS ALLIED SPECIALITIES

(SURGERY including Paediatric Surgery)

A. GOAL

The broad goal of teaching the undergraduate medical students in Surgery is to produce graduates capable of delivering efficient first contact surgical care.

B. OBJECTIVES

1. Knowledge

At the end of the course, the student shall be able to:

- a. Describe aetiology, Pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adult and children
- b. Define indications and methods for fluid and replacement therapy including blood transfusion
- c. Define asepsis, disinfection and sterilization and recommended judicious use of antibiotics
- d. Describe common malignancies in the country and their management including prevention
- e. Enumerate different types of anaesthetic agents, their indications, mode of administration, contraindications and side effects

2. Skills

At the end of the course, the student should be able to:

- a. Diagnose common surgical conditions both acute and chronic, in adult and children;
- b. Plan various laboratory tests for surgical conditions and interpret the results;
- c. Identify and manage patients of haemorrhagic, septicæmic and other types of shock;
- d. Be able to maintain patients air-way and resuscitate; i. a critically injured patient, ii. patient with cardiorespiratory failure, iii.a drowning case.
- e. Monitor patient of head, chest, spinal and abdominal injuries, both in adult and children
- f. Provide primary care for a patient of burns
- g. Acquire principles of operative surgery, including pre-operative, operative and post-operative care and monitoring
- h. Treat open wounds including preventing measures against tetanus and gas gangrene
- i. Diagnose neonatal and paediatric surgical emergencies and provide sound primary care before referring patient to secondary / tertiary centres
- j. Identify congenital anomalies and refer them for appropriate management

In addition to the skills referred above in items (a) to (j), he shall have observed / assisted the following:

- a. Incision and drainage of abscess
- b. Debridement and suturing open wound
- c. Venesection
- d. Excision of simple cyst and tumours
- e. Biopsy of surface malignancy
- f. Catheterisation and nasogastric intubation
- g. Circumcision
- h. Meatotomy
- i. Vasectomy
- J. Pertoneal and pleural aspirations
- k. Diagnostic proctoscopy
- l. Hydrocele operation
- m. Endotracheal intubation
- n. Tracheostomy
- o. Chest tube insertion

C. DETAILED SYLLABUS

DETAILS OF THE COURSE

Duration of the course: semesters -III, V, VI, VIII & IX

Total number of hours: 300

Lectures: 100.

Innovative sessions: 200

Practicals: Clinical posting as shown in the table

(Project work, Seminars, Structured discussion, integrated teaching, Formative evaluation, Revision)

DETAILS OF LECTURES

Principles of Surgery; Genetics, History of Surgery, Surgical ethics

Trauma:

- a. Metabolic Response to Trauma,
- b. Wound healing and complications,
- c. Critically injured patient including Triage
- d. ATLS, Poly Trauma, Disaster Management,
- e. Different types of wounds and their management.

Shock: Types, pathogenesis and management, Haemorrhage, Haemostasis, Blood transfusion, Burns

Fluid and Electrolyte Balance, Nutritional Support

Pre-operative and post-operative care -Emphasis on Intensive care & high dependency Sterilization

Surgical sepsis -Specific infection, Nosocomial infection, Antibiotic policy

Immunology and organ transplantation, HIV and Surgeon, Hepatitis B

Principles of imaging techniques

Suture materials and Anastomosis

Skin and Soft tissues

Normal structure -Ulcers, sinus and fistula, Cysts and Benign tumours

Pre malignant conditions, Malignant Tumours, Skin cover

Arteries

Applied Anatomy and physiology, Investigation, Trauma, Acute ischaemia, chronic ischaemia,

Arterial aneurysms and A. V. fistula, Amputations

Veins

Applied Anatomy and physiology, Varicose veins and venous ulcers, DVT and superficial thrombophlebitis

Lymphatics and Lymph nodes

Applied Anatomy and Physiology, Lymphodema-primary, Secondary, Lymph cyst -Cystic Hygroma

Inflammations - Lymphangitis, lymphadenitis, Malignant Neoplasms -lymphomas

Head and Neck

Head injuries, Facio maxillary injuries, Salivary glands, Mouth and Face ,-Cleft lip, Cleft palate, Oral cancers and premalignant conditions, Jaw tumours, ranula, Misc -Branchial cysts and fistula, Carotid body tumours,

Thyroid and Parathyroid

Thyroglossal cyst and fistula

Breast

Applied Anatomy and physiology, Investigation, Fibrocystic Diseases, Inflammation, Tumours

Chest

Diaphragm, Mediastinum, Chest Injuries; Thoracic outlet compression syndrome Heart and pericardium, Pleura and Lungs

Gastro Intestinal Tract**Oesophagus**

Anatomy and physiology, Congenital anomalies, Dysphagia, Achalasia and other motility disorders,

Oesophageal perforation, Gastro oesophageal Reflux Diseases, Tumours Stomach and Duodenum

Anatomy, physiology, embryology, Congenital, Peptic ulcer Disease(APD), Upper GI Haemorrhage,

Tumours, pyloric stenosis

Liver

Applied Anatomy and Physiology, Trauma, Liver Abscess, Cysts of the Liver, Portal Hypertension,

Tumours, principles and management of obstructive jaundice

Biliary system

Congenital disorders, Gall stone, Cholecystitis, Cholangio carcinoma

Spleen

Anatomy and physiology, Trauma -Splenic conservation, Indication for splenectomy

Pancreas
Anatomy, Development and Physiology, Congenital Anomalies, Acute pancreatitis, Chronic pancreatitis including calculi, calcific pancreatitis, Tumours, Surgical jaundice**Vermiform Appendix**

Anatomy, Appendicitis, Neoplasm

Small and Large Intestine

Anatomy, Physiology, Embryology, Congenital disorders, Inflammatory Bowel disease including typhoid, tuberculosis, tumours, intestinal obstruction

Rectum and anal canal

Ano-rectal anomalies, Prolapse, Haemorrhoids, Ano-rectal sepsis, fissure, fistula, Tumour

Miscellaneous

Abdominal trauma, Minimally invasive Surgery, Peritoneum and retroperitoneum, Hernia and abdominal wall, Mesentery, surgical audit and day care surgery

Genito urinary System

Congenital conditions, Trauma, Infection, Stones, Hydronephrosis, Tumours of kidney; Tumours of Bladder, Retention of urine, Haematuria, Torsion, Undescended testis, Epididymo-orchitis, Carcinoma penis, Phimosis, Prostate, testicular tumours. benign prostatic hypertrophy, carcinoma prostate, adrenal gland surgery pheochromocytoma&conn syndrome

DETAILS OF PRACTICALS – Clinical Postings -Ward work**Clinical Postings**

8.00 -9.00 am &12-1 PM

Theory in clinical subjects

9.00-12 noon

Case demonstration in wards/ out patient department/ Theatre

Separate clinical record book should be kept and at least twenty cases to be included. During the 24 weeks of posting in the surgical wards including OP, casualty and operating theatre during the three and a half years of posting, the students should receive instructions in principles and practice of surgery, study surgical diseases system wise and region wise including surgical anatomy, surgical pathology applied physiology, applied biochemistry, applied pharmacology and microbiology, investigations and management of surgical diseases and operative surgery. They should do physical examination and necessary investigation; maintain a record of their work, the treatment given to the patient and follow up, a minimum of 20 cases should be studied by a student during their posting each year. This should be included as part of the documents to be presented before the examination and should be valued. During their posting in eighth semester, they should attend to casualty work and observe minor operative procedures and emergency surgical procedures, management of the acute abdomen, resuscitation of the critically ill and resuscitative procedures including endotracheal intubation. Clinical teaching should include bed side clinics, demonstrations etc. of common surgical conditions found in the hospital. At the end of each posting there should be an examination conducted by the unit and these marks should be taken into account for the average examination and final assessment.

Each candidate must have at least three clinical examinations by the time he appears for the final examination.

The student should have seen the common surgical procedures and be able to identify all the commonly used instruments.

Operative Surgery –

Tracheostomy, gastrostomy, colostomy, suprapubic cystostomy, nephrostomy, AK amputation, BK amputation, Trendelenburg operation, Lumbar sympathectomy, Laparotomy, GJ and Vagotomy, Mastectomy, thyroidectomy, Eversion TV sac, herniorrhaphy, haemorrhoidectomy, vasectomy, Gastrojejunostomy. Surgical instruments, suture materials and disposables

TEXT BOOKS RECOMMENDED

Prescribed Books

1. Short practice of Surgery by Bailey and Love
2. Clinical Methods in Surgery by Das
3. Operative Surgery by Das

Reference Books

1. Physical signs in Clinical Surgery by Hamilton Bailey
2. Pye's Surgical Handicraft
3. Sabiston's Text Book of Surgery
4. Text book of Surgery, Cusheri

9.11.1 SURGICAL SPECIALITIES

Lecture demonstration in surgical specialities should include Orthopaedics, Radiotherapy, Anaesthesiology, Thoracic Surgery, Plastic Surgery, Neurosurgery, Urology and Casualty

9.13. ORTHOPAEDICS

A. GOAL

The broad goal of teaching the undergraduate medical students in the field of Orthopaedics is to make the students understand the basics of fractures and dislocations commonly encountered and the essential treatment needed for emergency management. The common inflammatory and neoplastic diseases occurring in the bones and joints should also be familiarised.

B. OBJECTIVES

1. Knowledge

- a. Explain the principles of recognised of bone injuries and dislocation
- b. Apply suitable methods to detect and manage common infections of bones and joint
- c. Identify congenital, skeletal anomalies and their referral for appropriate correction or rehabilitation
- d. Recognize metabolic bone diseases as seen in this country
- e. Explain aetiogenesis, manifestations, diagnosis of neoplasm affecting bones

2. Skills

At the end of the course, each student shall be able to:

- a. Detect sprains and deliver first aid measures for common fractures and sprains and manage uncomplicated fractures of clavicle, Colle's forearm, phalanges etc
- b. Use techniques of splinting, plaster, immobilization etc
- c. Manage common bone infections, learn indications for amputations and corrective measures for bone deformities
- d. Advise aspects of rehabilitation for polio, Cerebral palsy and amputation

3. Application

Be able to perform certain orthopaedic skills, provide sound advice skeletal and related conditions at primary or secondary health care level

4. Integration

Integration with anatomy, surgery, pathology, radiology and Forensic Medicine is done.

C. DETAILED

Duration of the course		:	3semesters –IV, , VI, & IX
Total number of hours of theory		:	
Lectures	:	35	Lectures
Innovative sessions	:	Part of clinical work	Innovative sessions
Practicals	:	Clinicalpostin gs as per schedule	Practicals
(Project work, Seminars, Structured discussion, Formative evaluation, Revision)			

DETAILS OF LECTURES

Traumatology

Definition of a fracture and types of fracture and general Principles of management of fracture

Complications of fracture –Open fractures and pathological fracture

Fracture clavicle, Fracture neck of humerus and shoulder dislocation

Fracture humerus (shaft) and Supracondylar fracture

Intercondylar fracture and Olecranon fracture

Elbow dislocation and forearm fracture

Monteggia fracture and Galeazzi's fracture

Colle's fracture and fracture scaphoid

Fracture spine and traumatic Paraplegia

Definition of a fracture and types of fracture and general Principles of management of fracture

Complications of fracture –Open fractures and pathological fracture

Fracture clavicle, Fracture neck of humerus and shoulder dislocation

Fracture humerus (shaft) and Supracondylar fracture

Intercondylar fracture and Olecranon fracture

Elbow dislocation and forearm fracture

Monteggia fracture and Galeazzi's fracture

Colle's fracture and fracture scaphoid

Fracture spine and traumatic Paraplegia

Fracture pelvis and Hip fracture –Fracture of femur

Hip dislocation and fracture shaft of femur

Meniscus tear and fracture patella

Leg fracture

Ankle injuries –Pott's fracture

Hand injuries

Extensor mechanism injuries of knee

Fracture of tarsal bones

Cold Orthopaedics

C.T.E.V and flat foot

C.D.H

Torticollis, Congenital Pseudoarthrosis of Tibia and Arthrogryphosis multiplex congenita

Osteomyelitis Septic arthritis Tuberculosis –Spine, Hip, Knee, Elbow, Wrist and other sites (2 classes)

Perthe's disease and slipped upper femoral epiphysis

Rickets and Osteomalacia

Rheumatoid arthritis and Ankylosing spondylitis

Intervertebral disc prolapse.

Scoliosis and Spondylothesis

Bone, Tumour, Osteochondroma, Simple bone cyst, Aneurysmal bone cyst and Enchondroma
Giant cell tumour, Osteosarcoma and Ewing's sarcoma Chondrosarcoma, Multiple myeloma,
Metastatic bone diseases and Osteogenesis Imperfecta

Nerve injuries –Radial nerve, ulnar nerve, sciatic nerve, Amputations and Osteoarthritis Hip,
Knee Cerebral palsy.

Seminars/symposia

Symposia with clinical cases –Trauma

Fat embolism, compartment syndrome VIC, Physical Medicine and Rehabilitation,
Ankylosis,

Back pain, Bone tumours (benign), Bone tumours (malignant)

DETAILS OF PRACTICALS –Clinical Posting

Nerve injuries, Deformities, Malunion, Nonunion, CTEV, Bone tumours, Traction, Splints
and POP

TEXT BOOKS OF RECOMMENDED**Prescribed Books**

1. Graham Apley –System of Orthopaedics
2. Fracture and Joint injuries –Watson Jones
3. Orthopaedics –Samual F Turck
4. Mercer Orthopaedic Surgery
5. Outline of fractures - Adam's
6. Outline of orthopaedics –Adam's
7. Clinical Surgery –Das –Chapter on Orthopaedics
8. Crawford Adam's –Operative techniques (Orthopaedics)

Reference Books

1. Campbell's operative orthopaedics

9.14. PHYSICAL MEDICINE AND REHABILITATION

One week's posting of MBBS students to Physical Medicine and Rehabilitation had been
suggested during Orthopaedics / Radiology posting

1. Introduction to Physical medicine and Rehabilitation disability process and progression of
disabilities concept of Impairment / Disability and Handicap
2. Principles of Physical therapy –various modalities and therapeutic exercises
3. Principles of occupational therapy its application in the rehabilitation of various disabilities
4. Principles of prosthetics –and rehabilitation aids their application in the rehabilitation of
disabilities
5. Disability evaluation –principles people with disabilities Act -1995
6. Pain management principles
7. Principles of rehabilitation of people with disabilities
8. To understand the basic principles of disability classification and for certification purposes
9. To get exposed to the potentials of socio-vocational rehabilitation of the various describing
conditions in the light of the 1995 Act People with Disabilities (equal opportunities etc) Act

1995 10. To get oriented to basic principles of community based rehabilitation of people with disabilities

Text books Recommended

Text book of Rehabilitation Medicine by Howard

9.15. RADIOTHERAPY

A.GOAL

The broad goal of teaching undergraduate medical students in the field of Radiotherapy is to make the students understand the magnitude of the ever-increasing cancer problem in the country. The students must be made aware about steps required for the prevention and possible cure of this dreaded condition

B. OBJECTIVES

1. Knowledge

The student shall be able to:

- a. Identify symptoms and signs of various cancers and their steps of investigations and management
- b. Explain the effect of radiation therapy on human beings and the basic principles involved in it
- c. Know about radio-active isotopes and their physical properties
- d. Be aware of the advances made in radiotherapy in cancer management and knowledge of various radio therapeutic equipment while treating a patient

2. Skills

At the completion of the training programme, the student shall be able to:

- a. Take a detailed clinical history of the case suspected of having a malignant disease
- b. Assist various specialists in administration of anticancer drugs and in application and use (If various radiotherapeutic equipment, while treating a patient)

C. DETAILED SYLLABUS

DETAILS OF THE COURSE

Duration of the course: 2 semesters -1V

Total number of hours: 20

Lectures: 7

Innovative sessions: 13

Practicals: As per schedule

(Project work, Seminars, Structured discussion, integrated teaching, Formative evaluation, Revision)

DETAILS OF LECTURES

7 hrs

Cancer epidemiology and possible etiological factors, screening for cancer
 Principles of cancer chemotherapy and chemotherapeutic agents used in the management of cancer
 Hormone treatment in cancer
 Principles of Radiation oncology, Radioactive Sources –Teletherapy, Brach) 1therapy and Nuclear
 Medicine
 Methods of Radiotherapy and Recent Advances
 Common malignancies, Diagnosis and Treatment

TEXT BOOKS RECOMMENDED

Prescribed Books

1. Text book of Radiotherapy by Walter and Miller
2. Flecher's Text book of Radiotherapy

Reference Books Cancer –Text book of Oncology by Devitta

9.16. ANAESTHESIOLOGY

SYLLABUS

DETAILS OF THE COURSE

Duration of the course: semester III–VIII

Total number of hours, theory: 20

Lectures: 7

Practicals: As per schedule attached

Innovative sessions: 13 Part of clinical posting

(Project work, Seminars, Structured discussion, Formative evaluation, Revision)

DETAILS OF LECTURES 20 hrs

Introduction – Scope of Anaesthesiology

Pre-anaesthetic check-up premedication

General anaesthesia –Basal Anaesthesia triads of anaesthesia Inhalational agents

Intravenous Anaesthetic agents

Regional analgesia –Subarachnoid and Epidural analgesia, other techniques of regional analgesia and agents used

Equipments in anaesthesia and Methods of oxygen therapy

Intravenous fluid therapy, Intra operative monitoring

Complication in anaesthesia and post-operative period

Cardio-pulmonary & cerebral resuscitation, basic cardiac life support (BCLS), Advanced cardiac life support (ACLS)
Methods of pain Relief

DETAILS OF PRACTICALS

Practical Demonstrations: inside the theatre

1. Premedication,
2. Anaesthetic equipments,
3. N cannulation,
4. CVP monitoring,
5. Different anaesthetic techniques,
6. Laryngoscopy, intubation,
7. Spinal and Epidural anaesthesia,
8. Regional anaesthesia,
9. Management of patient in the recovery room,
10. Resuscitation techniques,
11. Equipments used –Monitoring equipments, Ventilators, Boyle's apparatus,
12. Care of patients on ventilator,
13. Intra venous fluid therapy,
14. Pain management

TEXT BOOK RECOMMENDED

Reference Book –Synopsis of Anaesthesia by Alfred Lee

EVALUATION –SURGERY AND SPECIALITIES

General Surgery

Two papers of three hours duration with 60 marks each

Surgery paper I

Topics included

GIT, Orthopedics

Section A(General Surgery)		
1.	structured question (clinical problem solving)	1+1+1+2=5 marks
2.	Short notes	5x2 (marks)=10 marks
3.	Structured question (clinical situation)	1x3 (marks)=3
4.	Short essays	2x6(marks)=12 marks
5.	Total	30 marks

Section B (Orthopedics)		
1.	Structured question (clinical situation)	1+1+1+1+1=5 marks
2.	Short answer question	3x1 (mark)=3 marks
3.	Short answer question	2x2(marks)=4 marks
4.	Short essays	5x1(marks)=5 marks
5.	Short answer question	1x4(marks)=4marks
6.	Short notes	3x3(marks)=9 marks
7.	Total	30 marks
	Grand total	60 marks

Paper II –Whole of general surgery (except GIT), anaesthesia, Radiotherapy, Dental

Surgery paper II	
Topics included	
General Surgery· except GIT, Anaesthesia and dental	
Section –A	
I. Short answer questions	(2marks x 5) = 10 marks
II. Short note	(3 marks x 2)= 6 marks
III. Short answer questions	(2 marks x 2)= 4 marks
IV. Structured question.	(5 marks x 1)= 5 marks
V. Short essay	(5 marks x 1)= 5 marks
Total	=30 marks
Section –B	
I Short notes	(2 marks x 3) = 6 marks

II Short answer questions	(3 marks x 2) = 6marks
III Structured question	(5 marks x 2) = 10 marks
IV Short essay	(4 marks x 2) = 8 marks
Total	=30 marks

Total marks - 120marks

Internal assessment - 30Marks

Viva Voce - 20 marks

Total for theory - 170marks

Practical - 100 Marks

Internal assessment - 30 marks

Total for Practical - 130 Marks

Total for the subject - 300 marks

University examination

Theory

Two papers of three hours duration with 60 marks each

Surgery paper I

Topics included -GIT, -30 marks

Orthopaedics -30 marks

Surgery paper II

Topics included - Whole of general surgery except GIT, anaesthesia, Radiotherapy, Dental-60 marks

Total -120 marks

Practicals Clinical:

One *long case* - 45 minutes 50 marks

History taking - 10 marks

Clinical examination & Interpretation - 10 marks

Presentation - 5 marks

Demonstration - 5 marks

Discussion - 20 marks

(Above aspects should be strictly evaluated. Total average time for assessment of a candidate should be 10 minutes)

Short case

One General Surgery & one Orthopaedics - 10 minutes each

Marks - 20 marks

OSCE - 5 marks

Total - 25 marks

OSCE –is a clinical demonstration in a patient.

Points to be noted

- Introduction
- Consent
- Position of patient
- Interpretation

Oral Examamination (viva) - 20 marks

4 examiners –

Topics to be divided and all examiners to examine each student X-rays/Histopathology slides, Instruments, Specirriens and operative surgery Data analysis & Management

5 marks x 4 = 20 marks

**MODEL QUESTION PAPER
PAPER 1 GIT, ORTHOPEDICS**

Time -3 hrs

Max marks -60

*Answer Section A and B in separate answer books.
Draw diagrams wherever necessary.*

SECTION A – GIT

1. Read this paragraph and answer the following questions

You are asked to assist your consultant in doing an upper gastro intestinal endoscopy for a patient suspected to have carcinoma of stomach. A fibre optic endoscope is passed into the staomach under local anaesthesia and an ulcer is visualized in the greater curvature of the stomach. A four quadrant biopsy of the ulcer is taken.

- a. What is the distance from the incisors at which the diaphragmatic constriction is encountered?
- b. What is the common pathological type of carcinoma stomach?
- c. What will the gastric secretory studies reveal in such a patient
- d. What are the indications for D2 resection for gastric cancer

(1+1+1+2=5 marks)

- 2 Write short notes on
- Splenectomy
 - Complications of gall stones
 - Chew and spit test
 - Oschner Sherren regime
 - Child's criteria

(5x2 marks =10 marks)

- 3 Read the following paragraph and answer the questions

A 50 year old chronic alcoholic male patient was brought to the casualty with severe upper abdominal pain which radiates to back also. General examination showed tachycardia with tachypnoea . abdominal examination showed rigid abdomen with minimal free fluid. Liver dullness not obliterated.

- What is the probable diagnosis
- What is the most appropriate blood test to diagnose this condition
- What are the indications for surgery for this condition

(1+1+1=3 marks)

4.

- Describe the pathology and management of gastrointestinal stromal tumour
(6 marks)
- Mention the pathogenesis clinical presentation and management of anorectal sepsis
(6 marks)

SECTION B – ORTHOPAEDICS

MODEL QUESTION PAPER PAPER II GENERAL SURGERY (EXCEPT GIT), ANESTHESIA, RADIOTHERAPY, DENTAL

Time -3 hrs

Max marks - 60

*Answer Section A and B in separate answer books.
Draw diagrams wherever necessary.*

SECTION A

1. Short answer questions

- Fibroadenoma
- Aortic aneurysm
- Hydronephrosis
- Sublingual dermoid
- MenII syndrome

(5 x 2marks = 10 marks)

2. Write short notes on

- Deep vein thrombosis
- Tuberculous lymphadenitis

(2x3marks = 6 marks)

3. Short answer questions

- a. What is TRIAGE?
- b. What are blood substitutes?

(2x 2 marks = 4 marks)

4. Read this paragraph and answer the following questions

A fifty year old female has presented in OP department with the history of a painless lump on the right breast of two months duration. Examination showed a 2X2.5 cm hard lump in the upper outer quadrant of the right breast with no fixity to underlying structures. Examination of the right axilla showed 2x2 cm size single swelling which is mobile. Examination of abdomen did not reveal any abnormalities.

- a. What is the most probable diagnosis
- b. Mention two differential diagnosis
- c. How will you confirm your diagnosis
- d. What is the surgical treatment of this condition
- e. How will you follow up the patient

(1+1+1+1+1=5 marks)

5. Describe the clinical features and management of papillary carcinoma thyroid

(5marks)

SECTION B

1. Write short notes on

- a. Leukoplakia of the oral cavity
- b. Hyperparathyroidism
- c. Haemangiona

(2 marks x 3 = 6 marks)

2 Write short notes on

- a. Clinical features and management of Cervical rib
- b. Subdural haematoma

(3 marks x2 = 6 marks)

3 Read this paragraph and answer the following questions

A 50 year old male, chronic smoker is presenting with a pain less slowly increasing swelling on the lower part of the right parotid region. Examination showed it to be a tense cystic swelling .Oral cavity examination was normal except for tobacco staining. Examination of neck did not show any abnormality.

- a. What is the most probable diagnosis
- b. Mention two differential diagnosis
- c. Mention the most important non-invasive investigation to diagnose this condition
- d. Name the surgery done for this condition and Mention two complications of the surgery.

(1+1+1+2=5 marks)

4. Read this paragraph and answer the following questions

A 14 year old boy is coming to you saying that size of right testes has reduced to a pinhead size. He gives a history of sudden onset of severe pain on right testes a few months ago for which he has not taken any treatment and got symptomatic relief in a few days time.

- a. What is the diagnosis
- b. What are the diagnostic features of this condition
- c. Mention two predisposing factors for this condition
- d. (i)What would have been the treatment if you had seen the patient immediately after the onset of the pain?
(ii) What will you do now?

(1+1+1+2=5 marks)

5. a. Describe the role of cytoines in inflammatory response (4marks)
- b. what are the complications of fracture ribs and how will you manage a case of flail chest (4marks)

9.17 - PAEDIATRICS

DETAILS OF THE COURSE

Duration of course	: 3 semesters	IV,VI,&IX
Total number of hours theory		:100
Lectures		:34
Practicals		:as per schedule attached
Innovative sessions		:66
(Project work, seminars, structured discussion,		
integrated teaching, formative evaluation, revision)		

OBJECTIVES

1. Knowledge

At the end of the course, the student should be able to:

- a) Describe the normal growth and development during fetal life, neonatal period, childhood and adolescence and outline deviations thereof.
- b) Describe the common pediatric disorders and emergencies in terms of epidemiology, etiopathogenesis, clinical manifestations, diagnosis, rational therapy and rehabilitation.

- c) State age related requirements of calories, nutrients, fluids, drugs etc. in health and disease.
- d) Describe preventive strategies for common infectious diseases, malnutrition, genetic and metabolic disorders, poisonings, accidents and child abuse.
- e) Outline national programmes relating to child health including immunization.

2. Skills

At the end of the course, the student shall be able to:

- a) Take a detailed pediatric history; conduct an appropriate physical examination of children including neonates. Make clinical diagnosis, conduct common bedside investigative procedures, interpret common lab results and plan and institute therapy.
- b) Take anthropometric measurements, resuscitate newborn infants at birth, prepare oral rehydration solution, perform tuberculin test, administer vaccines available under current national immunization programme, perform venesection, IV canulation, start an intravenous saline and provide nasogastric feeding.
- c) Observe diagnostic procedures such as lumbar puncture, liver and kidney biopsy, bone marrow aspirations, pleural tap and ascitic tap.
- d) Distinguish between normal newborn babies and those requiring special care and institute early care to all new born babies. Provide correct guidance and counseling in breast feeding.
- e) Provide ambulatory care to all sick children, identify indications for specialized inpatient care and ensure timely referral of those who require hospitalization
- f) Know how to write a proper prescription & referral letter.

3. Integration

The training in pediatrics should prepare the student to deliver preventive, promotive, curative and rehabilitative services for care of children both in the community and rehabilitative services and at hospital as part of a team in an integrated form with other disciplines, eg. Anatomy, physiology, forensic medicine, community medicine and physical medicine and rehabilitation.

The skill training is thoroughly inadequate though this is expected to be practiced during internship, there is no special allocation of hours to skill especially Resuscitation, Procedural skills (as in BDS course).

The emphasis given to critical case is less. There should be more emphasis on posting students in casualty (as in medicine and surgery).

Drug therapy in children should be given more importance in Curriculum also rational use of drugs.

DETAILS OF LECTURES

Infectious diseases

Poliomyelitis, measles, diphtheria, tetanus, Childhood tuberculosis, typhoid fever, HIV infection, Dengue and chikungunya, viral haemorrhagic fevers and malaria. Pertussis, Mumps, Rubella, Influenza, H1N1, seasonal epidemics.

Gastro Intestinal Tract and Liver disorder

Diarrhoeal diseases, hepatitis and hepatic failure, Cirrhosis liver and portal hypertension. Helminthic infestations.

C.V.S

Congenital Heart disease. Rheumatic fever and RHD, CCF, Hypertension, Infective Endocarditis Respiratory system

Childhood asthma, Acute Bronchiolitis, Pneumonias in children, Suppurative Lung disease, smoking and environmental pollution, Croup syndromes

C.N.S

Cerebral palsy, Mental retardation, Meningitis and Encephalitis, Seizure disorders & Febrile seizures, Microcephaly and Hydrocephalus, Floppy infant, Therapeutics—

Treatment of epilepsy, GBS, ADEM

Haemopoietic system Anaemia in children, bleeding disorders

Disorders of kidney acute nephritis, Nephrotic syndrome, Renal failure, Urinary tract infection

Endocrine disorder Diabetes melitus, Thyroid disorders, short stature and intersex, Ambiguous genitalia, Precocious puberty

Connective Tissue disorders JRA, Other vasculitis syndromes including SLE and HSP, Kawasaki disease

Malignancies in children Leukemia, Lymphomas, Neuroblastoma, Solid tumors, CNS tumors

New Born Respiratory Distress in new born. Perinatal Diagnosis and treatment, Sepsis in new born. Assesment and management of Asphyxia, Thermoregulation in new born Congenital Malformations. Disorders of gestation and low birth weight, Neonatal resuscitation, neonatal jaundice, Sepsis, BFHI and feeding, normal variations Intra uterine infections, neonatal seizures.

Behavioral problems in children

Enuresis, thumb sucking, breath holding, Dyslexia, Specific learning disorders, child rearing problems like infantile colic, growing pain etc.

Common poisoning and accidents in children

Kerosene, Dhatura, paracetamol and iron, snake bite, burns etc

Nutrition

BFHI, IYCF, Nutritional assessment, SAM, Specific Vitamin deficiency disorders

National Programmes

IMNCI, RCH3,

NRHM, Vitamin A,

Iodine deficiency, IDSP, ARI, ADD, AFP & PPI

Common chromosomal disorders and genetic counselling Down's syndrome,

Turner syndrome,

Fragile X and Genetic counseling.

Innocent problems causing undue parental anxiety Breath holding spell.

Evening colic, growing Pain etc.

Tutorial Topics

Introduction to pediatrics

History taking and general Examination

CVS, RS, NS and GIT (History taking and system Examination)

Fluid and electrolyte balance

Growth and development, Nutrition, FTT, Fluid and electrolyte balance

Immunization –National immunization schedule & Optional vaccines

New born: Resuscitation of NB, LBW babies, Convulsions in NB, Jaundice in NB, Assessment of gestation, Examination of NB, normal variation of NB
 Approach to a child with congenital heart disease. Cardiac failure
 Approach to a child with cyanotic heart disease.
 Rheumatic heart disease
 Acute diarrhoeal disorders
 Approach to a child with anemia
 Bleeding disorders
 Oedema in children
 Wheezing and stridor in children
 P.U.O
 Failure to thrive
 Convulsions in children, Coma in children
 Approach to a child with jaundice
 Acute flaccid paralysis in children
 Shock in children
 Child with rash
 Paediatric surgery classes
 Instruments and procedures, X-ray and nutrition

Details of clinical postings	
8.00-9.00am	Lecture in clinical subject
9.00-12am	Case taking /OPD
12noon-1.00 pm	Lecture in clinical subject

Casualty posting on OP days in the evening
 Minimum 4 hours of Neonatology postings in VIIIth semester

Case Record

Separate clinical record book should be kept and at least 10 cases to be included
 Record books should have a uniform format

Log Book

In addition to record book of 10 cases, a separate uniform log book should be maintained by students to record daily activities, supervised by concerned Unit chief or Assistants.

Text Books Recommended

Prescribed Books

1. Text Book of Pediatrics by O.P.Ghai
2. Clinical Examination in Pediatrics by Meharban Singh
3. Hutchison`s Clinical Methods
4. Clinical evaluation of new-born, infants and children by Dr. Sushama Bai

5. Care of Newborn by Meharban Singh

6. Nutrition & Child development by Dr. K. E. Elizabeth

Reference Books

Text Book of Pediatrics by Nelson

IAP Text Book of Pediatrics

Social and Preventive Medicine by Park

Evaluation			
•	Total marks		: 100
•	Theory		
	University		: 40
	Viva		: 10
	Int. Asst		: 10
		Total	: 60
•	Practicals		
		University exam	: 30
		Int. Asst.	: 10
		Total	: 40

Evaluation	
One paper of 2 hours having 40 marks	
Section A	
Structured question (clinical situation)	5marksx2=10marks
SAQ(1 markX4)	4 marks
SAQ(2marksx3)	6marks
Section B	
Essay (problem solving)	10 marks

SAQ(1markx4)	4 marks
SAQ(3marksx2)	6marks
Total	40marks
Internal assessment	10 marks
Viva-voce	10 marks
Total for theory	60 marks
Practical	30 marks
Internal assessment	10 marks
Total for practical	40 marks
Total for the subject	100 marks

Practical

Clinical	short cases	-	25 marks
	OSCE	-	5 marks
	Total	-	30marks

9 .18 - OBSTETRICS & GYNAECOLOGY

Goal:

The broad goal of teaching of the undergraduate student in Obstetrics & Gynaecology is to empower the student with the necessary knowledge in anatomy, physiology and pathophysiology of the reproductive system and to acquire the necessary skill to manage normal pregnancy and delivery and related problems and to diagnose and treat the common gynaecological diseases.

Objectives:

The following theoretical skills have to be acquired by the student at the end of the course.

1. Outline the anatomy, physiology and pathophysiology of reproductive system and the common conditions affecting it, including the preventive aspects.

2. To diagnose and manage normal pregnancy, labour, puerperium and the problems related to these conditions.
3. To list the common causes leading to maternal and perinatal mortality and mortality and to be aware of the remedial measures for the same.
4. Identify the use and side effects of drugs during pregnancy and to be aware of indiscriminate use of antibiotics and other drugs during obstetric & gynaecological practice.
5. To be aware of the common indications, technique and complications of usually performed operations like caesarean section, hysterectomy etc.
6. Aware of the principles of contraception and the various techniques employed in family welfare practice including medical termination of pregnancy, male and female sterilization.
7. To be familiar with the various National Programmes in relation to maternal and child health, Apart from the above theoretical knowledge, the following practical skills have to be acquired at the end of the course of studies:

- Examine a pregnant woman and diagnose abnormalities like preeclampsia, anaemia, GDM, abnormal presentations and to make appropriate referrals if necessary.
- Conduct a normal labour and to provide postnatal care.
- Resuscitation of newborn babies.
- Perform a pelvic examination and to diagnose common gynaecological diseases.
- Examine a vaginal smear for trichomonas and fungus, and to take a pap smear.
- To offer appropriate contraceptive advice to a couple, and to assist in insertion of IUCD.
- Interpret common investigation results (biochemical, histopathological, ultrasound etc)

Integration:

At the end of the training period the student must be able to integrate activities with other departments like community medicine and paediatrics, in programmes like newborn care, immunization, nutrition, and other maternal & child health activities

General Guidelines for training:

1. Training in the department of Obstetrics & Gynaecology with facilities prescribed by MCI, for a period of 5 months with due exposure to antenatal, intranatal and postnatal care and family planning and general gynaecological care
2. Of this period of clinical instruction, not less than one month be spend as resident pupil in the department.
3. During this period, the student shall conduct at least 10 normal deliveries under supervision, and assist in 10 cases including abnormal deliveries and obstetric emergencies. These cases include postnatal follow up also.
4. The student shall maintain a record of the work done in the department, get it certified from the department and submit for the Final University examination

Syllabus – Details:	
Summary:	
Duration of course	Postings in 5 Semesters (IV, V, VI, VIII, IX)

Total number of hours:	
Theory	300
Lectures	100
Innovative sessions :	200
Clinical Work ss	As per the schedule attached

Details of lectures:

Pregnancy:

Diagnosis, clinical features, differential diagnosis, relevant tests and the principles underlying the tests

Antenatal care: Objectives of antenatal care routine antenatal check up

Assesment of period of gestation, Obstetric examination, General examination, other system examination

Clinical monitoring of maternal and fetal well being, detect abnormality

Common Problems in Pregnancy:

Oedema, Pruritis, heart burn, piles, varicose veins, clothing and foot ware, Exercise, sex, hygiene

Nutrition, Rest, drug in pregnancy

Drugs: Immunisation, Drug prescription relevant blood examination, urine examination and interpretation of the results & physiological changes in pregnancy

Ultrasound examination

Fetal surveillance

Normal Labour

Physiology of onset of labor, fetal skull &pelvis

Mechanism of labour

Labour monitoring Partogram, Labour analgesia

Induction of labor (various methods of induction-merits and demerits)

Acceleration of labor and drugs used in labor

Delivery:

Stages of labour, management of first of labour

Management of second stage of labour (vaginal delivery with episiotomy)

Management of third stage of labor:

Active management of third stage of labor

Prevention of PPH, Management of PPH

Other complications of third stage of labor and management

Abnormal labor:

Hypertonic contractions, hypotonic contractions and

Incoordinate uterine action

CPD, obstructed labour

Caesarean section (indications, complications)

Vaginal delivery after caesarean

Abnormal presentations and management: Occipito posterior position, Breech presentation, transverse lie, brow/ face presentation

Abortions: Types, etiopathology, investigations and management

Recurrent pregnancy loss: causes, investigations and management
Ectopic pregnancy: etiopathology, early diagnosis, late diagnosis, clinical features, differential diagnosis and principles of management (conservative, medical and surgical)
Trophoblastic diseases: aetiopathology, classification, clinical features, Diagnosis, management, long term follow up and complications
Hyperemesis gravidarum: definition, aetiopathology, clinical features advice and drug therapy
Abnormal puerperium: Cause clinical presentation investigations and management
Abnormal pregnancy:
Multiple pregnancies
Intrauterine death
PROM (premature rupture of membranes)
Preterm labor
Post datism
IUGR
Elderly primi, Grand multipara, Rh negative, Gynaecological disorders complicating pregnancy
Fetus and new born:
Fetal distress: definition, diagnosis and management neonatal resuscitation
Care of new born, examination of new born and identifying congenital abnormalities
Jaundice in new born
Breast feeding
Contraception:
Various methods and devices, selection of patients, counselling of the Couples, follow up, side effects, complications, and failure rates
Medical termination of pregnancy:
MTP Act, Legal and ethical aspects, methods, complications and management
Operative obstetrics
Indication and steps of the procedure of episiotomy
Vacuum extraction, forceps delivery
Instrumental evacuation
Caesarean section
Assisted breech delivery, breech extraction
External cephalic version, internal podalic version
Cervical encirclage extra amniotic instillation&
Manual removal of placenta
Ultrasound MRI in obstetrics: diagnostic and interventional
Fetomaternal medicine: Screening for congenital abnormalities,
Blood tests (maternal and fetal) Amniotic fluid analysis,
fetal tissue biopsy
Medical disorders in pregnancy:
Hypertensive disorders of pregnancy
Heart diseases complicating pregnancy
Anemia in pregnancy
Diabetes in pregnancy
UTI, Hepatitis, TB-Chest disease complicating pregnancy
Venereal disease, infections, HIV complicating pregnancy
Thyroid disorders, Immunological disorders, like SLE, ACLA, and
Thrombophilia complicating pregnancy
Jaundice in pregnancy Haemorrhage and coagulation disorders in
Obstetrics & Immunology in Pregnancy
Dummy pelvis, Mannequins Resuscitation of new born

GYNAECOLOGY:

Abnormal menstruation:

Normal menstrual cycle – physiology of menstruation

Abnormal menstruation Definition, classification, clinical features and principles of investigations, diagnosis and management

Amenorrhoea: Definition, classification, causes, investigations and management.

Dysfunctional uterine bleeding and Postmenopausal bleeding:

Definition, causes, investigations, and management

Hormonal therapy: when to give, when not to give, type of hormones with dosage, duration of hormonal therapy, complications and contraindications for hormonal therapy

Infertility: Types, definition, causes, counselling, examination of couple and essential investigations, ART: Various methods of assisted reproductive techniques, Setting up of ART lab

Genital injuries including fistulae: Causes, diagnosis, Clinical features, and principles of management and prevention.

Genital infections: STDs, PID, HIV infection and AIDS, genital TB- etiopathology, diagnosis and principles of management

Neoplasms of Genital tract – Benign and Malignant. Aetiopathology, Clinical feature, diagnosis, principles of management, and cancer screening and preventive aspects

Abnormal vaginal discharge: Causes clinical examination, diagnosis, Investigation and management. Counselling regarding prevention of STD's

Endometriosis: aetiopathology, classification, clinical features, diagnosis And management

Contraception

Operative Gynaecology:

Indications, complications of D&C, cervical biopsy

Medical termination of pregnancy Evacuation of incomplete

Abortion Tubal Ligation, IUCD insertion

Abnormal hysterectomy

Vaginal hysterectomy, Sling procedures

Ovarian tumours

Radical procedure for malignancy

Correction of enterocele, diagnosis and operation for vault prolapse

Endoscopy in gynaecological practice

Laparoscopy: principles, indications, instrumentation, procedure, complication, scope of laparoscopy in gynaecological practices

Hysteroscopy: Principles, indications, instrumentation, procedure,

Steps in present Gynaecological practices and complications

Colposcopy: Principles instrument, procedure

Endocrinology

Post operative management:

Routine management of postoperative patient like IV fluids, drugs, antibiotics, ambulation, nutrition

Management of fever, skin wound complications, Complications like burst abdomen, intra peritoneal bleeding, and intra peritoneal collections

Instruments Specimens etc.

Acute abdomen

Adolescent medicine (Gynaecology)

Analgesia

Urological problems

DETAILS OF PRACTICALS-Clinical postings-Ward/OP/OT/Labour room	
8.00 – 9.00am	Lecture in clinical subjects
9.00 – 12am	Case demonstration, Clinical discussions
12.00 – 1.00 pm	Lecture in clinical subjects

Minimum one day per week is devoted for live operative Surgery demonstration and discussion

Separate clinical record should be kept and at least twenty cases to be included.

During the clinical posting in Obstetrics the student should learn History taking, Diagnosis of Normal pregnancy, physical changes in pregnancy, presentation, position, and lie etc., early pregnancy complications. Abortion, Normal labour in the labour room.

Puerperium with stress on lactation, BFHI, common ailments of pregnancy like hyperemesis, UTI, abnormal presentation, medical complications, III stage complications and abnormal puerperium

During the clinical posting in gynaecology. The student should learn History taking, examination, common symptoms, applied anatomy of genital organs, physiology of menstruation and ovulation, fibroid, Ovarian tumour, prolapse, Endometriosis, Malignancies of genital tract and Dysfunctional uterine bleeding. Students should be exposed to operative procedures and diagnostic procedures like ultrasound endoscopy.

During internment, the student should conduct at least 10 normal case and assist 10 normal cases, assist abnormal labour and attend all emergencies. The classes to be taken are palpation (review), mechanism of labour and mannequin demonstration, obstetric operations and obstetric emergencies.

Keeping records and Log books

- Each students must maintain a log book carried over from 4th semester to 9th semester
- The record book should be submitted at the time of final average practical examination. Only if the record book is submitted the candidate becomes eligible to appear for the clinical examination

Partogram should include in the record while printing the records

FAMILY WELFARE

Applied anatomy of mechanical methods for prevention of conception

a. In female – Barrier contraception, female condom, IUCD, tubectomy etc

b. In male – condom, vasectomy (NSV) etc

Physiology, Endocrine and regulation of reproduction in the female. The safe period-rhythm method of contraception, principle of use of oral contraceptives.

Pharmacology:

Mode of action and administration of chemical contraceptives and oral contraceptive.

Contraindications for administration of contraceptives. Side effects of contraceptives.

Community Medicine: The need for Family Welfare Planning, Organization of Family Planning service, Health Education in relating to Family Planning, Nutrition, Physiological need of the mother, the child and the family Demography and the vital statistics

Details of Practical

Demonstration of use of IUCD, condoms and technique of NSV

Pediatrics: problems of child health in relation to large family: Organization of pediatric services Nutritional problems of mother and child, childhood diseases due to over crowding

TEXT BOOKS RECOMMENDED

Prescribed Books

1. Mudaliar and Menons Clinical Obstetrics 10th edition
2. Text book of Obstetrics by D C Dutta 6th edition
3. Text book of Gynaecology by D C Dutta 4th edition
4. Shaws Text book of Gynaecology 14th edition
5. Text book of Obstetrics by Sheila Balakrishnan (Paras Publications)

Reference books

1. Williams obstetrics 23rd edition (MacGraw Hill)
2. Essentials of Gynaecology by Dr Lekshmy Sheshadri 1st edition (Published by Lippincott, Williams & Wilkins)

Evaluation

Theory-two papers of 2hr duration 40 marks each

Paper 1-(obstetrics & social obstetrics)

Section - A

Draw & label	-	2 marks
SAQ (1marks x4)	-	4 marks
SAQ (2marks x3)	-	6 marks
Short essays (4marks x2)	-	8 marks

Section – B

Essay (problem solving)	-	10 marks
SAQ (1markx4)	-	4 marks
SAQ (3marksx2)	-	6marks

Total	-	40 marks
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Paper 2 - (Gynaecology, Family Welfare &Demography)

Section - A

Draw & Label	-	2 marks
SAQ (1markX4)	-	4 marks
SAQ (2marksX3)	-	6 marks
Short essays (4marks x2)	-	8 marks

Section –B

Essay (Problem Solving)	-	10 marks
SAQ (1markX4)	-	4marks
SAQ (3marksX2)	-	6marks
Total	-	40 marks

Total (Paper I + II) 40+40 - 80 Marks

Internal Assessment	-	20marks
Viva Voce	-	30 marks
Total for Theory	-	130 marks
Practical	-	50 marks
Internal Assessment	-	20 marks

Total for Practical - 70 marks

Total for Subject - 200 marks

Practicals

Clinical 1 : Long Case: 1 Case =15 Min - 25 marks
(Including Writing of the Case Sheet)

Clinical-2: Short Case - 25 marks

Oral Exam

X-rays, Instruments, Family planning & Operative surgery - 20 marks

Record of delivery cases - 10 marks

Model Question paper**PAPER I - OBSTETRICS & SOCIAL OBSTETRICS**

Time 2 hours

Marks 40

*Section A***I. Draw and Label**

2

Friedman's curve of cervical dilatation

II. Short answer Questions

1x4

1. Moulding
2. Misoprostol
3. Variable deceleration
4. Plane of least pelvic dimension

III. Short answer Questions **2x3**

1. Cardiovascular changes in pregnancy
2. Asynclitism
3. Follow up of gestational trophoblastic disease

IV. Short Essays **4x2**

1. How do you manage unruptured tubal pregnancy
2. Antepartum management of multiple pregnancy

Section B**I. Essay**

A 25 year old primi gravida presents with bleeding per vaginum at 36 weeks gestation. On examination uterus tense and tender FHS absent.

- a) What is the diagnosis?
- b) What is the differential diagnosis?
- c) Describe the management?
- d) What are the complications?

1+2+4+3
1x4

II. Short Answer Questions

1. Causes of polyhydramnios
2. Diagnosis of GDM
3. Cord prolapse
4. Bandl's Ring

III. Short Answer questions **3x2**

1. External Version
2. Management of Primary Post partum haemorrhage

PAPER II - Gynaecology (Family Welfare & Demography)**Time 2 hours****Marks 40****Section A****I. Draw and Label****2**

Ligamentous supports of uterus

II. Short Answer Questions**1X4**

1. Haematocolpos
2. Cystocoele
3. Adenomyosis
4. LNG-IUS

III. Short Answer Questions**2x3**

1. Emergency contraception
2. Irregular ripening
3. Bartholin's Cyst

IV. Short Essays**4x2**

1. Management of postmenopausal symptoms
2. Technique of vaginal hysterectomy with pelvic floor repair

Section B**I. Essay**

A 19 year old unmarried girl presents with 3 months amenorrhea. O/E Obese and hirsute.

- a) What is the most probable diagnosis?
- b) What is the first step in management?
- c) What are the different management options?
- d) What are the long term consequences?

1+2+4+3**II. Short Answer questions****1x4**

1. Tests for tubal patency
2. Diagnosis of Bacterial Vaginosis
3. Danazol
4. Metorrhagia

III. Short Answer Questions**3x2**

1. Post menopausal bleeding
2. Microinvasive carcinoma
