Competency-Based Dynamic Curriculum for MD/ MS Unani

(PRESCRIBED BY NCISM)

Semester III-VI

# Mahiyatul Amraz

(Pathology and Laboratory Diagnosis)

(SUBJECT CODE : UNIPG-MA)

(Applicable from 2024-25 batch, from the academic year 2025-26 onwards until further notification by NCISM)

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।। आयुषे सर्वलोकानाम्।।




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NATIONAL COMMISSION FOR INDIAN SYSTEM OF MEDICINE

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# Preface

Mahiyatul Amraz (Pathology) is a fundamental aspect of medical science, essential for diagnosing, treating, and preventing diseases. As healthcare continues to evolve, the need for a robust educational framework becomes increasingly vital. This Competency-Based Curriculum for the MD Mahiyatul Amraz program is designed to address this need by providing a comprehensive structure that aligns with contemporary medical standards, emphasizing the development of key competencies for effective clinical practice.

Central to this curriculum is the belief that learning must be meaningful and applicable. By integrating theoretical knowledge with hands-on experience, we aim to prepare our postgraduates to navigate the complexities of patient care with confidence. The curriculum promotes active learning, critical thinking, and interdisciplinary collaboration through case studies and practical laboratory trainings, ensuring that students are equipped to apply their understanding in real-world contexts.

Rooted in the rich traditions of alternative medicine, this curriculum embraces a holistic approach to pathology. It recognizes that true health is not merely the absence of disease but a harmonious balance of mind, body, and spirit. By incorporating principles of traditional medical systems, we seek to provide a more comprehensive understanding of health and disease, one that considers the individual as a whole and not just a collection of symptoms.

Moreover, this curriculum is responsive to the dynamic nature of healthcare, incorporating the latest advancements in pathology and emerging medical trends. By fostering a culture of continuous learning and self-assessment, we instill in our students a lifelong commitment to professional development. We are confident that this Competency-Based Curriculum will enhance the quality of education in Mahiyatul Amraz and contribute significantly to the healthcare community by producing skilled, compassionate Unani pathologist ready to make a positive impact on public health.

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Competency-Based Dynamic Curriculum for MD/ MS Unani

Mahiyatul Amraz (UNIPG-MA)

# Summary & Credit Framework

## Semester III-VI

| Module Number & Name | Credits | Notional Learning Hours | Maximum Marks of assessment of modules (Formative Assessment) |
|---|---|---|---|
| **Semester No :** 3 | | | |
| **Paper No :** 1 (Taskheesat (Diagnostic Methods)) | | | |
| M 1 Nabd | 2 | 60 | 50 |
| M 2 Good Laboratory Practices and Automation in Lab & Development of Diagnostic Tool | 2 | 60 | 50 |
| **Paper No :** 2 (Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology)) | | | |
| M 9 Ta'diya wa Ta'affun | 2 | 60 | 50 |
| M 10 General Bacteriology | 2 | 60 | 50 |
| **Paper No :** 3 (Ilmul Amraz Nizami (Systemic Pathology) – I) | | | |
| M 17 Amrāz Ra's, 'Ayn, Uzun, Anf, Halq امراض رأس، عین، اذن، انف، حلق | 2 | 60 | 50 |
| M 18 Diseases of Nervous System | 2 | 60 | 50 |
| **Paper No :** 4 (Ilmul Amraz Nizami (Systemic Pathology) – II) | | | |
| M 25 Amrāz Dahan, Mi'da & Am'ā' امراض دہن، معدہ وامعاء | 2 | 60 | 50 |
| M 26 Diseases of Gastrointestinal Tract | 2 | 60 | 50 |
| **Semester No :** 4 | | | |

| | | | |
|---|---|---|---|
| **Paper No :** 1 (Taskheesat (Diagnostic Methods)) | | | |
| M 3 Bawl | 2 | 60 | 50 |
| M 4 Clinical Haematology, Immunology, Transfusion medicine and Molecular Diagnostics | 2 | 60 | 50 |
| **Paper No :** 2 (Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology)) | | | |
| M 11 General description of the Gram-positive and Miscellaneous bacteria | 2 | 60 | 50 |
| M 12 General description of the Gram-negative bacteria | 2 | 60 | 50 |
| **Paper No :** 3 (Ilmul Amraz Nizami (Systemic Pathology) – I) | | | |
| M 19 Amrāz Qalb & ʻUrūq امراض قلب وعروق | 2 | 60 | 50 |
| M 20 Diseases of Heart & Blood Vessels | 2 | 60 | 50 |
| **Paper No :** 4 (Ilmul Amraz Nizami (Systemic Pathology) – II) | | | |
| M 27 Amrāz Kabid, Ṭiḥāl, Kulya & Masāna امراض کبد، طحال، کلیہ ومثانہ | 2 | 60 | 50 |
| M 28 Diseases of Hepatobiliary System, Pancreas and Urinary Tract | 2 | 60 | 50 |
| **Semester No :** 5 | | | |
| **Paper No :** 1 (Taskheesat (Diagnostic Methods)) | | | |
| M 5 Barāz (Stool) & Other Methods of Tashkhīṣ : Tanaffus (respiration), Nafth (sputum), Araq (Sweat) | 2 | 60 | 50 |
| M 6 Clinical Biochemistry and Serology | 2 | 60 | 50 |
| **Paper No :** 2 (Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology)) | | | |
| M 13 Virology | 2 | 60 | 50 |
| M 14 Mycology | 2 | 60 | 50 |
| **Paper No :** 3 (Ilmul Amraz Nizami (Systemic Pathology) – I) | | | |

| | | | |
|---|---|---|---|
| M 21 Diseases of Lungs | 2 | 60 | 50 |
| M 22 Amrāz A'za' Ẓāhira امراض اعضاء ظاہرہ | 2 | 60 | 50 |
| **Paper No :** 4 (Ilmul Amraz Nizami (Systemic Pathology) – II) | | | |
| M 29 Amrāz A'za' Tānāsul امراض اعضاء تناسل | 2 | 60 | 50 |
| M 30 Diseases of Reproductive Organs | 2 | 60 | 50 |
| **Semester No :** 6 | | | |
| **Paper No :** 1 (Taskheesat (Diagnostic Methods)) | | | |
| M 7 Clinical Pathology, Surgical Pathology and Histopathology | 2 | 60 | 50 |
| M 8 Radiology | 2 | 60 | 50 |
| **Paper No :** 2 (Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology)) | | | |
| M 15 Parasitology | 2 | 60 | 50 |
| M 16 Diagnostic Microbiology | 2 | 60 | 50 |
| **Paper No :** 3 (Ilmul Amraz Nizami (Systemic Pathology) – I) | | | |
| M 23 Diseases of Skin, Bones & Joints | 2 | 60 | 50 |
| M 24 Interpretation of Unani Pathology with Conventional Medical Science | 2 | 60 | 50 |
| **Paper No :** 4 (Ilmul Amraz Nizami (Systemic Pathology) – II) | | | |
| M 31 Amrāz Mutafarriqa (امراض متفرقہ)&Interpretation of Unani Pathology | 2 | 60 | 50 |
| M 32 Diseases of Blood, Endocrine system and Nutrition | 2 | 60 | 50 |
| | 64 | 1920 | 1600 |

**Credit frame work**

UNIPG-MA consists of 32 modules totaling 64 credits, which correspond to 1920 Notional Learning Hours. Each credit comprises 30 hours of learner engagement, distributed across teaching, practical, and experiential learning in the ratio of 1:2:3. Accordingly, one credit includes 5 hours of teaching, 10 hours of practical training, 13 hours of experiential learning, and 2 hours allocated for modular assessment, which carries 25 marks.

**Important Note:** The User Manual MD/MS Unani is a valuable resource that provides comprehensive details about the curriculum file. It will help you understand and implement the curriculum. Please read the User Manual before reading this curriculum file. The curriculum file has been thoroughly reviewed and verified for accuracy. However, if you find any discrepancies, please note that the contents related to the MSE should be considered authentic. Each paper has 16 credits and each semester covers 16 credits across 4 papers. In case of difficulty and questions regarding the curriculum, write to syllabus24uni@ncismindia.org

| **Credit Analysis Overview** | | | | | |
|---|---|---|---|---|---|
| **Sem/Paper** | **Paper No 1** | **Paper No 2** | **Paper No 3** | **Paper No 4** | **Credits** |
| **Semester 3** | M-1 \| 2 Crs<br>M-2 \| 2 Crs | M-9 \| 2 Crs<br>M-10 \| 2 Crs | M-17 \| 2 Crs<br>M-18 \| 2 Crs | M-25 \| 2 Crs<br>M-26 \| 2 Crs | **16** |
| **Semester 4** | M-3 \| 2 Crs<br>M-4 \| 2 Crs | M-11 \| 2 Crs<br>M-12 \| 2 Crs | M-19 \| 2 Crs<br>M-20 \| 2 Crs | M-27 \| 2 Crs<br>M-28 \| 2 Crs | **16** |
| **Semester 5** | M-5 \| 2 Crs<br>M-6 \| 2 Crs | M-13 \| 2 Crs<br>M-14 \| 2 Crs | M-21 \| 2 Crs<br>M-22 \| 2 Crs | M-29 \| 2 Crs<br>M-30 \| 2 Crs | **16** |
| **Semester 6** | M-7 \| 2 Crs<br>M-8 \| 2 Crs | M-15 \| 2 Crs<br>M-16 \| 2 Crs | M-23 \| 2 Crs<br>M-24 \| 2 Crs | M-31 \| 2 Crs<br>M-32 \| 2 Crs | **16** |
| **Credits** | **16** | **16** | **16** | **16** | **64** |

| Semester VI University examination | | | | | |
|---|---|---|---|---|---|
| Theory | | | Practical* | | |
| Paper | Marks | Total | Practical Heads | Marks | Total |
| Paper -1 | 100 | 400 | Long case or procedure/Major practical as applicable | 100 | 400 |

| | | | | | |
|---|---|---|---|---|---|
| | | | Short case or procedure/Minor practical | 50 | |
| Paper -2 | 100 | | Spotters | 50 | |
| | | | Assessing teaching ability | 25 | |
| Paper -3 | 100 | | Assessing presentation skills | 25 | |
| | | | Viva (4 examiners: 25 marks/each examiner)# | 100 | |
| Paper -4 | 100 | | Logbook (Activity record) | 25 | |
| | | | Practical/Clinical Record | 25 | |
| Semester VI University examination – 800 Marks | | | | | |

* Details in 6H table; # No separate marks for dissertation viva.

## Course Code and Name of Course

| Course code | Name of Course |
|---|---|
| UNIPG-MA | Mahiyatul Amraz<br>(Pathology and Laboratory Diagnosis) |

## Table 1 : Course learning outcomes and mapped Program learning outcomes

| CONo | A1<br>Course learning Outcomes (CO) UNIPG-MA<br>At the end of the course UNIPG-MA, the students should be able to | B1<br>Course learning Outcomes mapped with program learning outcomes. |
|---|---|---|
| CO1 | Illustrate the Unani philosophy of disease causation and manifestations correlating with scientific concepts of etiopathogenesis and morphological changes. | PO1,PO7,PO8 |
| CO2 | Integrate and correlate the principles of general pathology with various organ systems to diagnose diseases effectively. | PO2,PO4,PO5 |
| CO3 | Investigate diseases using suitable modern laboratory techniques, correlate the clinical findings, and report the diagnosis accurately in the context of both Unani and contemporary medicine. | PO1,PO4,PO5 |
| CO4 | Diagnose diseases by classical methods of Tashkhis such as ‘Alamat, Nabz, Bawl, and Baraz to develop an appropriate Unani management plan. | PO1,PO3,PO8 |
| CO5 | Demonstrate proficiency in microbiological techniques for the diagnosis, prevention, and management of infectious diseases. | PO3,PO5,PO6 |
| CO6 | Conduct evidence-based research and innovation in the various facets of Ilmul Amraz, validation of classical Unani diagnostic principles and interpretation of modern tools of investigation according to Unani Medicine. | PO4,PO5,PO6,PO7,PO8 |
| CO7 | Develop communication skills and educational techniques, along with in-depth subject knowledge, for teaching Ilmul Amraz. | PO7,PO8 |

| | | |
|---|---|---|
| CO8 | Demonstrate the ability to empathetically understand and address community healthcare needs, ethically fulfill professional responsibilities, and effectively coordinate with diverse stakeholders in a healthcare setting | PO3,PO4,PO7 |

## Table 2: Course contents (Modules - Credits and Notional Learning Hours)

| **Paper No :** 1 Taskheesat (Diagnostic Methods) | | | | | | |
|---|---|---|---|---|---|---|
| **Semester No :** 3 | | | | | | |
| **2A Module Number** | **2B Modules & units** | **2C Number of Credits** | **Notional Learning hours** | | | |
| | | | **2D Lectures** | **2E Practical Training** | **2F Experiential Learning including Modular Assessment** | **2G Total** |
| | **M-1 Nabd**<br>This module will discuss Nabḍ in Unani medicine and its clinical importance.<br>**• M 1U 1 Asbāb & Diagnostic Significance of Nabḍ**<br>1.1.1-Asbāb Nabḍ (Mufrad & Murakkab)<br>1.1.2-Diagnostic Significance of Nabḍ<br>**• M 1U 2 Ajnās & Types Nabḍ and SOPs for Mu'āyana' Nabḍ**<br>1.2.1- Ajnās Nabḍ, Types of Nabḍ<br>1.2.2-Standard Operative Procedures (SOPs) for Mu'āyana' Nabḍ<br>(Examination of pulse)<br>**• M 1U 3 Nabḍ of specific diseases and its Interpretation**<br>1.3.1-Nabḍ of specific diseases | 2 | 10 | 20 | 30 | 60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 1.3.2-Interpretation of Mu'āyana' Nabḍ with contemporary knowledge | | | | | |
| | **M-2 Good Laboratory Practices and Automation in Lab & Development of Diagnostic Tool**<br>In this module, Good Laboratory Practices and Automation in Lab & Development of Diagnostic Tool will be discussed.<br>**• M 2U 1 Good Laboratory Practices-I**<br>2.1.1 Safety Protocol in the laboratory,<br>2.1.2 Collection, transport and processing of samples,<br>2.1.3 Pre-Analytical, Analytical and Post- Analytical errors,<br>2.1.4 EQAS and IQAS in various laboratory tests.<br>2.1.5 Calibration of analysers<br>2.1.6 Mean/SD/CV interpretation<br>2.1.7 Handling and maintenance of instruments.<br>2.1.8 Recent advancement in laboratory diagnostic methods<br>**• M 2U 2 Good Laboratory Practices -II**<br>2.2.1 Ethics, Confidentiality and patient privacy<br>2.2.2 Bio medical waste Segregation & management, Computerization of laboratory services<br>2.2.3 Legal aspects of laboratory services<br>2.2.4 Overview of NABL Guidelines<br>**• M 2U 3 Automation in Lab, Development of Diagnostic Tools, and Latest Diagnostic Technology**<br>2.3.1 Principles of automation in laboratory investigations, | 2 | 10 | 20 | 30 | 60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 2.3.2 Principles of Digital machines for common POC (point of care) investigations e.g. Glucometer<br>2.3.3 Protocol for diagnostic tool development and validation<br>2.3.4 Development of Unani Diagnostic Scales/Questionnaires<br>2.3.5 Use of Latest Technology and Artificial Intelligence (AI) in Diagnosis | | | | | |
| | | 4 | 20 | 40 | 60 | 120 |
| **Semester No :** 4 | | | | | | |
| **2A Module Number** | **2B Modules & units** | **2C Number of Credits** | **Notional Learning hours** | | | |
| | | | **2D Lectures** | **2E Practical Training** | **2F Experiential Learning including Modular Assessment** | **2G Total** |
| | **M-3 Bawl**<br>In this module, the examination and Interpretation of Bawl will be discussed.<br>**• M 3U 1 Diagnostic Significance & Formation of Bawl (Uroscopy)**<br>3.1.1 Diagnostic Significance of Bawl (Uroscopy)<br>3.1.2 Formation of Bawl in Unani perspective (Quwa and organs involved)<br>**• M 3U 2 SOPs for Mu'āyana' Qārūra & Dalā'il Bawl**<br>3.2.1 Standard Operative Procedures (SOPs) for Mu'āyana' Qārūra, | 2 | 10 | 20 | 30 | 60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 3.2.2 Dalā'il Bawl and its Clinical Significance<br>3.2.2.1 Alwān Bawl<br>3.2.2.2 Safai wa Kadurat Bawl<br>3.2.2.3 Qiwām Bawl<br>3.2.2.4 Miqdār Bawl<br>3.2.2.5 Rasūb Bawl<br>3.2.2.6 Rā'iḥa Bawl<br>3.2.2.7 Zabada Bawl<br>**• M 3U 3 Interpretation of Mu'āyana' Qārūra**<br>3.3.1 Interpretation of Mu'āyana' Qārūra with contemporary knowledge | | | | | |
| | **M-4 Clinical Haematology, Immunology, Transfusion medicine and Molecular Diagnostics**<br>In this module, Clinical Haematology, Immunology, Transfusion medicine and Molecular Diagnostics will be discussed.<br>**• M 4U 1 Blood Collection & Complete Blood Count**<br>4.1.1.Types of Blood Samples, Anticoagulants, Blood Collection and storage of samples<br>4.1.2 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:<br>4.1.2.1 Haemoglobin estimation,<br>4.1.2.2. Total Leucocyte Count,<br>4.1.2.3. Differential Leucocyte Count<br>4.1.2.4. RBC Count, | 2 | 10 | 20 | 30 | 60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 4.1.2.5. RBC indices (MCV, MCH,MCHC), Haematocrit,<br>4.1.2.6. Platelet Count,<br>4.1.2.7. Absolute Eosinophil Count,<br>4.1.2.8. Reticulocyte Count, Haemogram,<br>4.1.2.9. ESR<br>**• M 4U 2 Sickling test & Peripheral Blood Smear Examination**<br>4.2.1 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:<br>4.2.1.1. Sickling test<br>4.2.1.2. Peripheral blood smear procedure & staining methodology<br>4.2.1.3. Interpretation of peripheral blood smear & staining technique<br>4.2.1.4. Peripheral Smear Examination in Anaemias and common blood parasites (malarial and microfilaria)<br>**• M 4U 3 Immunology, Transfusion medicine and Molecular Diagnostics**<br>4.3.1 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:<br>4.3.1.1. Bleeding Time, Clotting Time & Coagulation Profile<br>4.3.1.2. Bone Marrow Examination<br>4.3.1.3. Blood Grouping and Cross-matching<br>4.3.1.4. Blood Component Preparation & Storage<br>4.3.1.5. Blood Donor Selection and Investigation<br>4.3.1.6. Blood Transfusions<br>4.3.1.7. Transfusion Reaction | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 4.3.1.8. Mantoux Skin Test<br>4.3.1.9. Hormonal Assays (Thyroid Profile, Cortisol, LH, FSH, Prolactin, Oestradiol, Testosterone)<br>4.3.1.10. Immunoglobulin-IgE, IgG, IgM<br>4.3.1.11. Electrophoresis, blotting, mutation testing | | | | | |
| | | 4 | 20 | 40 | 60 | 120 |
| **Semester No :** 5 | | | | | | |
| **2A Module Number** | **2B Modules & units** | **2C Number of Credits** | **Notional Learning hours** | | | |
| | | | **2D Lectures** | **2E Practical Training** | **2F Experiential Learning including Modular Assessment** | **2G Total** |
| | **M-5 Barāz (Stool) & Other Methods of Tashkhīṣ : Tanaffus (respiration), Nafth (sputum), Araq (Sweat)**<br>In this module, Barāz (Stool) & Other Methods of Tashkhīṣ such as Tanaffus (respiration), Nafth (sputum), Araq (Sweat) will be discussed.<br>**• M 5U 1 Diagnostic Significance, SOPs and Interpretation of Mu'āyana' Barāz**<br>5.1.1 Diagnostic Significance of Barāz, | 2 | 10 | 20 | 30 | 60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 5.1.2 Standard Operative Procedures (SOPs) for Mu'āyana' Barāz, Parameters of Mu'āyana' Barāz<br>5.1.3 Interpretation of Mu'āyana' Barāz with contemporary knowledge<br>**• M 5U 2 Diagnostic Significance & SOPs of Mu'āyana' of Tanaffus, Nafth & Araq**<br>5.2.1 Diagnostic Significance of Tanaffus (respiration), Nafth (sputum), Araq (Sweat)<br>5.2.2 Standard Operative Procedures (SOPs) for Mu'āyana' of Tanaffus (respiration), Nafs (sputum), Araq (Sweat)<br>**• M 5U 3 Interpretation of Mu'āyana' of Tanaffus, Nafth & Araq**<br>5.3.1 Interpretation of Mu'āyana' of Tanaffus (respiration), Nafth (sputum) and Araq (Sweat) with contemporary knowledge | | | | | |
| | **M-6 Clinical Biochemistry and Serology**<br>In this module, Clinical Biochemistry and Serology related topics will be discussed.<br>**• M 6U 1 Clinical Biochemistry and Serology-I**<br>6.1.1 Disorders of Carbohydrate, Protein and Lipid metabolism and their investigations<br>6.1.2 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:<br>6.1.2.1 Blood Sugar, HBA1C, Glucose Challenge Test, Glucose Tolerance Test<br>6.1.2.2 Liver Function Test | 2 | 10 | 20 | 30 | 60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 6.1.2.3 Renal Function Test<br>6.1.2.4 Lipid Profile<br>6.1.2.5 Electrolytes<br>6.1.2.6 Serum. Amylase, Lipase<br>6.1.2.7 RA Factor, ASO<br>6.1.2.8 HIV Test (ELISA, Western Blot), Hepatitis Test (HBsAg, Anti-HCV), Syphilis Test (VDRL, TPHA),<br>6.1.2.9 Dengue Tests (NS1 ELISA and Immunoglobulin)<br>**• M 6U 2 Clinical Biochemistry and Serology-II**<br>6.2.1 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:<br>6.2.1.1 Widal Test<br>6.2.1.2 CRP<br>6.2.1.3 Tumour Markers<br>6.2.1.4 EQAS and IQAS in clinical biochemistry<br>6.2.1.5 Cortisol<br>6.2.1.6 Insulin<br>6.2.1.7 Cardiac Markers- Troponin T & I<br>6.2.1.8 Iron Test- TIBC, UIBC<br>6.2.1.9 Thyroid peroxidase (TPO) Antibody<br>**• M 6U 3 Clinical Biochemistry and Serology-III**<br>6.3.1 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of the following tests: | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 6.3.1.1 D-Dimer<br>6.3.1.2 Prostate-Specific Antigen (PSA)<br>6.3.1.3 Vitamin-B12, Vitamin-D<br>6.3.1.4 Anti-cardiolipin antibody - IgM & IgG<br>6.3.1.5 Anti-mitochondrial antibodies (AMA)<br>6.3.1.6 Creatine Phosphokinase test (CPK)<br>6.3.1.7 Alpha-Fetoprotein (AFP)<br>6.3.1.8 Anti-Müllerian hormone (AMH) | | | | | |
| | | 4 | 20 | 40 | 60 | 120 |

**Semester No :** 6

| 2A Module Number | 2B Modules & units | 2C Number of Credits | Notional Learning hours | | | |
|---|---|---|---|---|---|---|
| | | | 2D Lectures | 2E Practical Training | 2F Experiential Learning including Modular Assessment | 2G Total |
| | **M-7 Clinical Pathology, Surgical Pathology and Histopathology**<br>In this module, Clinical Pathology, Surgical Pathology and Histopathology topics will be discussed.<br>**• M 7U 1 Urine Tests** | 2 | 10 | 20 | 30 | 60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 7.1.1 Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:<br>7.1.1.1. Urine -physical, chemical and microscopic examination<br>7.1.1.2. 24 hours Urinary- Urea, Creatinine, Glucose, Phosphorous, Protein, Uric acid, Calcium citrate, Microalbumin, Bence Jones protein etc.<br>7.1.1.3. Urinary sugar<br>7.1.1.4. Urine Pregnancy Test<br>**• M 7U 2 Clinical Pathology & Cytopathology**<br>7.2.1 Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation of the following tests:<br>7.2.1.1 Stool examination-physical, chemical and microscopic<br>7.2.1.2 Semen Analysis<br>7.2.1.3 Sputum Examination<br>7.2.1.4 Analysis of CSF, Peritoneal fluid, Pleural fluid, Pericardial fluid, Amniotic fluid, Synovial fluid<br>7.2.1.5 Cytopathology, Fine Needle Aspiration Cytology (FNAC), Pap Smear (Conventional Method and liquid-based cytology), Biopsy<br>**• M 7U 3 Histopathology & Immunochemistry**<br>7.3.1. Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:<br>7.3.1.1. Exposure to Histopathology Lab Equipments and instruments<br>7.3.1.2. Routine Histopathology Techniques and Staining<br>7.3.1.3. Frozen Section and its Staining | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 7.3.1.4. Special Stains and Immunohistochemistry<br>7.3.2. Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation of important histopathological conditions such as Carcinoma lung, Chronic Pneumonia, adenoma of thyroid gland, Fibroadenoma of breast, fatty degeneration of liver, Carcinoma cervix, Carcinoma Gall Bladder, Carcinoma stomach, lipoma, bladder tumour, melanoma etc. | | | | | |
| | **M-8 Radiology**<br>In this module, Radiology related topics will be discussed.<br>**• M 8U 1 Radiolog-I**<br>8.1.1. Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation with;<br>8.1.1.1. X-ray<br>8.1.1.2. Ultrasound, Mammography & Sonomammography<br>8.1.1.3. Computed Tomography (CT)<br>**• M 8U 2 Radiology-II**<br>8.2.1 Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation with;<br>8.2.1.1. MRI<br>8.2.1.2. PET SCAN<br>8.2.1.3. Doppler study<br>**• M 8U 3 Radiology and other Special investigations** | 2 | 10 | 20 | 30 | 60 |

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| | 8.3.1 Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation with;<br>8.3.1.1. Electrocardiogram (ECG), Electroencephalogram (EEG), Treadmill Test (TMT), Echocardiography<br>8.3.1.2. Special investigation- Barium Meal, Barium swallow, Barium follow through, Barium Enema, Intravenous pyelogram (IVP), Hysterosalpingography (HSG) | | | | | |
| | | 4 | 20 | 40 | 60 | 120 |
| | | 16 | 80 | 160 | 240 | 480 |

**Paper No :** 2 Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology)

**Semester No :** 3

| 2A Module Number | 2B Modules & units | 2C Number of Credits | Notional Learning hours | | | |
|---|---|---|---|---|---|---|
| | | | 2D Lectures | 2E Practical Training | 2F Experiential Learning including Modular Assessment | 2G Total |
| | **M-9 Ta'diya wa Ta‘affun**<br>Ta'diya wa Ta‘affun | 2 | 10 | 20 | 30 | 60 |

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| | • **M 9U 1 Concept of 'Ufūnat, Ḥummā and Wabā'**<br>9.1.1. Concept of 'Ufūnat, Ḥummā 'Ufūniyya and Ḥummā Wabā'iyaعفونت، حمی عفونیہ اور حمی وبائیہ کا تصور<br>• **M 9U 2 Infection, types, transmission, pathogenesis and microbial pathogenicity.**<br>9.2.1. Infection, its types, transmission methods, stages of the pathogenesis of infection<br>9.2.2. Factors predisposing to microbial pathogenicity.<br>• **M 9U 3 Disinfection and sterilization**<br>9.3.1. Methods of disinfection and sterilization | | | | | |
| | **M-10 General Bacteriology**<br>This module discusses the classification, morphology, genetics, culture, staining, and identification of bacteria.<br>• **M 10U 1 Classification, Morphology, Bacterial Genetics, Growth and Nutrition of Bacteria**<br>10.1.1. Classification, Morphology,<br>10.1.2. Bacterial Genetics,<br>10.1.3. Growth and Nutrition of Bacteria<br>• **M 10U 2 Bacterial Culture, Identification, and staining (Gram andAcid fast)**<br>10.2.1. Bacterial Culture, Identification, and staining<br>• **M 10U 3 Normal microbial flora of the human body,antimicrobial agents and Bacterial resistance,Bacteriology of water, milk and air**<br>10.3.1. Normal microbial flora of the human body, | 2 | 10 | 20 | 30 | 60 |

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| | 10.3.2. Antimicrobial agents and Bacterial resistance,<br>10.3.3. Bacteriology of water, milk and air | | | | | |
| | | 4 | 20 | 40 | 60 | 120 |
| **Semester No :** 4 | | | | | | |
| **2A Module Number** | **2B Modules & units** | **2C Number of Credits** | **Notional Learning hours** | | | |
| | | | **2D Lectures** | **2E Practical Training** | **2F Experiential Learning including Modular Assessment** | **2G Total** |
| | **M-11 General description of the Gram-positive and Miscellaneous bacteria**<br>This module includes a general description of the Gram-positive and a few miscellaneous bacteria.<br>**• M 11U 1 Gram-positive bacteria**<br>11.1.1. Staphylococcus, Streptococcus, Corynebacterium, Bacillus, Mycobacteria, Clostridium<br>**• M 11U 2 Miscellaneous Bacteria:**<br>11.2.1. Chlamydia, Rickettsia, Spirochetes | 2 | 10 | 20 | 30 | 60 |
| | **M-12 General description of the Gram-negative bacteria** | 2 | 10 | 20 | 30 | 60 |

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| | In this module, a general description of the Gram-negative bacteria is discussed.<br>**• M 12U 1 Gram-negative bacteria:**<br>12.1.1. Nesseria, Enterobacterium (E. coli, Salmonella, Shigella), Yersinia, Vibrio, Pseudomonas, Haemophilus, Bordetella, Brucella, Campylobacter, Helicobacter, Pasteurella | | | | | |
| | | 4 | 20 | 40 | 60 | 120 |
| **Semester No :** 5 | | | | | | |
| **2A Module Number** | **2B Modules & units** | **2C Number of Credits** | **Notional Learning hours** | | | |
| | | | **2D Lectures** | **2E Practical Training** | **2F Experiential Learning including Modular Assessment** | **2G Total** |
| | **M-13 Virology**<br>This module offers an in-depth introduction to virology.<br>**• M 13U 1 General characteristics of viruses**<br>13.1.1 Classification of viruses: Hepatotropic viruses (A, B, C, D, E), Oncogenic viruses, DNA viruses, RNA viruses | 2 | 10 | 20 | 30 | 60 |

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| | • **M 13U 2 Viral replication, Identification of viruses. Pathogenesis of viral infections, AIDS**<br>13.2.1 Viral replication, identification of viruses. Pathogenesis of viral infections, AIDS | | | | | |
| | **M-14 Mycology**<br>This module covers the classification, morphology, and pathogenesis of medically important fungi.<br>• **M 14U 1 General introduction and classification, laboratory diagnosis of some fungi of medical importance**<br>14.1.1 General introduction and classification, laboratory diagnosis of some fungi of medical importance<br>• **M 14U 2 Superficial, subcutaneous and systemic Mycosis**<br>14.2.1 Superficial, subcutaneous and systemic Mycosis | 2 | 10 | 20 | 30 | 60 |
| | | 4 | 20 | 40 | 60 | 120 |
| **Semester No :** 6 | | | | | | |
| **2A Module Number** | **2B Modules & units** | **2C Number of Credits** | **Notional Learning hours** | | | |
| | | | **2D Lectures** | **2E Practical Training** | **2F Experiential Learning including** | **2G Total** |

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| | | | | | **Modular Assessment** | |
| | **M-15 Parasitology**<br>This module provides a comprehensive overview of parasitology<br>**• M 15U 1 Introduction of some parasites, helminths & ectoparasites of medical importance**<br>15.1.1 Introduction and classification, Methods of identification, some parasites, helminths & ectoparasites of medical importance<br>**• M 15U 2 Protozoa and Helminths**<br>15.2.1 Protozoa and Helminths | 2 | 10 | 20 | 30 | 60 |
| | **M-16 Diagnostic Microbiology**<br>This module covers the basic workings and principles of automated culture systems, molecular diagnostics, and applications of automation in microbiological workflows.<br>**• M 16U 1 Approach to Lab Diagnosis.Rapid and Automation methods in Microbiology**<br>16.1.1 PCR and Nucleotide sequencing. Microarray technology. Automated media preparators. Automated colony counters. Automated urine microscopy analyzer, Automated gram staining, automated collection and processing of samples. Cytospin centrifuge. Automated antimicrobial susceptibility test system. Automated western blot processor, Biosensors Haemagglutinin test, Electron microscopy (TEM and SEM) | 2 | 10 | 20 | 30 | 60 |

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| | | 4 | 20 | 40 | 60 | 120 |
| | | 16 | 80 | 160 | 240 | 480 |

**Paper No :** 3 Ilmul Amraz Nizami (Systemic Pathology) – I

**Semester No :** 3

| 2A Module Number | 2B Modules & units | 2C Number of Credits | Notional Learning hours | | | |
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| | | | 2D Lectures | 2E Practical Training | 2F Experiential Learning including Modular Assessment | 2G Total |
| | **M-17 Amrāz Ra's, 'Ayn, Uzun, Anf, Halq امراض رأس، عین، اذن، انف، حلق**<br>In this module, Mahiyat, Asbab, Alamat, and diagnosis of Amraze Ra`s and Amraze Ayn, Uzun Anf wa Halq are discussed.<br>**• M 17U 1 Amrāz Ra's (Auja', Awram & Af'al Siyasi) امراض راس (اوجاع، اورام، افعال سیاسی)**<br>17.1.1 Ṣudā', Shaqīqa, Sarsām, Subāt, Sahar, Nisyān, Mālankhūliyā صداع، شقیقہ، سرسام، سبات، سہر، نسیان، مالنخولیا<br>**• M 17U 2 Amrāz Ra's (Af'al Harkat & 'Asb) امراض راس (افعال حرکت وعصب)**<br>17.2.1 Sadr & Duwār, Ṣar', Sakta, Istirkhā' & Fālij, Tashannuj & Tamaddud, Laqwa, Ra'sha, Khadr, Ikhtilāj سدر و دوار، صرع، سکتہ، استرخاء و فالج، تشنج و تمدد، لقوہ، رعشہ، خدر، اختلاج<br>**• M 17U 3 Amrāz 'Ayn, Uzun, Anf, Halq امراض عین، اذن، انف، حلق** | 2 | 10 | 20 | 30 | 60 |

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| | 17.3.1 Ramad, Nuzūlul Mā', Juḥūẓul 'Ayn, Zu'f Baṣar, Dam'a, Waja'ul Uzun, Ṭarash, Waqr & Ṣamam, Dawī & Ṭanīn, Khasham, Nazla & Zukām, Ru'āf, 'Uṭās, Khunāq, Buḥḥatus Ṣawt, Khushūnate Ḥalq رمد، نزول الماء، جحوظ العین، ضعف بصر، دمعہ، وجع الاذن، طرش، وقر وصمام، دوی وطنین، خشم، نزلہ وزکام، رعاف، عطاس، خناق، بحۃ الصوت، خشونت حلق | | | | | |
| | **M-18 Diseases of Nervous System**<br>This module consists of description of etiology, pathogenesis, pathological changes, clinical features, investigations, diagnosis, and differential diagnosis of diseses of nervous system, diseases of eye, nose and paranasal sinuses.<br>**• M 18U 1 Infections &Vascular & Demyelinating Diseases**<br>18.1.1 Meningitis, Encephalitis, Cerebrovascular Disease, Multiple Sclerosis<br>**• M 18U 2 Degenerative Diseases, Tumours, Disorders of Nerves & Muscles**<br>18.2.1 Alzheimer Disease, Parkinson Disease, Cerebro Meningeal Tumours, Neurogenic and Myopathic Disorders, Neurofibromas<br>**• M 18U 3 Diseases of Eyes, Nose & Paranasal Sinuses**<br>18.3.1 Proptosis, Conjunctivitis, Cataract, Glaucoma, Retinal Vascular Disease, Rhinitis, Sinusitis | 2 | 10 | 20 | 30 | 60 |
| | | 4 | 20 | 40 | 60 | 120 |

**Semester No :** 4

| 2A Module Number | 2B Modules & units | 2C Number of Credits | Notional Learning hours | | | |
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| | | | 2D Lectures | 2E | 2F | 2G Total |

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| | | | | **Practical Training** | **Experiential Learning including Modular Assessment** | |
| | **M-19 Amrāz Qalb & ‘Urūq امراض قلب وعروق**<br>In this module, Mahiyat, Asbab, Alamat, and diagnosis of Amraz e Qalb & Ria are described holistically.<br>**• M 19U 1 Amrāz Qalb -I امراض قلب**<br>19.1.1 Sū’l Mizāj Qalb, Khafaqān, Ghashī سوءمزاج قلب، خفقان، غشی<br>**• M 19U 2 Amrāz Qalb -II امراض قلب**<br>19.2.1 Waram Uzunayi’l Qalb, Waram Ghishā’ Qalb, Zagḥtul Qalb, Imtilā’ Ghilāf Qalb, Taqashshurul Qalb, Qadhful Qalb, Iḥtiwā’ur Rụtūba ‘ala’l Qalb, ‘Illat Dukhāniyya, Jazbul Qalb ورم اذنی القلب، ورم غشاء قلب، ضغط القلب، امتلاء غلاف قلب، تقشر القلب، قذف القلب، احتواء الرطوبات علی القلب، علت دخانیہ، جذب القلب<br>**• M 19U 3 Amrāz Ri’a امراض رئہ**<br>19.3.1 Zīqun Nafas, Buhr & Rabw, Su‘āl, Zātur Ri’a, Sill,Nafsud Dam &Nasful Midda, Zatul Janb, Barsām ضیق النفس، بہر وربو، سعال، ذات الرئہ، سل، نفث الدم و نفث المدہ، ذات الجنب، برسام | 2 | 10 | 20 | 30 | 60 |
| | **M-20 Diseases of Heart & Blood Vessels**<br>This module consists of description of etiology, pathogenesis, pathological changes, clinical features, investigations, diagnosis, and differential diagnosis of diseases of Heart & Blood Vessels | 2 | 10 | 20 | 30 | 60 |

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| | • **M 20U 1 Diseases of Heart -I**<br>20.1.1 Heart Failure, Congenital Heart disease, Ischaemic Heart Disease (Angina Pectoris & Myocardial Infarction), Arrhythmias, Hypertensive Heart Disease<br>• **M 20U 2 Diseases of Heart-II**<br>20.2.1 Cor Pulmonale, Rheumatic Heart disease, Endocarditis, Valvular Heart disease, Cardiomyopathy<br>• **M 20U 3 Diseases of Pericardium & Blood Vessels**<br>20.3.1 Pericarditis, Arteriosclerosis, Aneurysms, Vasculitis, Varicose Veins | | | | | |
| | | 4 | 20 | 40 | 60 | 120 |
| **Semester No :** 5 | | | | | | |
| **2A Module Number** | **2B Modules & units** | **2C Number of Credits** | **Notional Learning hours** | | | |
| | | | **2D Lectures** | **2E Practical Training** | **2F Experiential Learning including Modular Assessment** | **2G Total** |
| | **M-21 Diseases of Lungs** | 2 | 10 | 20 | 30 | 60 |

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| | This module consists of description of etiology, pathogenesis, pathological changes, clinical features, investigations, diagnosis, and differential diagnosis of diseases of Lungs.<br>**• M 21U 1 Obstructive Lung Diseases**<br>21.1.1 Chronic Bronchitis, Emphysema, Bronchial asthma, Bronchiectasis<br>**• M 21U 2 Restrictive Vascular & Acute Lung Diseases**<br>21.2.1 Interstitial Lung Disease, Acute lung injury, Pulmonary Hypertension<br>**• M 21U 3 Infections & Tumours of Lung & diseases of Pleura**<br>21.3.1 Pneumonia, Lung abscess, Lung carcinoma, Pleural effusion, Pneumothorax | | | | | |
| | **M-22 Amrāz A'za' Ẓāhira امراض اعضاء ظاہرہ**<br>In this module, Mahiyat, Asbab, Alamat, and diagnosis of Amraze Jild, Sha`r, Atraf and Amraze Mafasil.are discussed.<br>**• M 22U 1 Amrāz Jild & Sha'r امراض جلد وشعر**<br>22.1.1 Baraṣ, Bahaq, Kalaf, Namash & Barash, Khīlān, Ḥazāz, Taqashshur Jild, Dā'us Sa'lab & Dā'ul Ḥayya, Intisār Sha'r, Shaybبرص، بہق، کلف، نمش وبرش، خیلان، حزاز، تقشر جلد، داء الشعلب وداء الحیہ، انتثار شعر، شیب<br>**• M 22U 2 Amrāz Jild & Atraf امراض جلد واطراف**<br>22.2.1 Namūsat, Qummal, Qūbā, Kasrat 'Araq, Sharā, Namla, Nār Fārsī, Jarab, Ḥikka, Juzām، Dā'ulFīl, Dawālīنموست، قمل، قوبا، کثرت عرق، شری، نملہ، نار فارسی، جرب، حکہ، جذام، داء الفیل، دوالی<br>**• M 22U 3 Amrāz Mafasil امراض مفاصل** | 2 | 10 | 20 | 30 | 60 |

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| | 22.3.1 Ḥadaba & Riyāḥul Afrisa, Waja'uz Ẓahr, Waja'ul Khāṣira, Waja'ul Mafāṣil, Waja'ul Warik, Waja'ul 'Aqib, Niqris, 'Irqun Nasā وجع، حدبہ وریاح الافرسہ، وجع الظہر، وجع الخاصرہ، وجع المفاصل، وجع الورک، وجع العقب، نقرس، عرق النسا | | | | | |
| | | 4 | 20 | 40 | 60 | 120 |
| **Semester No :** 6 | | | | | | |
| **2A Module Number** | **2B Modules & units** | **2C Number of Credits** | **Notional Learning hours** | | | |
| | | | **2D Lectures** | **2E Practical Training** | **2F Experiential Learning including Modular Assessment** | **2G Total** |
| | **M-23 Diseases of Skin, Bones & Joints**<br>This module consists of description of etiology, pathogenesis, pathological changes, clinical features, investigations, diagnosis, and differential diagnosis of diseases of the Skin, Bones and Joints. It also includes interpretation of Unani Pathology of Amrāz A'za' Ẓāhira with conventional medical science.<br>**• M 23U 1 Diseases of Skin**<br>23.1.1 Melanocytic Nevus, Melanoma, Vitiligo, Premalignant & Malignant epidermal Tumours, Urticaria, Eczematous Dermatitis, Psoriasis, Lichen | 2 | 10 | 20 | 30 | 60 |

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| | planus, Seborrheic Dermatitis, Pemphigus, Scabies, Verrucae (Warts), Impetigo, Dermatophytosis<br>**• M 23U 2 Diseases of Bones & Joints**<br>23.2.1 Osteoporosis, Osteomalacia, Osteomyelitis, Bone Tumors, Osteoarthritis,Rheumatoid Arthritis, Gouty Arthritis<br>**• M 23U 3 Interpretation of Unani pathology of AmrāzA'za' Ẓāhira (امراض اعضاء ظاہرہ) with conventional medical science**<br>23.3.1 Interpretation of Unani pathology of Amrāz A'za' Ẓāhira (امراض اعضاء ظاہرہ) with conventional medical science | | | | | |
| | **M-24 Interpretation of Unani Pathology with Conventional Medical Science**<br>This module will help understand the Unani and conventional approach in interpreting the pathology of Amrāz A'za' Nafsāniyya, Amrāz A'za' Ḥaywāniyya and Amrāz Ghayr Mudawwina.<br>**• M 24U 1 Interpretation of Unani pathology of Amrāz A'za' Nafsāniyya (امراض اعضاء نفسانیہ) with conventional medical science**<br>24.1.1 Interpretation of Unani pathology of Amrāz A'za' Nafsāniyya (امراض اعضاء نفسانیہ) with conventional medical science<br>**• M 24U 2 Interpretation of Unani pathology of Amrāz A'za' Ḥaywāniyya (امراض اعضاء حیوانیہ) with conventional medical science**<br>24.2.1 Interpretation of Unani pathology of Amrāz A'za' Ḥaywāniyya (امراض اعضاء حیوانیہ) with conventional medical science<br>**• M 24U 3 Interpretation/development of Unani pathology for Amrāz Ghayr Mudawwina (امراض غیر مدونہ)** | 2 | 10 | 20 | 30 | 60 |

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| | 24.3.1 Interpretation/development of Unani pathology for Amrāz Ghayr Mudawwina (امراض غیر مدونہ) | | | | | |
| | | 4 | 20 | 40 | 60 | 120 |
| | | 16 | 80 | 160 | 240 | 480 |
| **Paper No :** 4 Ilmul Amraz Nizami (Systemic Pathology) – II | | | | | | |
| **Semester No :** 3 | | | | | | |
| **2A Module Number** | **2B Modules & units** | **2C Number of Credits** | **Notional Learning hours** | | | |
| | | | **2D Lectures** | **2E Practical Training** | **2F Experiential Learning including Modular Assessment** | **2G Total** |
| | **M-25 Amrāz Dahan, Mi'da & Am'ā' امراض دہن، معدہ وامعاء**<br>In this module, Mahiyat, Asbab, Alamat, and diagnosis of Amrāz Dahan, Mi'da & Am'ā' are discussed.<br>**• M 25U 1 Amrāz Dahan & Marī امراض دہن ومری**<br>25.1.1 Waja'ul Asnān, Siqalul Lisān, Qulā', Bakhrul Fam, Waram Marī, 'Usrul Bal'ع وجع الاسنان، ثقل اللسان، قلاع، بخر الفم، ورم مری، عسر البلع<br>**• M 25U 2 Amrāz Mi'da امراض معدہ** | 2 | 10 | 20 | 30 | 60 |

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| | 25.2.1 Sū'i Mizāj Mi'da, Waja'ul Mi'da, Zu'f Hazm, Hayza, Zu'f Ishtihā', Jū'ul Kalb, Jū'ul Baqar, 'Aṭash Mufṛiṭ, Waram Mi'da, Nafkh Mi'da, Qay' & Ghasayān, Qay'ud Dam, Fuwāq, Ḥurqat Mi'da سوءمزاج معدہ، وجع المعدہ، ضعف ہضم، ہیضہ، ضعف اشتہاء، جوع الکلب، جوع البقر، عطش مفرط، ورم معدہ، نفخ معدہ، قئے وغثیان، قئے الدم، فواق، حرقت معدہ<br>**• M 25U 3 Amrāz Am'ā' امراض امعاء**<br>25.3.1 Zarab & Khilfa, Zalq al-Am'ā, Zūsaṇtāriyā, Zaḥīr, Maghṣ, Qūlanj, Ḥuṣr (Qabz), Dīdān Am'ā, Bawāsīr, Waram Maq'ad بذرب وخلفہ، زلق الامعاء، ذوسنطاریا، زحیر، مغص، قولنج حصر (قبض)، دیدان امعاء، بواسیر، ورم مقعد | | | | | |
| | **M-26 Diseases of Gastrointestinal Tract**<br>This module consists of description of etiology, pathogenesis, pathological changes, clinical features, investigations, diagnosis, and differential diagnosis of diseases of gastrointestinal Tract.<br>**• M 26U 1 Diseases of Mouth & Oesophagus**<br>26.1.1 Aphthous Ulcer, Leucoplakia, Oral Cancers, Xerostomia, Sialadenitis, Achalasia, Oesophageal Varices, Reflux Oesophagitis, Oesophageal carcinoma<br>**• M 26U 2 Diseases of Stomach**<br>26.2.1 Gastritis, Peptic Ulcer Disease, Gastric Tumours<br>**• M 26U 3 Diseases of Intestine**<br>26.3.1 Ischemic Bowel Disease, Malabsorption and Diarrhoea, Irritable Bowel Syndrome, Inflammatory Bowel Disease, Intestinal Tuberculosis, Enteric Fever, Dysentery, Sigmoid Diverticular Disease, Appendicitis, Haemorrhoids, Carcinoma of Colon | 2 | 10 | 20 | 30 | 60 |

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| | | 4 | 20 | 40 | 60 | 120 |
| **Semester No :** 4 | | | | | | |
| **2A Module Number** | **2B Modules & units** | **2C Number of Credits** | **Notional Learning hours** | | | |
| | | | **2D Lectures** | **2E Practical Training** | **2F Experiential Learning including Modular Assessment** | **2G Total** |
| | **M-27 Amrāz Kabid, Ṭiḥāl, Kulya & Masāna امراض کبد، طحال، کلیہ ومثانہ**<br>In this module, Mahiyat, Asbab, Alamat, and diagnosis of Amrāz Kabid, Ṭiḥāl, Kulya & Masāna are described.<br>**• M 27U 1 Amrāz Kabid امراض کبد**<br>27.1.1 Sū'i Mizāj Kabid, Zu'f Kabid, Sudad Kabid, Waram Kabid, Dubayla Kabid, Qiyām Kabidī, Sū'ul Qinya, Istisqā, Yarqānسوءمزاج کبد، ضعف کبد، سدد کبد، ورم کبد، دبیلہ کبد، قیام کبدی، سوءالقنیہ، استسقاء، یرقان<br>**• M 27U 2 Amrāz Ṭiḥāl & Kulya امراض طحال وکلیہ**<br>27.2.1 Waram Ṭiḥāl, Sū'i Mizāj Kulya, Huzāl Kulya, Zu'f Kulya, Waram al-Kulya, Zayābiṭusورم طحال، سوءمزاج کلیہ، ہزال کلیہ، ضعف کلیہ، ورم الکلیہ، ذیابیطس<br>**• M 27U 3 Amrāz Kulya & Masāna امراض کلیہ ومثانہ** | 2 | 10 | 20 | 30 | 60 |

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| | 27.3.1 Ḥaṣāt Kulya & Masāna, Waram Masāna, Ḥurqatul Bawl, Iḥtibās Bawl, Taqtīrul Bawl, Salasul Bawl, Bawlud Dam حصاۃ کلیہ ومثانہ، ورم مثانہ، حرقت البول، احتباس بول، تقطیر البول، سلس البول، بول الدم | | | | | |
| | **M-28 Diseases of Hepatobiliary System, Pancreas and Urinary Tract**<br>This module consists of description of etiology, pathogenesis, pathological changes, clinical features, investigations, diagnosis, and differential diagnosis of diseases of Hepatobiliary System, Pancreas, and Urinary Tract.<br>**• M 28U 1 Diseases of liver**<br>28.1.1 Jaundice, Hepatitis, Liver Abscess, Fatty Liver Disease, Hepatic Failure, Cirrhosis of Liver, Portal hypertension, Carcinoma of Liver, Splenomegaly<br>**• M 28U 2 Diseases of Gall bladder & Pancreas**<br>28.2.1 Cholelithiasis, Cholecystitis, Carcinoma of Gall Bladder, Pancreatitis, Diabetes Mellitus, Carcinoma of Pancreas<br>**• M 28U 3 Diseases of Urinary Tract**<br>28.3.1 Renal Failure, Glomerulonephritis, Nephritic Syndrome, Nephrotic Syndrome, Pyelonephritis, Polycystic Kidney Disease, Renal Cell Carcinoma, Urolithiasis, Cystitis | 2 | 10 | 20 | 30 | 60 |
| | | 4 | 20 | 40 | 60 | 120 |
| **Semester No :** 5 | | | | | | |
| **2A** | **2B** | **2C** | **Notional Learning hours** | | | |

| Module Number | Modules & units | Number of Credits | 2D Lectures | 2E Practical Training | 2F Experiential Learning including Modular Assessment | 2G Total |
|---|---|---|---|---|---|---|
| | **M-29 Amrāz A'za' Tānāsul امراض اعضاء تناسل**<br>In this module, Mahiyat, Asbab, Alamat, and diagnosis of Amrāz A'za' Tānāsul are discussed.<br>**• M 29U 1 Amrāz A'za' Tānāsul Mardānā امراض اعضاء تناسل مردانہ**<br>29.1.1 Zu'f Bāh, Sur`ate Inzal, Jarayān, Waram Unsayayn ضعف باہ، سرعت انزال، جریان، ورم انثیین<br>**• M 29U 2 Amrāz A'za' Tānāsul Zanānā امراض اعضاء تناسل زنانہ**<br>29.2.1 'Uqr, Kasrate Tams, Sayalānur Raḥim, Iḥtibāse Ṭams, Warame Raḥim, Saraṭāne Raḥim, Ikhtināqur Raḥim عقر، کثرت طمث، سیلان الرحم، احتباس طمث، ورم رحم، سرطان رحم، اختناق الرحم<br>**• M 29U 3 Amrāz Sadi امراض ثدی**<br>29.3.1 Qillate Laban, Warame Sadi قلت لبن، ورم ثدی | 2 | 10 | 20 | 30 | 60 |
| | **M-30 Diseases of Reproductive Organs**<br>This module consists of description of etiology, pathogenesis, pathological changes, clinical features, investigations, diagnosis, and differential diagnosis of diseases of Reproductive Organs. | 2 | 10 | 20 | 30 | 60 |

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|---|---|---|---|---|---|---|
| | • **M 30U 1 Diseases of Male Reproductive Organs**<br>30.1.1 Epididymitis & Orchitis, Prostatitis, Benign Prostatic Hyperplasia, Adenocarcinoma of Prostate<br>• **M 30U 2 Diseases of Female Reproductive Organs**<br>30.2.1 Vaginitis, Cervicitis, Cervical Cancer, Endometriosis, Adenomyosis, Carcinoma of Endometrium, Polycystic Ovarian Syndrome, Ovarian tumours<br>• **M 30U 3 Diseases of Breast**<br>30.3.1 Mastitis & Breast Abscess, Benign Lesions of Breast, Carcinoma of Breast | | | | | |
| | | 4 | 20 | 40 | 60 | 120 |

**Semester No :** 6

| 2A Module Number | 2B Modules & units | 2C Number of Credits | Notional Learning hours | | | |
|---|---|---|---|---|---|---|
| | | | 2D Lectures | 2E Practical Training | 2F Experiential Learning including Modular Assessment | 2G Total |
| | **M-31 Amrāz Mutafarriqa (امراض متفرقہ)&Interpretation of Unani Pathology**<br>This module consists of description of Mahiyat, Asbab, Alamat, and diagnosis of Ḥummayāt and Amrāz Sahna. It also includes interpretation of Unani | 2 | 10 | 20 | 30 | 60 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Pathology of Amrāz A'za' Ṭabī'iyya & Amrāz Mutafarriqa with conventional medical science.<br>**• M 31U 1 Ḥummayāt & Amrāz Sahna حمیات وامراض سخنہ**<br>31.1.1 Ḥummayāt, Ḥummā Yawm, Ḥummā Khilṭī, Ḥummā Diqqiyya, Buhrān, Huzāl, Siman Mufriṭ حمیات، حمی یوم، حمی خلطی، حمی دقیہ، بحران، ہزال، سمن مفرط<br>**• M 31U 2 Interpretation of Unani Pathology of Amrāz A'za' Ṭabī'iyya (امراض اعضاء طبیعیہ) with conventional medical science**<br>31.2.1 Interpretation of Unani Pathology of Amrāz A'za' Ṭabī'iyya (امراض اعضاء طبیعیہ) with conventional medical science<br>**• M 31U 3 Interpretation of Unani Pathology of Amrāz Mutafarriqa (امراض متفرقہ) with conventional medical science**<br>31.3.1 Interpretation of Unani Pathology of Amrāz Mutafarriqa (امراض متفرقہ) with conventional medical science | | | | | |
| | **M-32 Diseases of Blood, Endocrine system and Nutrition**<br>This module consists of description of etiology, pathogenesis, pathological changes, clinical features, investigations, diagnosis, and differential diagnosis of diseases of Blood, Endocrine system and Nutrition<br>**• M 32U 1 Diseases of Blood**<br>32.1.1 Anaemia, Polycythaemia, Bleeding disorders, Lymphoid Neoplasms, Myeloid Neoplasms<br>**• M 32U 2 Endocrine Disorders** | 2 | 10 | 20 | 30 | 60 |

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|---|---|---|---|---|---|---|
| | 32.2.1 Hypopituitarism, Hyperpituitarism, Hyperthyroidism, Hypothyroidism, Thyroiditis, Goitre, Hyperparathyroidism, Hypoparathyroidism, Adrenocortical Hyperfunction, Adrenocortical Insufficiency<br>• **M 32U 3 Nutritional Disorders**<br>32.3.1 Malnutrition, Vitamin Deficiencies, Obesity | | | | | |
| | | 4 | 20 | 40 | 60 | 120 |
| | | 16 | 80 | 160 | 240 | 480 |
| | | 64 | 320 | 640 | 960 | 1920 |

## Table 3 : Modules - Unit - Module Learning Objectives and Session Learning Objective- Notional Learning Hours- Domain-Level- TL Methods

**Paper No : 1(Taskheesat (Diagnostic Methods))**

**Semester No : 3**

**Module 1 : Nabd**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe Asbāb Nabḍ Mufrad & Murakkab, Diagnostic Significance of Nabḍ in diseases of heart, lung, liver, brain etc, Ajnās Nabḍ.
2. Illustrate the various pulse patterns seen in systemic diseases. Observe the changes in Nabḍ of specific diseases.
3. Identify Ajnas-e-Nabḍ, the affecting external factors of Asbāb Nabḍ and important aspect of Nabḍ in diagnosis of diseases.

**Unit 1 Asbāb & Diagnostic Significance of Nabḍ**

1.1.1-Asbāb Nabḍ (Mufrad & Murakkab)

1.1.2-Diagnostic Significance of Nabḍ

**References:** 1

| 3A Course Outcome | 3B Learning Objective (At the end of the (lecture/practical training /experiential learning) session, the students should be able to) | 3C Notional learning Hours | 3D Lecture/ Practical Training/ Experiential Learning | 3E Domain/ Sub Domain | 3F Level (Does/ Shows how/Knows | 3G Teaching Learning Methods |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | how/Know) | |
| CO1,CO4 | Describe Asbāb Nabḍ Mufrad & Murakkab. | 2 | Lecture | CC | Knows-how | L |
| CO1,CO4 | Demonstrate the effects of external factors of Nabḍ. | 4 | Practical1.1 | PSY-SET | Shows-how | CBL,PT,PER,DIS |
| CO1,CO4 | Describe Diagnostic Significance of Nabḍ. | 1 | Lecture | CC | Knows-how | L |
| CO1,CO4 | Present the diagnostic significance of Nabḍ. | 5 | Experiential-Learning1.1 | PSY-ADT | Does | L&GD,LS,DIS,ML,D |
| CO1,CO4 | Demonstrate the correlation of Nabḍ with other diagnostic tools. | 4 | Practical1.2 | PSY-GUD | Shows-how | Mnt,SIM,SY |
| CO1,CO4 | Differentiate the important aspect of Nabḍ in diagnosis of diseases. | 4 | Experiential-Learning1.2 | PSY-GUD | Does | CBL,C_L,PL |
| **Unit 2 Ajnās & Types Nabḍ and SOPs for Mu'āyana' Nabḍ**<br>1.2.1- Ajnās Nabḍ, Types of Nabḍ<br>1.2.2-Standard Operative Procedures (SOPs) for Mu'āyana' Nabḍ (Examination of pulse)<br>**References:** 2 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |

| | | | | | | |
|---|---|---|---|---|---|---|
| CO1,CO4 | Describe Ajnās Nabḍ, | 2 | Lecture | CC | Knows-how | L&PPT ,L |
| CO1,CO4 | Examine different Ajnas of Nabḍ in patients. | 4 | Practical1.3 | PSY-SET | Shows-how | CBL,PT |
| CO1,CO4 | Describe types of Nabḍ. | 2 | Lecture | CC | Knows-how | L&PPT ,L |
| CO1,CO4 | Differentiate Nabḍ Mufrad based on causes. | 5 | Experiential-Learning1.3 | CAN | Does | DIS,PER,LS |
| CO1,CO4 | Differentiate Nabḍ Murakkab based on causes. | 4 | Experiential-Learning1.4 | CAN | Does | PER,LS,DIS |
| CO1,CO4 | Demonstrate Standard operative procedures for examination of pulse. | 3 | Practical1.4 | PSY-GUD | Shows-how | DIS |
| **Unit 3 Nabḍ of specific diseases and its Interpretation**<br>1.3.1-Nabḍ of specific diseases<br>1.3.2-Interpretation of Mu'āyana' Nabḍ with contemporary knowledge<br>**References:** 2 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO1,CO4 | Describe significance of Nabḍ in diseases of heart, lung, liver, brain etc. | 2 | Lecture | CC | Knows-how | L,L&PPT |

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|---|---|---|---|---|---|---|
| CO1,CO4 | Discuss Nabḍ in specific diseases. | 1 | Lecture | CC | Knows-how | L&PPT ,L |
| CO1,CO4 | Demonstrate different pulses in systemic diseases. | 5 | Practical1.5 | PSY-SET | Shows-how | L&GD,L,SIM |
| CO1,CO4 | Evaluate the changes in Nabḍ of specific diseases. | 4 | Experiential-Learning1.5 | PSY-ADT | Does | C_L,DIS,PT |
| CO1,CO4 | Interpret examination of Nabḍ with present knowledge of pulse. | 4 | Experiential-Learning1.6 | PSY-GUD | Does | L,LS,L&GD |

**Practical Training Activity**

Practical Training 1.1 External factors affecting Nabḍ

The teacher will explain the external factors affecting the Nabḍ and divide the students into groups.

The teacher will allot subjects to be examined and ensure that they can be seated comfortably in a neutral environment, free from external stressors.

1. Students will examine the appropriate pulse for observation, such as the radial artery. (30 minutes)

2. Students will record baseline Pulse at rest before any interventions. (30 minutes)

3. Use a stopwatch to measure the pulse rate for one full minute at the wrist (radial pulse).

4. Gradually expose the subject to external factors like light exercise, cold or heat, etc. (30 minutes)

5. Students will record the pulse rate immediately after each factor is introduced. (30 minutes)

6. Students will analyze how different conditions influence the pulse and draw conclusions about their specific effects, and write down the findings in a notebook. (90 minutes)

7. The teacher will assess the work done by students through presentation and practical performance. (30 minutes)

Total duration: 4 hours

| Practical Training 1.2 Correlation of Nabḍ with other diagnostic tools |
|---|
| Teacher will divide students in group and arrange symposium.<br>1. Teacher will explain Nabḍ and their correlation with other diagnostic tools. (30 minutes)<br>2. Student will discuss and correlate Nabḍ with other diagnostic tools using simulation models. (60 minutes)<br>3. Student will Analyse all expert comments and correlations and record it. (60 minutes)<br>4. Student will present their findings in symposium. (60 minutes)<br>5. Teacher will assess students by practical performance.(30 minutes)<br>Total duration: 4 hours |
| Practical Training 1.3 Observation of Ajnas Nabḍ |
| Teacher will divide the students in groups and allot the patients.<br>1. Ensure the patient is relaxed and in a comfortable position to get an accurate reading.<br>2. Teacher will demonstrate appropriate pulse point for observation, such as the radial artery. (30 minutes)<br>3. Student will observe different Jins of Nabḍ in the patients like regular or irregular, strong or weak and record differences in pulse types. (60 minutes)<br>4. Student will Compare the findings with normal pulse parameters for healthy individuals. (60 minutes)<br>5. Student will do group discussion about different Jins of Nabḍ. (60 minutes)<br>6. Teacher will assess the students by Demonstration observation assistance performance.(30 minutes)<br>Total duration: 4 hours |
| Practical Training 1.4 Standard operative procedures of Pulse |
| Teacher will make groups of students.<br>1. Teacher will explain the Standard operative procedures of pulse to student. (30 minutes)<br>2. Student groups will discuss and analyse all inputs of each assigned topic. (60 minutes) |

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| 3. Student will demonstrate and write the Standard operative procedures related to examination of pulse in note book. (60 minutes)<br>4. Teacher will assess and evaluate the students ability by interaction. (30 minutes)<br>Total duration: 3 hours |
| Practical Training 1.5 Pulse of systemic diseases |
| Teacher will divide the students into groups and allot patients with known systemic diseases<br>1. Student will identify the specific characteristics of pulse related to each disease. (60 minutes)<br>2. Student will demonstrate the specific characteristics of pulse related to each disease on simulation setting. (60 minutes)<br>3. Student will take the pulse readings at different pulse points (radial, carotid) and compare the findings across various systemic diseases. (60 minutes)<br>4. Student will record parameters such as pulse rate, rhythm, and intensity for each condition. (30 minutes)<br>5. Student will explain how the underlying pathology of the disease affects the pulse. This helps in understanding the clinical relevance of pulse changes in systemic diseases. (60 minutes)<br>6. Teacher will assess the students by Objective structured clinical examination (30 minutes)<br>Total duration: 5 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 1.1: Diagnostic Significance of Nabḍ |
| Teacher will divide the students and allot different topics of Nabd and its significance in diagnosis of diseases.<br>1. Student will study diagnostic parameters of Nabḍ from Unani classical litrature using offline and online sources. (90 minutes)<br>2. Student will discuss significance of Nabḍ in group and demonstrate.on cases (90 minutes)<br>3. Students will present the alloted topics among the groups. (60 minutes)<br>4. Teacher will assess the students by viva and interaction.(60 minutes)<br>Total duration: 5 hours |

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| Experiential-Learning Learning 1.2: Diagnosis of disease by Nabḍ |
| Teacher will divide the students in groups and ask them to differentiate the important aspect of Nabḍ in diagnosis of diseases.<br>1. Student will Differentiate Nabḍ according to diseases in patient. (60 minutes)<br>2. Student will discuss the significance and important aspects of Nabḍ in diagnosis of diseases. (60 minutes)<br>3. Student will record the findings of the patients and share it with peer groups.(60 minutes)<br>4. Teacher will assess the students by practical viva.(60 minutes)<br>Total duration: 4 hours |
| Experiential-Learning Learning 1.3: Nabḍ Mufrad. |
| 1. The teacher will divide students in groups and explain different types of Nabḍ Mufrad. (60 minutes)<br>2. Students will study different Nabḍ Mufrad from different classical Unani books. (90 minutes)<br>3. Students will discuss the different causes of Nabḍ Mufrad in groups. (90 minutes)<br>4. The teacher will assess the students through the class presentation. (60 minutes)<br>Total duration: 5 hours |
| Experiential-Learning Learning 1.4: Nabḍ Murakkab |
| The teacher will divide the students into groups and explain about Nabd murakkab<br>1. Students will read different Nabḍ Murakkab and find out different causes of Nabḍ Murakkab. (60 minutes)<br>2. Students will review the literature on the topic. (60 minutes)<br>3. Students will discuss among themselves regarding different causes of Nabḍ Murakkab in specific diseases. (60 minutes)<br>4. The teacher will assess the students through the presentation. (60 minutes)<br>Total duration: 4 hours |
| Experiential-Learning Learning 1.5: Nabḍ of specific diseases |

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| 1. The teacher will explain allot patients to the students, instructing them to observe the changes in Nabḍ (30 minutes)<br>2. The students will observe the Nabḍ and discuss in a group. (60 minutes)<br>3. Students will identify the changes in Nabḍ of specific diseases in the patients. (60 minutes)<br>4. Students will note all the changes found in Nabḍ of specific diseases. (60 minutes)<br>5. The teacher will assess the students with an Objective Structured Clinical Examination (30 minutes)<br>Total duration: 4 hours | |
| Experiential-Learning Learning 1.6: Interpretation of Nabḍ | |
| . The teacher will split students into small groups.<br>1. Students will study the Nabḍ from Unani classical literature. (60 minutes)<br>2. Students will examine the Nabḍ of the patients. (60 minutes).<br>3. Students will discuss the different types of Nabḍ observed and interpret the findings using their present knowledge (60 minutes).<br>4. Students will write their findings in the Record book. (30 minutes).<br>5. The teacher will assess the ability and comprehension of students by interaction. (30 minutes).<br>Total duration: 4 hours | |
| **Modular Assessment** | |
| **Assessment** | **Hour** |
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6C.<br>Conduct assessment by MCQs (20 Marks)<br>4 Knowledge-based questions - 8 marks | 4 |

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|---|---|
| 3 Application based questions - 6 marks<br>3 Analysis based questions - 6 marks<br>Assess the students' ability by Case presentation (30 Marks) considering following aspects:<br>Understanding of case - 10 marks<br>Accuracy of diagnosis - 10 marks<br>Case presentation skill - 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

**Module 2 : Good Laboratory Practices and Automation in Lab & Development of Diagnostic Tool**

Module Learning Objectives

(At the end of the module, the students should be able to)

1- Describe the fundamental principles and objectives of GLP.

2. Demonstrate standard operating procedures (SOPs) for laboratory processes.

3. Identify GLP violations and compliance issues, various quality control measures in laboratories, and risks and hazards related to laboratory safety.

**Unit 1 Good Laboratory Practices-I**

2.1.1 Safety Protocol in the laboratory,

2.1.2 Collection, transport and processing of samples,

2.1.3 Pre-Analytical, Analytical and Post- Analytical errors,

2.1.4 EQAS and IQAS in various laboratory tests.

2.1.5 Calibration of analysers

2.1.6 Mean/SD/CV interpretation

2.1.7 Handling and maintenance of instruments.

2.1.8 Recent advancement in laboratory diagnostic methods

**References:** 26,27

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO6,CO7,CO8 | Describe laboratory safety protocols, handle hazardous materials. | 3 | Lecture | CC | Knows-how | L&PPT ,L |
| CO6,CO7,CO8 | Collect, transport, and process samples safely and efficiently. | 3 | Practical2.1 | CAN | Shows-how | PT,DL |
| CO6,CO7,CO8 | Describe sample collection methods, procedure for sample labelling, storage & tracking, and factors affecting sample quality | 2 | Lecture | CC | Knows-how | L,L&PPT |
| CO6,CO7,CO8 | Recognize, mitigate, and manage errors occurring during the pre-analytical, analytical and post analytical phases. | 2 | Experiential-Learning2.1 | CS | Does | L,L&GD |
| CO6,CO7,CO8 | Demonstrate the calibration methods of various analysers. | 3 | Experiential-Learning2.2 | CE | Does | DL |
| CO6,CO7,CO8 | Interpret the graph of Mean/SD/CV of various analysers | 3 | Experiential-Learning2.3 | CS | Does | LRI |
| CO6,CO7,CO8 | Demonstrate proficiency in handling, maintaining, and troubleshooting laboratory instruments to ensure optimal performance, accuracy, and safety | 4 | Practical2.2 | CE | Shows-how | DIS,PT |

| | | | | | | |
|---|---|---|---|---|---|---|
| CO6,CO7,CO8 | Illustrate the recent advances in various laboratory diagnostic methods. | 2 | Experiential-Learning2.4 | CE | Does | ML,DIS,LS |

**Unit 2 Good Laboratory Practices -II**

2.2.1 Ethics, Confidentiality and patient privacy

2.2.2 Bio medical waste Segregation & management, Computerization of laboratory services

2.2.3 Legal aspects of laboratory services

2.2.4 Overview of NABL Guidelines

**References:** 26,27

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO6,CO7,CO8 | Value patient confidentiality and data protection regulations in healthcare setting. | 3 | Experiential-Learning2.5 | AFT-VAL | Does | ML,LS,DIS |
| CO6,CO7,CO8 | Describe the principles and procedures of biomedical waste segregation and management, and identify appropriate treatment and disposal methods. | 3 | Lecture | CC | Knows-how | L&PPT ,L |
| CO6,CO7,CO8 | Segregate lab induced bio medical waste. | 2 | Experiential-Learning2.6 | PSY-SET | Does | C_L,DL,DIS |
| CO6,CO7,CO8 | Utilize Laboratory Information Systems (LIS) to efficiently process, report and analyze patient data, ensuring accurate and timely laboratory results. | 4 | Practical2.3 | PSY-GUD | Shows-how | D,DIS |
| CO6,CO7,CO8 | Comprehend and apply relevant laws, regulations, and standards governing laboratory services, ensuring patient confidentiality, informed consent, and quality assurance. | 5 | Experiential-Learning2.7 | CAN | Does | L&GD,DIS,LS,ML,C_L |

| | | | | | | |
|---|---|---|---|---|---|---|
| CO6,CO7,CO8 | Demonstrate National accredation board for testing and calibration laboratories(NABL) guidelines, promoting awareness and understanding of accreditation requirements for ensuring quality, competence, and compliance in testing and calibration services. | 4 | Practical2.4 | CE | Shows-how | DL,C_L,DIS |
| **Unit 3 Automation in Lab, Development of Diagnostic Tools, and Latest Diagnostic Technology**<br>2.3.1 Principles of automation in laboratory investigations,<br>2.3.2 Principles of Digital machines for common POC (point of care) investigations e.g. Glucometer<br>2.3.3 Protocol for diagnostic tool development and validation<br>2.3.4 Development of Unani Diagnostic Scales/Questionnaires<br>2.3.5 Use of Latest Technology and Artificial Intelligence (AI) in Diagnosis<br>**References:** 26,27 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO6,CO7,CO8 | Describe and implement laboratory automation principles to improve testing efficiency and accuracy. | 2 | Lecture | CC | Knows-how | PT |
| CO6,CO7,CO8 | Operate and interpret digital diagnostic devices for common investigations. | 2 | Practical2.5 | CS | Shows-how | C_L,DL |
| CO6,CO7,CO8 | Design diagnostic tools following standardized protocols, ensuring accuracy, reliability, and regulatory compliance. | 2 | Experiential-Learning2.8 | CE | Does | C_L,DIS,ML |
| CO6,CO7,CO8 | Validate diagnostic tools following standardized protocols, ensuring accuracy, reliability, and regulatory compliance. | 2 | Experiential-Learning2.9 | CAN | Does | PSM |

| | | | | | | |
|---|---|---|---|---|---|---|
| CO6,CO7,CO8 | Design Unani-based diagnostic scales/questionnaires, integrating traditional Unani principles with modern research methods to assess health status and disease diagnosis accurately. | 2 | Experiential-Learning2.10 | CS | Does | BS,LS |
| CO6,CO7,CO8 | Analyze Unani-based diagnostic scales/questionnaires, integrating traditional Unani principles with modern research methods to assess health status and disease diagnosis accurately. | 1 | Practical2.6 | CS | Shows-how | DIS,LS |
| CO6,CO7,CO8 | Integrate modern technologies (Artificial intelligence and machine learning) and digital health solutions to develop innovative Unani diagnostic tools, enhancing accuracy, efficiency, and patient care. | 2 | Practical2.7 | CAN | Shows-how | LS,BS |

**Practical Training Activity**

Practical Training 2.1 Good laboratory practices-2

1. The teacher will divide the students into small groups.
2. The teacher will deploy students in labs and allow them to collect blood/urine/ stool/ sputum samples under the supervision of a skilled technician/phlebotomist.(30 minutes)
3. Students may transfer the sample in an appropriate vacutainer/ container if required.(30minutes)
4. Students may be allowed to transport the samples properly and safely to the designated section.(30minutes)
5. Students may be asked to process the sample for further investigation according to the SOPs.(60minutes)
6. The teacher will assess the students by their practical performance or practical viva.(30 minutes)

Total duration:3 hours

Practical Training 2.2 Good laboratory practices-1

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| 1. The teacher will divide students into groups and demonstrate the handling methods or techniques to use the equipment or instruments. (30 minutes)<br>2. Student groups will discuss, observe, and understand the handling methods or techniques to use the equipment or instrument. (90 minutes)<br>3. The student group will handle the instruments under supervision and demonstrate how to handle the instruments independently. (90 minutes)<br>4. The teacher may assess the students' proficiency in handling the issues by practical performance and a viva. (30 minutes)<br>Total duration: 4 hours |
| Practical Training 2.3 Laboratory Information Systems (LIS) |
| The teacher will divide the students into groups and brief them regarding Laboratory Information Systems (LIS).<br>1. The teacher will demonstrate Laboratory Information Systems (LIS) and students are expected to understand the system and its working process.(60 minutes)<br>2. Students may be allowed to process the data under supervision(60 minutes)<br>3. The student group will discuss, analyse, and process patient data independently. (60 minutes)<br>4. The teacher will assess the students by practical performance or class presentation. (60 minutes)<br>Total duration: 4 hours |
| Practical Training 2.4 National accredation board for testing and calibration laboratories(NABL) guidelines |
| The teacher will introduce the National Accreditation Board for testing and calibration laboratories(NABL) and its purpose, and explain the discussion objectives.<br>1. The teacher will divide the students into groups, summarize key points, and discuss critical requirements.(60minutes)<br>2. The student group will discuss essential accreditation requirements (quality management, technical competence, calibration, personnel qualifications).(60 minutes)<br>3. Students will analyze case studies/scenarios; ensure compliance with NABL guidelines under teacher's guiance.(30minutes)<br>4. The Student group will share key takeaways; develop an action plan to promote awareness and understanding of NABL guidelines and accreditation requirements.(60minutes)<br>5. The teacher will assess the students by viva.(30 minutes) |

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| Total duration: 4 hours |
| Practical Training 2.5 common investigations |
| The teacher will divide the students into groups and introduce the various digital devices and their importance in health care.<br>1. The teacher will provide students with hands-on experience operating digital diagnostic devices in a lab setting and demonstrate the step-by-step process of the devices with safety protocols. (30 minutes)<br>2. The student group will practice operating digital diagnostic devices under supervision. (30 minutes)<br>3. Student groups will discuss the operating techniques and analyze, interpret the results. (30 minutes)<br>4. The teacher will assess the students by their practical performance in the lab and interaction. (30 minutes)<br>Total duration: 2 hours |
| Practical Training 2.6 Diagnostic tools |
| Teacher may divide different topics to the students such as bawl, nabz, baraz and temperament etc.,<br>1. Instruct the students to assess Unani-based diagnostic scales/questionnaires, integrating traditional Unani principles with modern research methods which should come out to be reliable and valid, culturally adapted and ethically sound. (30 minutes)<br>2. Teacher will assess the students by presentation or interaction.(30 minutes)<br>Total duration: 1 hour |
| Practical Training 2.7 Artificial intelligence and machine learning |
| The teacher will divide the students into groups.<br>1. The teacher will briefly describe the role of Artificial intelligence and machine learning in developing Unani diagnostic tools and provide a case study to the students. (30 minutes)<br>2. The students will analyse the case study of patients with a specific disease and participate in a brainstorming session to generate ideas on how Artificial Intelligence, machine learning, and digital health solutions can be used to develop innovative unani diagnostic tools.( 60 minutes) |

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| 3. The teacher will assess the student through interaction and a viva.( 30 minutes)<br>Total duration: 2 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 2.1: Errors in tests |
| 1. The teacher will divide students into groups and brief them regarding errors in test.<br>2. Students will discuss with each other regarding errors in test. (30minutes)<br>3. Students are expected to come up with an understanding of errors of pre-analytical, analytical, and post-analytical phases.(60minutes)<br>4. The teacher will assess the students by viva or presentations.(30minutes)<br>Total duration:2 hours |
| Experiential-Learning Learning 2.2: Calibration methods |
| 1. The teacher will brief the students regarding the importance of calibration and types of analyzers, and divide the students into groups.<br>2. The student groups will discuss among themselves and search for it through online and offline resources. (60minutes)<br>3. The student group will calibrate the pH meter, spectrophotometer, and other analyzers and record calibration data, and analyze the results. (90minutes)<br>4. The teacher will assess the students through a practical exam or a practical viva. (30 minutes)<br>Total duration: 3 hours |
| Experiential-Learning Learning 2.3: Interpretation of the graph of Mean/SD/CV |
| 1. The teacher will brief students regarding the interpretation of the graphs of Mean, Standard Deviation (SD), and Coefficient of Variation (CV) for various analyzers, and divide students into groups.<br>2. Students will search online and offline resources and learn to interpret graph data and understand the implications of Mean, SD, and CV for laboratory results and clinical decision-making. (30 minutes) |

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| 3. Students will compare graphs of different analyzers, evaluating their performance characteristics and identifying potential differences. (30 minutes)<br>4. Students will understand the statistical significance of Mean, SD, and CV and apply this knowledge to real-world laboratory scenarios. (30 minutes)<br>5. Students will learn to apply graph interpretation skills to quality control in laboratory settings, ensuring accurate and reliable results. (60 minutes)<br>6. The teacher will assess the students by conducting an interview or a practical viva. (30 minutes)<br>Total duration- 3 hours |
| Experiential-Learning Learning 2.4: Recent advances |
| 1. The teacher will divide the students into groups and brief them on advancements in various laboratory diagnostic methods.<br>2. The students will search the literature through online and offline modes regarding recent advancements in the field of medical laboratory techniques. (60 minutes)<br>3. Student groups will discuss among themselves regarding their findings on recent advancements. (30 minutes)<br>4. The teacher will assess the students' performance through a debate or a presentation. (30 minutes)<br>Total duration: 2 hours |
| Experiential-Learning Learning 2.5: Patient confidentiality |
| 1. The teacher will divide students in group and brief regarding patient confidentaility in health care, its regulations and laws.<br>2. Student group will search the topic through online and offline resources.(60 minutes)<br>3. The student group brainstorm present scenario or challenges related to patint confidentiality and data protection and discuss its potential solutions.(90 minutes)<br>4. Teacher will evaluate the student findings through interaction and debate.(30 minutes)<br>Total duration: 3 hours |
| Experiential-Learning Learning 2.6: Bio medical waste |
| The teacher will introduce the students definition and importance of proper biomedical waste segregation and risks associated with improper segregation. |

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| 1. Students will discuss and understand segregation categories, colour coding, and labeling of different types of biomedical waste.(60 minutes)<br>2. Students will do a hands-on exercise to segregate biomedical waste into different categories.(30 minutes)<br>3. The teacher will assess the students by practical performance and interaction..(30 minutes)<br>Total duration: 2 hours |
| Experiential-Learning Learning 2.7: Laws and Regulations |
| The teacher will divide the students into groups and introduce students to relevant laws and regulations governing laboratory services, ensuring patient confidentiality, informed consent, and quality assurance.<br>1. The student group will search relevant laws and regulations governing laboratory services through offline and online sources.(120 minutes)<br>2. The student group will discuss the importance of compliance wth laws and regulations in lab services and also discuss patients' confidentiality and informed consent. (120 minutes)<br>3. The teacher will assess the students through a presentation or debate.(60 minutes)<br>Total duration: 5 hours |
| Experiential-Learning Learning 2.8: Validate diagnostic tools |
| The teacher will divide the students into groups and provide a case study of a diagnostic tool that has been validated.<br>1. The student group will go through the case study, evaluate the accuracy of the diagnostic tool, including its sensitivity and specificity. (30 minutes)<br>2. The students will analyse the data collected during the validation process and conclude on the performance of the diagnostic tool. (30 minutes)<br>3. Students will present their findings and recommendations. (30 minutes)<br>4. The teacher will assess the students through a presentation or a viva. (30 minutes)<br>Total duration: 2 hours |
| Experiential-Learning Learning 2.9: Unani-based diagnostic scales |

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| The teacher will divide the students into groups and brief them regarding the design of an Unani-based diagnostic scale, integrating traditional Unani principles with modern research methods<br>1. The student group will brainstorm about the design of Unani-based diagnostic scales/questionnaires, and each group will record their idea on white whiteboard or flipchart. (30 minutes)<br>2. Each group of student share their ideas regarding Unani-based diagnostic scales/questionnaires, with the class and builds on each others ideas.(60 minutes)<br>3. The teacher will assess the students by presentation or interaction.(30 minutes)<br>Total duration: 2 hours | |
| Experiential-Learning Learning 2.10: standardized protocols | |
| The teacher will divide the students into groups and define the key concept of Design diagnostic tools, including accuracy, reliability, and regulatory compliance.<br>1. The students group discusses and analyses the case study of diagnostic tools designed following the standard protocol.(30 minutes)<br>2. Students group discuss to design a diagnostic tool/ scale/ questionnaire for a specific disease or condition..(30 minutes)<br>3. Students group discuss the importance of ensuring accuracy and reliability, and regulatory compliance in designing diagnostic tools. (30 minutes)<br>4. The teacher will assess the student by presentation and interaction. (30 minutes)<br>Total duration: 2 hours | |
| **Modular Assessment** | |
| **Assessment** | **Hour** |
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct Viva Exam. (25 Marks) considering following aspects;<br>Knowldege and understanding marks- 5marks | 4 |

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| Critical thinking and reasoning- 5 marks<br>Clarity and expression - 5 marks<br>Application of knowledge - 5 marks<br>Handling questions - 5 marks<br>Conduct Quiz competition (25 Marks) considering following aspects;<br>Simple level quizzes - 10 marks<br>Moderate level quizzes - 10 marks<br>Difficult level quizzes - 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

**Semester No : 4**

**Module 3 : Bawl**

Module Learning Objectives

(At the end of the module, the students should be able to)

1- Describe the uroscopy, Dalā'il Bawl, and its clinical significance.

2- Demonstrate various methods of uroscopy, interpret & examine parameters of Bawl in different diseases.

3- Analyse the Unani and modern perspectives of Urine formation and demonstrate SOPs for Mu'āyana' Qārūra.

**Unit 1 Diagnostic Significance & Formation of Bawl (Uroscopy)**

3.1.1 Diagnostic Significance of Bawl (Uroscopy)

3.1.2 Formation of Bawl in Unani perspective (Quwa and organs involved)

**References:** 3

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO4 | Discuss Uroscopy and its importance. | 2 | Lecture | CC | Knows-how | L&PPT ,L |
| CO1,CO4 | Identify the indications and techniques of Uroscopy. | 2 | Practical3.1 | CAN | Shows-how | L&GD,L |
| CO1,CO4 | Describe the formation of Bawl in Unani perspective (Quwā and organs involved). | 2 | Lecture | CC | Knows-how | L&GD,DIS |
| CO1,CO4 | Analyze the Unani and modern perspectives of Urine formation. | 4 | Experiential-Learning3.1 | CAN | Does | DIS,PER,L&GD,C_L |
| CO1,CO4 | Conduct different Uroscopy methods. | 5 | Practical3.2 | CS | Shows-how | PT,DIS,D |
| CO1,CO4 | Interpret the Quwā with organs of Urinary system. | 4 | Experiential-Learning3.2 | CS | Does | SY,L&GD,L,C_L,PER |

**Unit 2 SOPs for Mu'āyana' Qārūra & Dalā'il Bawl**

3.2.1 Standard Operative Procedures (SOPs) for Mu'āyana' Qārūra,

3.2.2 Dalā'il Bawl and its Clinical Significance

3.2.2.1 Alwān Bawl

3.2.2.2 Safai wa Kadurat Bawl

3.2.2.3 Qiwām Bawl

3.2.2.4 Miqdār Bawl

3.2.2.5 Rasūb Bawl

3.2.2.6 Rā'iḥa Bawl

3.2.2.7 Zabada Bawl

**References:** 2,4

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO4 | Describe Dalā'il Bawl and its Clinical Significance | 2 | Lecture | CC | Knows-how | L,L&PPT |
| CO1,CO4 | Describe Qiwām, Miqdār, Rasūb, Rā'iḥa, Zabada, Bū, Alwān, Safai wa Kadurat of urine. | 2 | Lecture | CC | Knows-how | L&PPT ,L |
| CO1,CO4 | Examine Qiwām and Miqdār of Urine. | 4 | Practical3.3 | CS | Shows-how | PT,D,DIS,L&PPT |
| CO1,CO4 | Investigate Zabada al-Bawl | 4 | Experiential-Learning3.3 | CS | Does | LRI,DIS,L |
| CO1,CO4 | Examine Rasūb of Bawl. | 3 | Experiential-Learning3.4 | CAN | Does | PT,SDL,DIS |
| CO1,CO4 | Interpret colour of urine with different diseases. | 4 | Experiential-Learning3.5 | CE | Does | DIS,L&GD |
| CO1,CO4 | Demonstrate SOPs for Mu'āyana' Qārūra. | 4 | Practical3.4 | CS | Shows-how | SY,PT,DIS,LS |

**Unit 3 Interpretation of Mu'āyana' Qārūra**

3.3.1 Interpretation of Mu'āyana' Qārūra with contemporary knowledge

**References:** 1,11

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO4 | Describe examination of urine. | 2 | Lecture | CC | Knows-how | L,L&PPT |
| CO1,CO4 | Perform physical examination of Bawl and correlate with contemporary knowledge. | 5 | Practical3.5 | CE | Shows-how | DIS,PT,L |
| CO1,CO4 | Interpret colour, quantity and turbidity of Bawl in modern view | 3 | Experiential-Learning3.6 | CS | Does | DL,PT,ML,DIS |
| CO1,CO4 | Interpret odour and precipitate of Bawl in modern view. | 4 | Experiential-Learning3.7 | CE | Does | LS,LRI,ML,DIS,DL |

**Practical Training Activity**

Practical Training 3.1 indications and techniques of Uroscopy

1. The teacher will facilitate and guide the students in identifying the clinical indications for uroscopy, such as urinary tract infections and kidney stones and explain why examining urine characteristics is useful in diagnosis.
2. Following the teacher's guidance, students will demonstrate the proper method for collecting a fresh midstream urine sample in a clean and transparent container. (30 minutes) Ensure the patient follows protocols to avoid contamination.
3. Students will observe key parameters, including color, odour etc. (30 minutes)

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| 4. The teacher will encourage students to link the observed changes in urine with potential diagnoses, students will discuss how changes in urine characteristics relate to specific diseases. (30 minutes)<br>5. Teacher will assess the students by presentation or interaction.(30 minutes)<br>Total duration: 2 hours |
| Practical Training 3.2 Uroscopy methods |
| 1. The teacher will divide the students into groups and demonstrate different uroscopy methods, ensuring that they follow all related SOPs.(30 minutes)<br>2. The teacher will guide the students to examine the colour and quantity of Bawl in the pathology laboratory. (90 minutes)<br>3. The student group will perform chemical and microscopic examination of Bawl and record their results. (90 minutes)<br>4. The teacher will assess the students by practical performance or by direct observation of procedural skill. (90 minutes)<br>Total Duration: 5 hours |
| Practical Training 3.3 Qiwām and Miqdār of Urine |
| 1. The teacher will divide the students in group and brief them regarding collection and examination of Qiwām and Miqdār of Urine. (30 minutes)<br>2. The teacher will guide the students to examine Qiwām and Miqdār of Urine. (60 minutes)<br>3. Students will discuss their observations among themselves and make a record of it. (60 minutes)<br>4. The student will correlate these parameters with disease progression under the teacher's supervision. (60 minutes)<br>5. The teacher will assess the student by class presentation or practical viva. (30 minutes)<br>Total Duration: 4 hours |
| Practical Training 3.4 SOPs for Mu‘āyana’ Qārūra |
| 1. The teacher will brief the topic to students and assign topics for SOPs of Mu‘āyana’ Qārūra.<br>2. The teacher will guide the students to review the literature from online and offline sources. (60 minutes)<br>3. Students will discuss the topics of SOPs in groups under the teacher's supervision. (30 minutes) |

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| 4. Students will demonstrate each assigned topic in front of the teacher. (30 minutes)<br>5. Students will do a practical on patients. (60 minutes)<br>6. The teacher will analyse and assess all students' practicals through conducting an interview or an objective structured practical examination. (60 minutes)<br>Total Duration: 4 hours |
| Practical Training 3.5 Physical examination of Bawl |
| 1. The teacher will divide the students into groups and brief them on the physical examination of the Bawl.<br>2. The teacher will facilitate the students to perform a physical examination of Bawl. (60 minutes)<br>3. The students will properly record the observations and results. (60 minutes)<br>4. Students will correlate all results with contemporary concepts under the teacher's supervision. (90 minutes)<br>5. Students will discuss to clarify their doubts. (60 minutes)<br>6. The teacher will assess all the activities through practical performance or viva. (30 minutes)<br>Total Duration: 5 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 3.1: Analysis of Urine formation |
| 1. The teacher will split the students into groups and instruct them to study the Unani and modern perspectives of Urine formation from classical books. (60 minutes)<br>2. Students will search through offline and online sources and discuss the steps of urine formation in Unani and modern perspectives in group. (90 minutes)<br>3. Students will present the Unani and modern perspectives of Urine formation on PPT. (60 minutes)<br>4. A group of students will summarize the key points in a poster presentation or class presentation. (30 minutes)<br>Total Duration: 4 hours |
| Experiential-Learning Learning 3.2: Study of Quwā |

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| 1. The teacher will brief the student regarding Quwā and its relation with urinary system.<br>2. The students will search the Unani concept of urinary organs and the concept of Quwā through online and offline resources. (90 minutes)<br>3. The students will discuss among themselves and prepare a note on it, and jointly prepare the PPT presentation. (90 minutes)<br>4. The teacher will assess the students through presentation or debate. (60 minutes)<br>Total Duration: 4 hours |
| Experiential-Learning Learning 3.3: Zabada al-Bawl |
| 1. The teacher will brief the students regarding examination of Zabada al-Bawl and divide the students in group. (30 minutes)<br>2. The students group will search through offline and online sources. (60 minutes)<br>3. The student will examine Zabada al-Bawl and discuss their observations among themselves. (60 minutes)<br>4. The student will try to correlate these parameters with disease progression. (60 minutes)<br>5. Teacher will assess the students by presentation or interaction. (30 minutes)<br>Total Duration:4 hours |
| Experiential-Learning Learning 3.4: Rasūb of Bawl |
| 1. The teacher will divide students into groups and briefly explain regarding Rasub of Bawl.<br>2. The student will examine Rasūb of Bawl in the lab and discuss their observation among themselves. (60 minutes)<br>3. The student group will correlate their findings with disease progression and record their results. (60 minutes)<br>4. The Teacher will assess the students' observations through a class presentation or a practical viva. (60 minutes)<br>Total Duration: 3 hours |
| Experiential-Learning Learning 3.5: Study the colour of urine |
| 1. The teacher will brief the students regarding the interpretation of urine color with diseases.<br>2. The student group will examine the colour of Urine in the lab and discuss among themselves. (90 minutes) |

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| 3. The student group will correlate the urine color with disease progression and record their findings. (90 minutes)<br>4. The Teacher will assess the students' performance by presentation or a practical viva. (60 minutes)<br>Total Duration: 4 hours |
| Experiential-Learning Learning 3.6: Bawl in modern view- colour, quantity and turbidity of Urine |
| 1. The teacher will divide students into groups and brief them regarding the physical examination of urine.<br>2. The students will review the literature through online and offline modes on the topic. (60 minutes)<br>3. The student group will examine colour, quantity, and turbidity of Urine in the pathology lab and discuss the findings among themselves. (60 minutes)<br>4. Students will discuss the color, quantity, and turbidity of urine from a modern perspective. (30 minutes)<br>5. The teacher will assess the students' findings through class presentations or practicals. (30 minutes)<br>Total Duration: 3 hours |
| Experiential-Learning Learning 3.7: Bawl in modern view- Odour and precipitate of urine |
| 1. The teacher will divide students into groups and brief them regarding the odour and precipitate of the bawl in modern view.<br>2. Students will review the literature through online and offline modes regarding the examination colour and odour of urine. (60 minutes)<br>3. The student group will examine the urine and discuss its odour and precipitate. (60 minutes)<br>4. The student group will interpret the odour and precipitate of urine in modern view and summarise the findings in notebook.. (60 minutes)<br>5. The teacher will assess the student's findings through a class presentation or a viva. (60 minutes)<br>Total Duration: 4 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
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| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Given a complete set of urinalysis results by Dalā'il Bawl (25 Marks), the student is required to be assessed on following check list:<br>Interpret the results. (10 Marks)<br>Provide a possible diagnosis based on the findings. (10 Marks)<br>Suggest follow-up tests if necessary. (5 Marks)<br>Conduct OSPE assessments of students in the following areas (25 Marks).<br>Examination of a urine sample for Dalā'il Bawl (15 Marks)<br>Diagnosis or differential diagnosis based on findings (10 Marks)<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |

**Module 4 : Clinical Haematology, Immunology, Transfusion medicine and Molecular Diagnostics**

Module Learning Objectives

(At the end of the module, the students should be able to)

1-Describe basic principles of hematology, immunology, transfusion medicine, and molecular diagnostics. Explain the principles of blood grouping, cross-matching, and transfusion reactions. Describe molecular diagnostic techniques such as PCR, RT-PCR etc.

2-Conduct all tests related to Clinical Haematology, Immunology, Transfusion medicine and Molecular Diagnostics like complete blood counts (CBC), blood typing, cross-matching, compatibility testing for transfusion etc.

3-Identify all findings related to Clinical Haematology, Immunology, Transfusion medicine and Molecular Diagnostics.

**Unit 1 Blood Collection & Complete Blood Count**

4.1.1.Types of Blood Samples, Anticoagulants, Blood Collection and storage of samples

4.1.2 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:

4.1.2.1 Haemoglobin estimation,

4.1.2.2. Total Leucocyte Count,

4.1.2.3. Differential Leucocyte

4.1.2.4. Count RBC Count,

4.1.2.5. RBC indices (MCV, MCH,MCHC), Haematocrit,

4.1.2.6. Platelet Count,

4.1.2.7. Absolute Eosinophil Count,

4.1.2.8. Reticulocyte Count, Haemogram,

4.1.2.9. ESR

**References:** 26,27

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Describe blood collection methods (arterial, venous, and capillary) along with the sequence of blood sample collection with its storage, anticoagulant,s and their significance. | 3 | Lecture | CC | Knows-how | L&PPT ,PT,L |
| CO3,CO6,CO7,CO8 | Demonstrate hematological tests such as hemoglobin estimation, total leukocyte count, differential leukocyte count, red blood cell count, RBC indices (MCV, MCH, MCHC), hematocrit, platelet count, absolute eosinophil count, reticulocyte count, and erythrocyte sedimentation rate based on their principles. | 5 | Practical4.1 | CS | Shows-how | PT,DL,DIS |

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| CO3,CO6,CO7,CO8 | Demonstrate the standard operating procedures (SOPs) for haemoglobin estimation, total leucocyte count, differential leucocyte count, RBC count, RBC indices (MCV, MCH, MCHC), platelet count, absolute eosinophil count, reticulocyte count, and ESR. | 6 | Practical4.2 | CAN | Shows-how | Mnt,DL,PT |
| CO3,CO6,CO7,CO8 | Interpret laboratory reports of hemoglobin estimation, total leukocyte count, differential leukocyte count, red blood cell count, red blood cell indices (MCV, MCH, MCHC), hematocrit, platelet count, absolute eosinophil count, reticulocyte count, and erythrocyte sedimentation rate (ESR). | 5 | Experiential-Learning4.1 | CS | Does | DIS,LRI,DL,CBL |
| CO3,CO6,CO7,CO8 | Correlate and interpret various hematological tests such as hemoglobin estimation, TLC, differential leukocyte count, RBC count, RBC indices (MCV, MCH, MCHC), hematocrit, platelet count, AEC, reticulocyte count, hemogram, and ESR from a Unani perspective. | 3 | Experiential-Learning4.2 | CAN | Does | L&GD,DIS,Mnt,LRI |

**Unit 2 Sickling test & Peripheral Blood Smear Examination**

4.2.1 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:

4.2.1.1. Sickling test

4.2.1.2. Peripheral blood smear procedure & staining methodology

4.2.1.3. Interpretation of peripheral blood smear & staining technique

4.2.1.4. Peripheral Smear Examination in Anaemias and common blood parasites (malarial and microfilaria)

**References:** 26,27

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|

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|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Describe hematological tests such as Peripheral blood smear procedure & staining methodology, Interpretation of peripheral blood smear & staining technique, Peripheral Smear Examination in Anaemias, and common blood parasites malaria and microfilaria. | 4 | Lecture | CC | Knows-how | L,L&PPT ,PT |
| CO3,CO6,CO7,CO8 | Demonstrate SOPs of hematological tests such as Peripheral blood smear procedure & staining methodology, Interpretation of peripheral blood smear & staining technique, Peripheral Smear Examination in Anaemias, and common blood parasites malaria and microfilaria. | 5 | Practical4.3 | CE | Shows-how | DL,PT,Mnt |
| CO3,CO6,CO7,CO8 | Interpret Lab reports of hematological tests such as Peripheral blood smear procedure & staining methodology, Interpretation of peripheral blood smear & staining technique, Peripheral Smear Examination in Anaemias, and common blood parasites malaria and microfilaria. | 5 | Experiential-Learning4.3 | CAN | Does | CBL,LRI |
| CO3,CO6,CO7,CO8 | Correlate and interpret various hematological tests such as peripheral blood smear procedure & staining methodology, Interpretation of peripheral blood smear & staining technique, Peripheral Smear Examination in Anaemias, and common blood parasites malaria and microfilaria within Unani perspective. | 5 | Experiential-Learning4.4 | CAP | Does | L&GD,LRI,DIS |

**Unit 3 Immunology, Transfusion medicine and Molecular Diagnostics**

4.3.1 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:

4.3.1.1. Bleeding Time, Clotting Time & Coagulation Profile

4.3.1.2. Bone Marrow Examination

4.3.1.3. Blood Grouping and Cross-matching

4.3.1.4. Blood Component Preparation & Storage

4.3.1.5. Blood Donor Selection and Investigation

4.3.1.6. Blood Transfusions

4.3.1.7. Transfusion Reaction

4.3.1.8. Mantoux Skin Test

4.3.1.9. Hormonal Assays (Thyroid Profile, Cortisol, LH, FSH, Prolactin, Oestradiol, Testosterone)

4.3.1.10. Immunoglobulin-IgE, IgG, IgM

4.3.1.11. Electrophoresis, blotting, mutation testing

**References:** 30,31

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Describe Bleeding Time, Clotting Time & Coagulation Profile, Bone Marrow Examination, Blood Grouping and Cross-matching, Blood Component Preparation & Storage, Investigation and Blood Donor Selection and Testing, Blood Transfusions, Transfusion Reaction, Mantoux Skin Test, Hormonal Assays (Thyroid Profile, Cortisol, LH, FSH, Prolactin, Oestradiol, Testosterone), Immunoglobulin-IgE, IgG, IgM, Electrophoresis, blotting, mutation including their principles. | 3 | Lecture | CC | Knows-how | PT,L&GD |
| CO3,CO6,CO7,CO8 | Demonstrate SOPs of Bleeding Time, Clotting Time & Coagulation Profile, Bone Marrow Examination, Blood Grouping and Cross-matching, Blood Component Preparation & Storage, Blood Donor Selection and Testing, Blood Transfusions, Transfusion Reaction, Mantoux Skin Test, Hormonal Assays (Thyroid Profile, Cortisol, LH, FSH, Prolactin, Oestradiol, Testosterone), Immunoglobulin-IgE, IgG, IgM, Electrophoresis, blotting, mutation | 4 | Practical4.4 | PSY-GUD | Shows-how | PT,Mnt,DL |

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|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Interpret Lab reports of Bleeding Time, Clotting Time & Coagulation Profile, Bone Marrow Examination, Blood Grouping and Cross-matching, Blood Component Preparation & Storage, Blood Donor Selection and Testing, Blood Transfusions, Transfusion Reaction, Mantoux Skin Test, Hormonal Assays (Thyroid Profile, Cortisol, LH, FSH, Prolactin, Oestradiol, Testosterone), Immunoglobulin-IgE, IgG, IgM, Electrophoresis, blotting, mutation studies | 4 | Experiential-Learning4.5 | CAN | Does | LRI,DIS,CBL |
| CO3,CO6,CO7,CO8 | Correlate and interpret various Bleeding Time, Clotting Time & Coagulation Profile, Bone Marrow Examination, Blood Grouping and Cross-matching, Investigation and Blood Donor Selection and Testing, Blood Transfusions, Transfusion Reaction, Mantoux Skin Test, Hormonal Assays (Thyroid Profile, Cortisol, LH, FSH, Prolactin, Oestradiol, Testosterone), Immunoglobulin-IgE, IgG, IgM, Electrophoresis, blotting, mutation in Unani perspective | 4 | Experiential-Learning4.6 | CAP | Does | DIS,L&GD,PT |

**Practical Training Activity**

Practical Training 4.1 Clinical Hematology

1. The teacher will demonstrate hematological tests such as hemoglobin estimation and TLC, guiding students through the procedures. (60 minutes)
2. The teacher will lead discussions on the principles of each test, focusing on the scientific basis and clinical significance. (60 minutes)
3. Students will practice hands-on techniques under the teacher's supervision. (60 minutes)
4. The teacher will facilitate the interpretation of test results, highlighting normal and abnormal findings with interactive guidance. (30 minutes)
5. The teacher will instruct on troubleshooting common issues in hematological testing, ensuring accurate results through demonstrated problem-solving. (30 minutes)
6. Teacher will assess the students by objective stucture practical examination, viva or practical performance. (60 minutes)

Total duration: 5 hours

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| Practical Training 4.2 Clinical Hematology SOPs |
| 1. The teacher will provide hands-on training for students on performing various hematological tests, including hemoglobin estimation and total leucocyte count, with a focus on following Standard Operating Procedures (SOPs) to ensure consistent results. (120 minutes)<br>2. The teacher will demonstrate the SOPs for different hematological tests, highlighting the steps and techniques required to maintain accuracy and precision during the procedures. (60 minutes)<br>3. Students will perform hematological tests such as RBC count and platelet count under the teacher's supervision, following SOPs closely to ensure adherence to best practices. (90 minutes)<br>4. The teacher will explain the importance of implementing quality control measures during hematological testing, guiding students on how to apply these measures to ensure reliability and accuracy in their results. (30 minutes)<br>5. The teacher will assess the students by practical performance, viva, or demonstration, observation assistance performance.(60 minutes)<br>Total duration: 6 hours |
| Practical Training 4.3 SOPs of Peripheral Smear Examination |
| 1. Teacher will brief the student regarding SOPs of Peripheral Smear Examination (30 minutes):<br>2. Teacher will guide the student to prepare Peripheral Blood Smear. (60 minutes)<br>3 -Students will prepare their blood smear under supervision. (60 minutes)<br>4. Teacher will demonstrate staining techniques, focusing on the proper application of stains like Wright's stain, then students will prepare their own slides. (60 minutes)<br>5. Students group will discuss among themselves and interpret the results of the prepared smear, focusing on normal versus abnormal cell morphology. (30 minutes)<br>6 .Teacher will assess the students by demonstration observation assistance performance or practical identification. (60 minutes)<br>Total Duration- 5 Hours |
| Practical Training 4.4 SOPs of Coagulation Profile, Blood Transfusions, Immunological Assays, mutation tests, etc. |

1. Preparation and Planning (30 Minutes)

Identify specific lab procedures to be covered. Gather necessary materials, equipment, and SOP documents.

2. Introduction to SOPs (30 Minutes)

Explain the purpose and importance of Standard Operating Procedures. Discuss relevant safety protocols and expectations for adherence.

3. Demonstration of Procedures (60 Minutes)

Conduct live demonstrations of each procedure. Emphasize key steps, techniques, and safety precautions relevant to the SOPs.

4. Hands-On Practice (90 Minutes)

Allow students to perform the procedures under supervision. Provide guidance and support while addressing any challenges they encounter.

5. Review and Feedback (30 Minutes)

Assess students' performance during hands-on practice. Summarize key learnings and hold a Q&A session for clarification on any uncertainties.

Total duration: 4 hours

**Experiential Learning Activity**

Experiential-Learning Learning 4.1: Interpretation of Lab Reports of Haematology

1.Teacher will brief the student regarding interpretation of lab reports of hematology, and divide the students in groups

2.Students will begin with a foundational overview of hematological components and tests, including key terminology and concepts critical for interpreting lab reports. (60 minutes)

3. Students will explore normal reference ranges for various hematological parameters, learning how to assess what is considered normal and the significance of deviations. (60 minutes)

4. Students will examine case studies involving real lab reports, focusing on interpreting the data, identifying abnormalities, and discussing the potential clinical implications of those findings. (60 minutes)

5. Students will apply clinical guidelines and protocols for interpreting specific hematological tests, working through examples that illustrate how to integrate lab results with patient assessments. (60 minutes)

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| 6. In small groups, students will critique sample lab reports, discussing discrepancies, identifying common errors, and proposing corrections to enhance accuracy in interpretation. (30 minutes)<br>7. Teacher will assess the students by demonstration observation assisstance performance, or interaction.(30minutes)<br>Total duration: 5 hours |
| Experiential-Learning Learning 4.2: Correlation of haematological investigations |
| 1.Teacher will divide students in group and brief about Correlation of haematological investigations<br>2.Students will work on case studies, correlating hematological test results (e.g., hemoglobin estimation, TLC, DLC etc.) (30 minutes)<br>3. Students will participate in analyzing and interpreting hematological test results (e.g., RBC count, RBC indices, platelet count). (30 minutes)<br>4. Students will apply Unani principles to understand disease pathology of cases and to develop treatment plans.(60minutes)<br>5. Students will engage in discussions and reflections on how hematological tests can be correlated with Unani diagnosis. (30minutes)<br>6. Teacher will assess the students by practical viva or interaction. (30 minutes)<br>Total duration: 3 hours |
| Experiential-Learning Learning 4.3: Interpretation of Peripheral Smear Reports |
| 1. Introduction: Students will begin with a foundational overview of peripheral blood smears, including key terminology and concepts critical for interpreting lab reports. (60 minutes)<br>2. Understanding Normal Structures and Variability: Students will explore normal reference slides for various peripheral blood smears, learning how to assess what is considered normal and the significance of deviations. (60 minutes)<br>3. Case Study Analysis: Students will examine case studies involving real lab reports, focusing on interpreting the data, identifying abnormalities, and discussing the potential clinical implications of those findings. (60 minutes)<br>4. Application of Clinical Guidelines: Students will apply clinical guidelines and protocols for interpreting specific peripheral blood smears, such as anemia or blood parasites, working through examples that illustrate how to integrate lab results with patient assessments. (60 minutes) |

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| 5. Interactive Group Critique: In small groups, students will critique sample lab reports, discussing discrepancies, identifying common errors, and proposing corrections to enhance accuracy in interpretation. (60 minutes)<br>Total duration: 5 hours |
| Experiential-Learning Learning 4.4: Correlation of Peripheral Blood Smears |
| 1. Students will work on case studies related to peripheral blood smears (90 minutes)<br>2. Students will participate in analyzing and interpreting peripheral blood smear samples (60 minutes)<br>3. Students will apply Unani principles to understand disease pathology of cases and to develop treatment plans.(60minutes)<br>4. Students will engage in discussions and reflections on how various peripheral blood smears can inform Unani diagnosis and treatment, promoting critical thinking and clinical correlation. (90minutes)<br>Total Duration: 5 hours |
| Experiential-Learning Learning 4.5: Interpretation of Coagulation Profile, Blood Transfusions, Immunological Assays, mutation tests |
| 1. Introduction: Students will begin with a foundational overview of blood tests such as Bleeding Time, Clotting Time & Coagulation Profile, Bone Marrow Examination, Blood Grouping and Cross-matching, Blood Component Preparation & Storage, Blood Donor Selection and Testing, Blood Transfusions, Transfusion Reaction, Mantoux Skin Test, Hormonal Assays (Thyroid Profile, Cortisol, LH, FSH, Prolactin, Oestradiol, Testosterone), Immunoglobulin-IgE, IgG, IgM, Electrophoresis, blotting, mutation studies, including key terminology and concepts critical for interpreting lab reports. (60 minutes)<br>2. Understanding Normal Range and Variability: Students will explore the normal reference range for tests, learning how to assess what is considered normal and the significance of deviations. (60 minutes)<br>3. Case Study Analysis: Students will examine case studies involving real lab reports, focusing on interpreting the data, identifying abnormalities, and discussing the potential clinical implications of those findings. (60 minutes)<br>4. Application of Clinical Guidelines: Students will apply clinical guidelines and protocols for interpreting specific tests, working through examples that illustrate how to integrate lab results with patient assessments. (30 minutes) |

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| 5. Interactive Group Critique: In small groups, students will critique sample lab reports, discussing discrepancies, identifying common errors, and proposing corrections to enhance accuracy in interpretation. (30 minutes)<br>Total Duration: 4 hours | |
| Experiential-Learning Learning 4.6: Correlation of Coagulation Profile, Blood Transfusions, Immunological Assays, mutation tests | |
| 1. Students will work on case studies related to these blood tests(60 minutes)<br>2. Students will participate in analyzing and interpreting these investigations (60 minutes)<br>3. Students will apply Unani principles to understand disease pathology of cases and to develop treatment plans.(60minutes)<br>4. Students will engage in discussions and reflections on how various tests can inform Unani diagnosis and treatment, promoting critical thinking and clinical correlation. (60minutes)<br>Total Duration: 4 hours | |
| **Modular Assessment** | |
| **Assessment** | **Hour** |
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Demonstrate, interpret and report any test related to Clinical Haematology, Immunology, Transfusion medicine and Molecular Diagnostics (25 Marks) as follows;<br>Correct methodology (15 Marks)<br>Interpretation (5 Marks)<br>Reporting (5 Marks)<br>Conduct Case Based Assessment (25 Marks) considering following aspects. | 4 |

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| Understanding of case - 5 marks<br>Accuracy of diagnosis - 10 marks<br>Case presentation skill - 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

**Semester No : 5**

**Module 5 : Barāz (Stool) & Other Methods of Tashkhīṣ : Tanaffus (respiration), Nafth (sputum), Araq (Sweat)**

Module Learning Objectives

(At the end of the module, the students should be able to)

1- Describe Barāz, its types, formation, different parameters of Mu'āyana Barāz, diagnostic significances of Tanaffus, Nafs and Araq.

2- Conduct Mu'āyana' Barāz, demonstrate SOPs for Mu'āyana' Barāz and SOPs for Mu'āyana' of Tanaffus (respiration), Nafs (sputum), Araq (Sweat), observe the sputum in lab and correlate with progress of diseases.

3- Identify specific colour of sweat in diseases, demonstrate characteristics of Tanaffus.

**Unit 1 Diagnostic Significance, SOPs and Interpretation of Mu'āyana' Barāz**

5.1.1 Diagnostic Significance of Barāz,

5.1.2 Standard Operative Procedures (SOPs) for Mu'āyana' Barāz, Parameters of Mu'āyana' Barāz

5.1.3 Interpretation of Mu'āyana' Barāz with contemporary knowledge

**References:** 1,2

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|

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|---|---|---|---|---|---|---|
| CO1,CO4 | Describe Barāz, its types and formation. | 2 | Lecture | CK | Knows-how | L&PPT ,L |
| CO1,CO4 | Discuss the diagnostic significance of Barāz. | 1 | Lecture | CC | Knows-how | L |
| CO1,CO4 | Examine and Interpret Barāz with contemporary knowledge. | 4 | Experiential-Learning5.1 | PSY-GUD | Does | DL,PAL,L&GD,SY |
| CO1,CO4 | Conduct Mu'āyana' of Barāz. | 4 | Practical5.1 | PSY-GUD | Shows-how | L&PPT ,DIS,DL,PT |
| CO1,CO4 | Demonstrate SOPs for Mu'āyana' Barāz | 4 | Practical5.2 | PSY-SET | Shows-how | TUT,DL,DIS |
| CO1,CO4 | Present the different parameters of Mu'āyana Barāz. | 4 | Experiential-Learning5.2 | CAN | Does | C_L,L&PPT ,PER,DIS,LS |
| CO1,CO4 | Describe different parameters of Mu'āyana Barāz | 2 | Lecture | CC | Knows-how | L&PPT |
| **Unit 2 Diagnostic Significance & SOPs of Mu'āyana' of Tanaffus, Nafth & Araq**<br>5.2.1 Diagnostic Significance of Tanaffus (respiration), Nafth (sputum), Araq (Sweat)<br>5.2.2 Standard Operative Procedures (SOPs) for Mu'āyana' of Tanaffus (respiration), Nafs (sputum), Araq (Sweat)<br>**References:** 3,4 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |

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|---|---|---|---|---|---|---|
| CO1,CO4 | Describe diagnostic significances of Tanaffus and Nafth and Araq | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO4 | Classify & describe the characteristics of Tanaffus, Nafth and Araq. | 1 | Lecture | CAN | Knows-how | L,L&PPT |
| CO1,CO4 | Identify specific colours of sweat in pathological conditions. | 3 | Experiential-Learning5.3 | PSY-SET | Does | CBL,L&PPT ,DIS |
| CO1,CO4 | Illustrate the different types of sputum in the lab and correlate with the progress of diseases. | 4 | Practical5.3 | PSY-GUD | Shows-how | D,PT,DL,DIS |
| CO1,CO4 | Demonstrate SOPs for Mu'āyana' of Tanaffus (respiration). | 4 | Experiential-Learning5.4 | PSY-GUD | Does | BS,SIM,DIS,D-BED,PBL |
| CO1,CO4 | Apply SOPs for Mu'āyana' of Nafth (sputum). | 4 | Practical5.4 | PSY-GUD | Shows-how | DIS,DL,PT |
| CO1,CO4 | Display SOPs for Mu'āyana' of Araq (Sweat). | 4 | Experiential-Learning5.5 | PSY-GUD | Does | BS,SIM,PT,D,DIS |

**Unit 3 Interpretation of Mu'āyana' of Tanaffus, Nafth & Araq**

5.3.1 Interpretation of Mu'āyana' of Tanaffus (respiration), Nafth (sputum) and Araq (Sweat) with contemporary knowledge

**References:** 3,4,11

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO4 | Describe Tanaffus, Nafth and Araq | 2 | Lecture | CC | Knows-how | PER,L&PPT |

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|---|---|---|---|---|---|---|
| CO1,CO4 | Demonstrate different characteristics of Tanaffus on patients. | 4 | Practical5.5 | PSY-SET | Shows-how | LS,Mnt,D-BED,DIS,PT |
| CO1,CO4 | Interpret Tanaffus and Nafth with contemporary knowledge | 4 | Experiential-Learning5.6 | PSY-MEC | Does | LS,DIS,PT |
| CO1,CO4 | Interpret Mu‘āyana’ Araq with contemporary knowledge. | 3 | Experiential-Learning5.7 | PSY-GUD | Does | LS,DIS,D-BED,SY,CBL |

**Practical Training Activity**

Practical Training 5.1 Mu‘āyana’ Barāz

1. The teacher will guide the students how to conduct Mu‘āyana’ Barāz (60 minutes).
2. Students will study about Mu‘āyana’ Barāz under the teacher's supervision. (30 minutes)
3. They will conduct physical, chemical and microscopic examination of Barāz facilitated by the instructor/technician. (90 minutes)
4. Student will properly record their observations and results in practical book. (30 minutes)
5. A discussion session will be conducted, followed by the concluding remark by the teacher. (30 minutes)

Total duration: 4 Hours

Practical Training 5.2 SOPs for Mu‘āyana’ Barāz

1. The teacher will give a detailed explanation of SOPs for Mu‘āyana’ Barāz (1 hour)
2. Hands-on demonstration to students supervised by teacher (2 hours)
3. Assessment of their learning and feedback on improvement (1 hour)

Total duration: 4 hours

Practical Training 5.3 Mu‘āyana’ of Nafth

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| 1. The teacher will demonstrate the Mu‘āyana’ of Nafth to students. (60 minutes)<br>2. Students will review the literature of Mu‘āyana’ of Nafth from the classical text. (60 minutes)<br>3. Students will learn to examine different types of sputum according to the instructions given to them. (60 minutes)<br>4. They will be shown how to correlate them with different pathological conditions under the teacher's guidance. (30 minutes)<br>5. The teacher will assess their practical skills and give feedback wherever required. (30 minutes)<br>Total duration: 4 hours |
| Practical Training 5.4 SOPs of Mu‘āyana’ of Nafth |
| 1. The teacher will give a detailed explanation of SOPs for Mu‘āyana’ Nafth (60 minutes)<br>2. Students will do Mu‘āyana’ Nafth following the SOPs explained by the teacher (120 minutes)<br>3. Assessment of their learning by the teacher and feedback on improvement (60 minutes)<br>Total duration: 4 hours |
| Practical Training 5.5 Mu‘āyana’ of Tanaffus |
| 1. The teacher will guide the students to review the different characteristics of Tanaffus (60 minutes)<br>2. The teacher will demonstrate to the students the different features of normal/abnormal Tanaffus on patients (60 minutes).<br>3. They have to summarize the clinical findings and the respective literature reviewed (60 minutes)<br>4. A discussion session and Q& A will be conducted for in-depth understanding, followed by a concluding remark from the teacher. (60 minutes)<br>Total duration: 4 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 5.1: Examination and Interpretation of Barāz |
| 1. Ask the students to study Barāz and its characteristics in Unani medicine. (30 minutes) |

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| 2. Students will review the characteristics mentioned in contemporary knowledge. (30 minutes)<br>3. Students will examine Barāz according to Unani parameters as well as conventional parameters. (60 minutes)<br>4. Based on observations and review, students will interpret the diagnosis and discuss with peers. (60 minutes)<br>5. Students will summarize all the findings and analysis. (60 minutes)<br>Total duration: 4 Hours |
| Experiential-Learning Learning 5.2: Different parameters of Mu'āyana Barāz |
| 1. Students will be asked to review the different parameters of Mu'āyana Barāz (90 minutes)<br>2. They will summarize the points and prepare a PPT for explanation of this diagnostic method (90 minutes)<br>3. One student will present and others will take part in the discussion, followed by a concluding remark from the teacher. (60 minutes)<br>Total duration: 4 hours |
| Experiential-Learning Learning 5.3: Mu'āyana' of Araq |
| 1. Students will review the literature of Mu'āyana' of Araq (60 minutes).<br>2. They will identify the pathological conditions with specific colours of sweat (60 minutes).<br>3. A discussion with conclusive expert remark will be held (60 minutes).<br>Total duration: 3 hours |
| Experiential-Learning Learning 5.4: SOPs of Mu'āyana' of Tanaffus |
| 1. The teacher will give a detailed explanation of SOPs for Mu'āyana' Tanaffus (60 minutes)<br>2. Students will do Mu'āyana' Tanaffus following the SOPs explained by the teacher (120 minutes)<br>3. Assessment of their learning by the teacher and feedback on improvement (60 minutes)<br>Total duration: 4 hours |

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| Experiential-Learning Learning 5.5: SOPs of Mu‘āyana’ of Araq (Sweat) |
| 1. The teacher will give a detailed explanation of SOPs for Mu‘āyana’ Araq (60 minutes)<br>2. Students will do Mu‘āyana’ Araq following the SOPs explained by the teacher (120 minutes)<br>3. Assessment of their learning by the teacher and feedback on improvement (60 minutes)<br>Total duration: 4 hours |
| Experiential-Learning Learning 5.6: Interpretation of Tanaffus and Nafth |
| 1. Ask the students to study Tanaffus and Nafth and their characteristics in Unani medicine. (30 minutes)<br>2. Students will review the characteristics mentioned in contemporary knowledge. (30 minutes)<br>3. Students will examine Tanaffus and Nafth according to Unani parameters as well as conventional parameters. (60 minutes)<br>4. Based on observations and review, students will interpret the diagnosis and discuss with peers. (60 minutes)<br>5. Students will summarize all the findings and analysis. (60 minutes)<br>Total duration: 4 hours |
| Experiential-Learning Learning 5.7: Interpretation of Mu‘āyana’ Araq (Examination of Sweat) |
| 1. Ask the students to study Mu‘āyana’ Araq (Examination of Sweat) and its significance in Unani medicine. (30 minutes)<br>2. Students will review the significance mentioned in contemporary knowledge. (30 minutes)<br>3. Students will examine Araq (Sweat) according to Unani parameters as well as conventional parameters. (30 minutes)<br>4. Based on observations and review, students will interpret the diagnosis and discuss with peers. (60 minutes)<br>5. Students will summarize all the findings and analysis. (30 minutes)<br>Total duration: 3 hours |
| **Modular Assessment** |

| Assessment | Hour |
| --- | --- |
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Assess the students by their Seminar Presentations (25 Marks) considering following aspects;<br>Content quality - 10 marks<br>Presentation method - 10 marks<br>Communication skill - 5 marks<br>Conduct Written test by LAQ (25 Marks) considering following aspects;<br>Content quality - 10 marks<br>Language and structure - 10 marks<br>Analytical skill - 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |
| **Module 6 : Clinical Biochemistry and Serology** | |
| Module Learning Objectives<br>(At the end of the module, the students should be able to)<br>1- Describe fundamental principles of clinical biochemistry and serology, and biochemical composition of blood, urine, and other body fluids. Discuss the role of enzymes, hormones, and metabolic pathways in disease diagnosis. | |

2- Perform biochemical tests for glucose, lipids, proteins, and enzymes in body fluids. Conduct serological tests such as ELISA, VDRL, Widal, and Rheumatoid Factor tests. Interpret laboratory results and correlate them with clinical conditions.

3- Identify normal and abnormal biochemical parameters in different diseases. Identify serological markers for infectious and autoimmune diseases. Detect errors in biochemical and serological testing procedures. Recognize safety hazards and ensure biosafety in the laboratory.

**Unit 1 Clinical Biochemistry and Serology-I**

6.1.1 Disorders of Carbohydrate, Protein and Lipid metabolism and their investigations

6.1.2 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:

6.1.2.1 Blood Sugar, HBA1C, Glucose Challenge Test, Glucose Tolerance Test

6.1.2.2 Liver Function Test

6.1.2.3 Renal Function Test

6.1.2.4 Lipid Profile

6.1.2.5 Electrolytes

6.1.2.6 Serum. Amylase, Lipase

6.1.2.7 RA Factor, ASO

6.1.2.8 HIV Test (ELISA, Western Blot), Hepatitis Test (HBsAg, Anti-HCV), Syphilis Test (VDRL, TPHA),

6.1.2.9 Dengue Tests (NS1 ELISA and Immunoglobulin)

**References:** 26,32

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Discuss carbohydrate, protein, and lipid metabolism disorders, including their biochemical basis. | 2 | Lecture | CC | Knows-how | L&PPT |
| CO3,CO6,CO7,CO8 | Describe Blood Sugar (FBS, PP, HBA1C), Glucose Challenge Test, Glucose Tolerance Test, Liver Function Test, Renal Function Test, Lipid Profile, | 2 | Lecture | CC | Knows-how | L,PT |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Electrolytes, S. Amylase, Lipase, RA, ASO, HIV Test (ELISA, Western Blot), Hepatitis Test (HBsAg, Anti-HCV), Syphilis Test (VDRL, TPHA) and Dengue including their principles. | | | | | |
| CO3,CO6,CO7,CO8 | Perform the tests such as fasting blood sugar (FBS), postprandial blood sugar (PP), HbA1c, glucose challenge test, glucose tolerance test, liver and renal function tests, lipid profile, electrolytes, serum amylase, lipase, rheumatoid factor (RA), ASO, HIV (ELISA and Western blot), hepatitis (HBsAg and anti-HCV), syphilis (VDRL and TPHA), and dengue according to their standard operating procedure. | 7 | Practical6.1 | PSY-GUD | Shows-how | Mnt,LRI,PT,DIS,DL |
| CO3,CO6,CO7,CO8 | Interpret lab reports of the tests such as fasting blood sugar (FBS), postprandial blood sugar (PP), HbA1c, glucose challenge test, glucose tolerance test, liver and renal function tests, lipid profile, electrolytes, serum amylase, lipase, rheumatoid factor (RA), ASO, HIV (ELISA and Western blot), hepatitis (HBsAg and anti-HCV), syphilis (VDRL and TPHA), and dengue. | 4 | Experiential-Learning6.1 | CAN | Does | CBL,PAL,LRI,Mnt,C_L |
| CO3,CO6,CO7,CO8 | Correlate and interpret the tests such as fasting blood sugar (FBS), postprandial blood sugar (PP), HbA1c, glucose challenge test, glucose tolerance test, liver and renal function tests, lipid profile, electrolytes, serum amylase, lipase, rheumatoid factor (RA), ASO, HIV (ELISA and Western blot), hepatitis (HBsAg and anti-HCV), syphilis (VDRL and TPHA), and dengue within Unani perspective. | 4 | Experiential-Learning6.2 | CAP | Does | PSM,Mnt,LRI,C_L,CBL |
| **Unit 2 Clinical Biochemistry and Serology-II**<br>6.2.1 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests: | | | | | | |

6.2.1.1 Widal Test

6.2.1.2 CRP

6.2.1.3 Tumour Markers

6.2.1.4 EQAS and IQAS in clinical biochemistry

6.2.1.5 Cortisol

6.2.1.6 Insulin

6.2.1.7 Cardiac Markers- Troponin T & I

6.2.1.8 Iron Test- TIBC, UIBC

6.2.1.9 Thyroid peroxidase (TPO) Antibody

**References:** 26,32

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Describe and Demonstrate Widal Test, CRP- Fasting, PP, Random, Tumour Markers, Cortisol- Morning, Evening, Random, Insulin- Fasting, PP, Random, Cardiac Markers- Troponin T & I, Iron Test- TIBC, UIBC, TPO Antibody including their principles. | 4 | Lecture | CC | Knows-how | L&PPT |
| CO3,CO6,CO7,CO8 | Perform Widal Test, CRP, Random, Tumour Markers, Cortisol, Insulin, Cardiac Markers- Troponin T & I, Iron Test- TIBC, UIBC, TPO Antibody. | 7 | Practical6.2 | PSY-GUD | Shows-how | DL,PT |
| CO3,CO6,CO7,CO8 | Interpret Lab reports of Widal Test, CRP, Tumour Markers, Cortisol, Insulin, Cardiac Markers- Troponin T & I, Iron Test- TIBC, UIBC, TPO Antibody. | 5 | Experiential-Learning6.3 | CAN | Does | LRI,CBL,Mnt,PAL |

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|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Correlate and interpret Widal Test, CRP, Tumour Markers, Cortisol, Insulin, Cardiac Markers- Troponin T & I, Iron Test- TIBC, UIBC, TPO Antibody within Unani perspective. | 5 | Experiential-Learning6.4 | CE | Does | CBL,DIS,LRI,TUT |

**Unit 3 Clinical Biochemistry and Serology-III**

6.3.1 Principle, Standard Operative Procedures (SOPs), Report interpretation, Clinical Correlation and Unani correlation of the following tests:

6.3.1.1 D-Dimer

6.3.1.2 Prostate-Specific Antigen (PSA)

6.3.1.3 Vitamin-B12, Vitamin-D

6.3.1.4 Anti-cardiolipin antibody - IgM & IgG

6.3.1.5 Anti-mitochondrial antibodies (AMA)

6.3.1.6 Creatine Phosphokinase test (CPK)

6.3.1.7 Alpha-Fetoprotein (AFP)

6.3.1.8 Anti-Müllerian hormone (AMH)

**References:** 26,32

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Describe and Demonstrate D-Dimer, AFP,AMH, PSA, Vit-B12, Vit-D, Anti cardiolipin antibody - IgM & IgG, Anti mitochondrial antibodies (AMA), CPK – Total including their principles. | 2 | Lecture | CC | Knows-how | PT,L |
| CO3,CO6,CO7,CO8 | Perform D-Dimer, AFP, AMH, PSA, Vit-B12, Vit-D, Anti cardiolipin antibody - IgM & IgG, Anti mitochondrial antibodies (AMA), CPK–Total. | 6 | Practical6.3 | PSY-GUD | Shows-how | DL,PT,BS,Mnt |

| | | | | | | |
|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Interpret lab reports of D-Dimer, AFP,AMH, PSA, Vit-B12, Vit-D, Anti cardiolipin antibody - IgM & IgG, Anti mitochondrial antibodies (AMA), CPK – Total | 4 | Experiential-Learning6.5 | CAN | Does | CBL,Mnt,DIS,PAL,LRI |
| CO3,CO6,CO7,CO8 | Correlate and interpret D-Dimer, AFP, AMH, PSA, Vit-B12, Vit-D, Anti cardiolipin antibody - IgM & IgG, Anti mitochondrial antibodies (AMA), CPK– Total within Unani perspective. | 4 | Experiential-Learning6.6 | CC | Does | DIS,Mnt,LRI,TUT |

**Practical Training Activity**

Practical Training 6.1 Biochemical and serological Tests

1. The teacher will assign each student a designated station and provide them with the required blood samples for testing.
2. The teacher will guide students as they perform tests according to SOPs, ensuring accurate execution of various biochemical and serological investigations (4 hours).
3. The teacher will instruct students to carefully record observations and readings for each test, emphasizing precision and clarity (1 hour).
4. The teacher will assist students in analyzing the data and preparing a tentative report based on their findings, ensuring logical presentation and interpretation (1.5 hours).
5. The teacher will lead a final discussion and review session, addressing doubts, reinforcing key concepts, and verifying procedural adherence (30 minutes).

Total duration: 7 hours

Practical Training 6.2 Serological Tests

1. The teacher will assign each student a designated station and provide them with the required blood samples for testing.
2. The teacher will guide students as they perform tests according to SOPs, ensuring accurate execution of various serological investigations (4 hours).
3. The teacher will instruct students to carefully record observations and readings for each test, emphasizing precision and clarity (1 hour).

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| 4. The teacher will assist students in analyzing the data and preparing a tentative report based on their findings, ensuring logical presentation and interpretation (1.5 hours).<br>5. The teacher will lead a final discussion and review session, addressing doubts, reinforcing key concepts, and verifying procedural adherence (30 minutes).<br>Total duration: 7 hours |
| Practical Training 6.3 Serological Test - 2 |
| 1. The teacher will assign each student a designated station and provide them with the required blood samples for testing.<br>2. The teacher will guide students as they perform tests according to SOPs, ensuring accurate execution of various serological investigations (3 hours).<br>3. The teacher will instruct students to carefully record observations and readings for each test, emphasizing precision and clarity (1 hour).<br>4. The teacher will assist students in analyzing the data and preparing a tentative report based on their findings, ensuring logical presentation and interpretation (1.5 hours).<br>5. The teacher will lead a final discussion and review session, addressing doubts, reinforcing key concepts, and verifying procedural adherence (30 minutes).<br>Total duration: 6 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 6.1: Interpretation of Biochemical and Serological Tests |
| 1. Introduction: Students will begin with a foundational overview of the tests such as fasting blood sugar (FBS), postprandial blood sugar (PP), HbA1c, glucose challenge test, glucose tolerance test, liver and renal function tests, lipid profile, electrolytes, serum amylase, lipase, rheumatoid factor (RA), ASO, HIV (ELISA and Western blot), hepatitis (HBsAg and anti-HCV), syphilis (VDRL and TPHA), and dengue, including key terminology and concepts critical for interpreting lab reports. (60 minutes)<br>2. Understanding Normal Range and Variability: Students will explore the normal reference range for tests, learning how to assess what is considered normal and the significance of deviations. (60 minutes) |

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| 3. Case Study Analysis: Students will examine case studies involving real lab reports, focusing on interpreting the data, identifying abnormalities, and discussing the potential clinical implications of those findings. (60 minutes)<br>4. Application of Clinical Guidelines: Students will apply clinical guidelines and protocols for interpreting specific tests, working through examples that illustrate how to integrate lab results with patient assessments. (30 minutes)<br>5. Interactive Group Critique: In small groups, students will critique sample lab reports, discussing discrepancies, identifying common errors, and proposing corrections to enhance accuracy in interpretation. (30 minutes)<br>Total duration: 4 hours |
| Experiential-Learning Learning 6.2: Correlation of Biochemical and Serological Test |
| 1. Students will work on case studies related to these blood tests(60 minutes)<br>2. Students will participate in analyzing and interpreting these investigations (60 minutes)<br>3. Students will apply Unani principles to understand disease pathology of cases and to develop treatment plans.(60minutes)<br>4. Students will engage in discussions and reflections on how various tests can inform Unani diagnosis and treatment, promoting critical thinking and clinical correlation. (60minutes)<br>Total duration: 4 hours |
| Experiential-Learning Learning 6.3: Interpretation of Serological Tests |
| 1. Introduction: Students will begin with a foundational overview of the tests such as Widal Test, CRP, Tumour Markers, Cortiso, Insulin, Cardiac Markers- Troponin T & I, Iron Test- TIBC, UIBC, TPO Antibody, including key terminology and concepts critical for interpreting lab reports. (60 minutes)<br>2. Understanding Normal Range and Variability: Students will explore the normal reference range for tests, learning how to assess what is considered normal and the significance of deviations. (60 minutes)<br>3. Case Study Analysis: Students will examine case studies involving real lab reports, focusing on interpreting the data, identifying abnormalities, and discussing the potential clinical implications of those findings. (60 minutes) |

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| 4. Application of Clinical Guidelines: Students will apply clinical guidelines and protocols for interpreting specific tests, working through examples that illustrate how to integrate lab results with patient assessments. (60 minutes)<br>5. Interactive Group Critique: In small groups, students will critique sample lab reports, discussing discrepancies, identifying common errors, and proposing corrections to enhance accuracy in interpretation. (60 minutes)<br>Total duration- 5 hours |
| Experiential-Learning Learning 6.4: Corrlation of Serological Tests |
| 1. Students will work on case studies related to these blood tests (60 minutes)<br>2. Students will participate in analyzing and interpreting these investigations (60 minutes)<br>3. Students will apply Unani principles to understand disease pathology of cases and to develop treatment plans.(60minutes)<br>4. Students will engage in discussions and reflections on how various tests can inform Unani diagnosis and treatment, promoting critical thinking and clinical correlation. (120minutes)<br>Total duration: 5 hours |
| Experiential-Learning Learning 6.5: Interpretation of Serological Tests 2 |
| 1. Introduction: Students will begin with a foundational overview of the tests such as D-Dimer, AFP,AMH, PSA, Vit-B12, Vit-D, Anti cardiolipin antibody - IgM & IgG, Anti mitochondrial antibodies (AMA), CPK – Total, including key terminology and concepts critical for interpreting lab reports. (60 minutes)<br>2. Understanding Normal Range and Variability: Students will explore the normal reference range for tests, learning how to assess what is considered normal and the significance of deviations. (60 minutes)<br>3. Case Study Analysis: Students will examine case studies involving real lab reports, focusing on interpreting the data, identifying abnormalities, and discussing the potential clinical implications of those findings. (60 minutes)<br>4. Application of Clinical Guidelines: Students will apply clinical guidelines and protocols for interpreting specific tests, working through examples that illustrate how to integrate lab results with patient assessments. (30 minutes) |

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| 5. Interactive Group Critique: In small groups, students will critique sample lab reports, discussing discrepancies, identifying common errors, and proposing corrections to enhance accuracy in interpretation. (30 minutes)<br>Total duration-4 hours | |
| Experiential-Learning Learning 6.6: Correlation of Serological Tests 2 | |
| 1. Students will work on case studies related to these blood tests (60 minutes).<br>2. Students will participate in analyzing and interpreting these investigations (60 minutes).<br>3. Students will apply Unani principles to understand disease pathology of cases and to develop treatment plans (60minutes).<br>4. Students will engage in discussions and reflections on how various tests can inform Unani diagnosis and treatment, promoting critical thinking and clinical correlation (60minutes).<br>Total duration- 4 hours | |
| **Modular Assessment** | |
| **Assessment** | **Hour** |
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6C.<br>Perform, interpret and communicate any of the biochemical, serological or rheumatoid factor tests, considering following points: (25 Marks)<br>Accuracy of the procedure (15 Marks)<br>Interpretation (5 Marks)<br>Communication (5 Marks) | 4 |

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| Case-based assessment involves evaluating their ability to apply their knowledge of biochemical, serological, and rheumatoid factor tests: (25 Marks)<br>Clinical Reasoning (5 Marks)<br>Investigation Selection (10 Marks)<br>Interpretation of Results (5 Marks)<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

**Semester No : 6**

**Module 7 : Clinical Pathology, Surgical Pathology and Histopathology**

Module Learning Objectives

(At the end of the module, the students should be able to)

1-Describe the scope and significance of clinical pathology, Surgical Pathology and Histopathology in disease diagnosis.

2-Demonstrate handling of clinical pathology, Surgical Pathology and Histopathology specimens.

3-Identify normal and abnormal blood, urine, and body fluid findings, histo-pathology slides, histological pattern and pathological changes.

**Unit 1 Urine Tests**

7.1.1 Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:

7.1.1.1. Urine -physical, chemical and microscopic examination

7.1.1.2. 24 hours Urinary- Urea, Creatinine, Glucose, Phosphorous, Protein, Uric acid, Calcium citrate, Microalbumin, Bence Jones protein etc.

7.1.1.3. Urinary sugar

7.1.1.4. Urine Pregnancy Test

| References: 28,33,34 | | | | | | |
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| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO3,CO6,CO7,CO8 | Describe and Demonstrate Urine routine and microscopic examination, 24 hours Urinary- Urea, Creatinine, Glucose, Phosphorous, Protein, Uric acid, Calcium citrate, Microalbumin, Bile salt in urine, Bence Jones protein, Mid-stream urine, Urinary sugar-fasting, Urine Pregnancy Test including their principles. | 5 | Lecture | CC | Knows-how | L,PT |
| CO3,CO6,CO7,CO8 | Perform Urine routine and microscopic examination, 24 hours Urinary- Urea, Creatinine, Glucose, Phosphorus, Protein, Uric acid, Calcium citrate, Microalbumin, Bile salt in urine, Bence Jones protein, Urinary sugar-fasting, Urine Pregnancy Test. | 6 | Practical7.1 | PSY-GUD | Shows-how | DIS,PT,D |
| CO3,CO6,CO7,CO8 | Interpret lab reports of Urine routine and microscopic examination, 24 hours Urinary- Urea, Creatinine, Glucose, Phosphorus, Protein, Uric acid, Calcium citrate, Microalbumin, Bile salt in urine, Bence Jones protein, Urinary sugar-fasting, Urine Pregnancy Test. | 5 | Experiential-Learning7.1 | CAN | Does | LRI,C_L,CBL,DIS |
| CO3,CO6,CO7,CO8 | Correlate and interpret urine routine and microscopic examination, 24 hours Urinary- Urea, Creatinine, Glucose, Phosphorus, Protein, Uric acid, Calcium citrate, Microalbumin, Bile salt in urine, Bence Jones protein, Urinary sugar-fasting, Urine Pregnancy Test within Unani perspective. | 5 | Experiential-Learning7.2 | CAP | Does | DIS,LRI,CBL |
| **Unit 2 Clinical Pathology & Cytopathology**<br>7.2.1 Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation of the following tests: | | | | | | |

7.2.1.1 Stool examination-physical, chemical and microscopic

7.2.1.2 Semen Analysis

7.2.1.3 Sputum Examination

7.2.1.4 Analysis of CSF, Peritoneal fluid, Pleural fluid, Pericardial fluid, Amniotic fluid, Synovial fluid

7.2.1.5 Cytopathology, Fine Needle Aspiration Cytology (FNAC), Pap Smear (Conventional Method and liquid-based cytology), Biopsy

**References:** 26,27,28,33,34

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Describe Stool examination-Physical, Chemical and Microscopic, Semen Analysis, Sputum Examination, including their principles. | 5 | Lecture | CC | Knows-how | L,PT |
| CO3,CO6,CO7,CO8 | Perform Stool examination (Physical, Chemical and Microscopic), Semen Analysis and Sputum Examination. | 5 | Practical7.2 | PSY-GUD | Shows-how | DIS,PT,D,DL |
| CO3,CO6,CO7,CO8 | Interpret lab reports of Stool examination (Physical, Chemical and Microscopic), Semen Analysis, Sputum Examination. | 4 | Experiential-Learning7.3 | CAN | Does | L&PPT ,LRI,D,DIS |
| CO3,CO6,CO7,CO8 | Correlate and interpret stool examination (Physical, Chemical and Microscopic), Semen Analysis, Sputum Examination within Unani perspective. | 3 | Experiential-Learning7.4 | CAP | Does | LRI,Mnt,C_L,DIS,PT |
| CO3,CO6,CO7,CO8 | Demonstrate analysis of CSF, Peritoneal fluid, Pleural fluid, Pericardial fluid, Amniotic fluid, synovial fluid, Cytopathology, Fine Needle Aspiration Cytology (FNAC), Pap Smear (Conventional Method and LBC), Biopsy. | 4 | Experiential-Learning7.5 | PSY-MEC | Does | DIS,LRI,PT,D-M |
| CO3,CO6,CO7,CO8 | Interpret analysis of CSF, Peritoneal fluid, Pleural fluid, Pericardial fluid, Amniotic fluid, synovial fluid, Cytopathology, Fine Needle Aspiration Cytology | 3 | Practical7.3 | CE | Shows-how | D,DIS,PT |

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| | (FNAC), Pap Smear (Conventional Method and LBC), Biopsy & correlate with Unani Medical perspective. | | | | | |

**Unit 3 Histopathology & Immunochemistry**

7.3.1. Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation of following tests:

7.3.1.1. Exposure to Histopathology Lab Equipments and instruments

7.3.1.2. Routine Histopathology Techniques and Staining

7.3.1.3. Frozen Section and its Staining

7.3.1.4. Special Stains and Immunohistochemistry

7.3.2. Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation of important histopathological conditions such as Carcinoma lung, Chronic Pneumonia, adenoma of thyroid gland, Fibroadenoma of breast, fatty degeneration of liver, Carcinoma cervix, Carcinoma Gall Bladder, Carcinoma stomach, lipoma, bladder tumour, melanoma etc.

**References:** 30,31

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
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| CO3,CO6,CO7,CO8 | Present Principles, SOPs and utilities of histopathological instruments and equipments. | 5 | Experiential-Learning7.6 | PSY-SET | Does | D,DL,PT,TUT,PER |
| CO3,CO6,CO7,CO8 | Identify normal and abnormal cells in histopathological slides such as Ca lung, Chronic Pneumonia, adenoma of thyroid gland, Fibroadenoma of breast, fatty degeneration of liver, Ca cervix, Tonsilitis, Ca GB, Ca stomach, lipoma, bladder tumour, melanoma etc. | 3 | Practical7.4 | PSY-SET | Shows-how | PT,DIS,D,DL |
| CO3,CO6,CO7,CO8 | Interpret histopathological reports and correlate with Unani medicine perspective. | 3 | Practical7.5 | CAP | Shows-how | Mnt,DL,LRI,DIS,PT |

| Practical Training Activity |
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| Practical Training 7.1 Urine Examination |
| 1. The teacher will assign each student a designated station and provide them with the required urine samples for testing.<br>2. The teacher will guide students as they perform tests according to SOPs, ensuring accurate execution of various urine investigations (180 minutes).<br>3. The teacher will instruct students to carefully record observations and readings for each test, emphasizing precision and clarity (60 minutes).<br>4. The teacher will assist students in analyzing the data and preparing a tentative report based on their findings, ensuring logical presentation and interpretation (90 minutes).<br>5. The teacher will lead a final discussion and review session, addressing doubts, reinforcing key concepts, and verifying procedural adherence (30 minutes).<br>Total duration: 6 hours |
| Practical Training 7.2 Examination of Stool, Semen and Sputum |
| 1. The teacher will assign each student a designated station and provide them with the required samples for testing.<br>2. The teacher will guide students as they perform tests according to SOPs, ensuring accurate execution of various physical, chemical and microscopic investigations (180 minutes).<br>3. The teacher will instruct students to carefully record observations and readings for each test, emphasizing precision and clarity (60 minutes).<br>4. The teacher will assist students in analyzing the data and preparing a tentative report based on their findings, ensuring logical presentation and interpretation (30 minutes).<br>5. The teacher will lead a final discussion and review session, addressing doubts, reinforcing key concepts, and verifying procedural adherence (30 minutes).<br>Total duration: 5 hours |
| Practical Training 7.3 Interpretation of Clinical Pathology and Cytopathology |

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| 1. Introduction: The teacher will provide a foundational overview of the analysis of CSF, peritoneal fluid, pleural fluid, pericardial fluid, amniotic fluid, synovial fluid, cytopathology, FNAC, Pap Smear (Conventional Method and LBC), and biopsy. Key terminology and concepts essential for interpreting lab reports will be explained (30 minutes).<br>2. Understanding Normal Range and Variability: The teacher will guide students in exploring the normal reference ranges for tests, explaining what is considered normal and the significance of deviations (30 minutes).<br>3. Application of Clinical Guidelines: The teacher will instruct students on applying clinical guidelines and protocols for interpreting specific tests, providing examples to illustrate how lab results integrate with patient assessments (30 minutes).<br>4. Unani Principles in Pathology: The teacher will lead discussions on applying Unani principles to analyze disease pathology and develop treatment plans for cases (60 minutes).<br>5. Interactive Group Critique: The teacher will facilitate small group sessions where students will critique sample lab reports, discuss discrepancies, identify common errors, and propose corrections to improve accuracy in interpretation (30 minutes).<br>Total duration: 3 hours |
| Practical Training 7.4 Histopathological Slides |
| 1. The teacher will explain the principles of histopathological slides, covering normal and abnormal cellular structures (30 min).<br>2. The teacher will demonstrate slide examination techniques and guide students in identifying key tissue characteristics (45 min).<br>3. The teacher will supervise students as they examine slides, ensuring correct classification and identification (60 min).<br>4. The teacher will facilitate discussions on analysis and interpretation, helping students understand diagnostic relevance (30 min).<br>5. The teacher will provide final feedback, review findings, address queries, and reinforce best practices (15 min).<br>Total duration: 3 hours |
| Practical Training 7.5 Interpretation of Histopathological reports |
| 1. Introduction: The teacher will provide a foundational overview of histopathology. Key terminology and concepts essential for interpreting lab reports will be explained (30 minutes). |

2. Understanding Normal Range and Variability: The teacher will guide what is normal and the significance of deviations (30 minutes).

3. Application of Clinical Guidelines: The teacher will instruct students on applying clinical guidelines and protocols for interpreting specific changes, providing examples to illustrate how lab results integrate with patients' clinical assessments (30 minutes).

4. Unani Principles in Pathology: The teacher will lead discussions on applying Unani principles to analyze disease pathology and develop treatment plans for cases (60 minutes).

5. Interactive Group Critique: The teacher will facilitate small group sessions where students will critique sample lab reports, discuss discrepancies, identify common errors, and propose corrections to improve accuracy in interpretation (30 minutes).

Total duration: 3 hours

**Experiential Learning Activity**

Experiential-Learning Learning 7.1: Interpretation of Urine Examination

1. Introduction: Students will begin with a foundational overview of the tests such as Urine routine and microscopic examination, 24 hours Urinary- Urea, Creatinine, Glucose, Phosphorous, Protein, Uric acid, Calcium citrate, Microalbumin, Bile salt in urine, Bence Jones protein, Urinary sugar-fasting, Urine Pregnancy Test, including key terminology and concepts critical for interpreting lab reports. (60 minutes)

2. Understanding Normal Range and Variability: Students will explore the normal reference range for tests, learning how to assess what is considered normal and the significance of deviations. (60 minutes)

3. Case Study Analysis: Students will examine case studies involving real lab reports, focusing on interpreting the data, identifying abnormalities, and discussing the potential clinical implications of those findings. (60 minutes)

4. Application of Clinical Guidelines: Students will apply clinical guidelines and protocols for interpreting specific tests, working through examples that illustrate how to integrate lab results with patient assessments. (60 minutes)

5. Interactive Group Critique: In small groups, students will critique sample lab reports, discussing discrepancies, identifying common errors, and proposing corrections to enhance accuracy in interpretation. (60 minutes)

Total duration: 5 hours

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| Experiential-Learning Learning 7.2: Corelation of Urine Examination |
| 1. Students will work on case studies related to the urine examination (90 minutes)<br>2. Students will participate in analyzing and interpreting these investigations (60 minutes)<br>3. Students will apply Unani principles to understand disease pathology of cases and to develop treatment plans. (60minutes)<br>4. Students will engage in discussions and reflections on how various tests can inform Unani diagnosis and treatment, promoting critical thinking and clinical correlation. (90 minutes)<br>Total duration: 5 hours |
| Experiential-Learning Learning 7.3: Interpretation of Examination of Stool, Semen and Sputum |
| 1. Introduction: Students will begin with a foundational overview of Examination of Stool, Semen and Sputum, including key terminology and concepts critical for interpreting lab reports. (60 minutes)<br>2. Understanding Normal Range and Variability: Students will explore the normal reference range for tests, learning how to assess what is considered normal and the significance of deviations. (60 minutes)<br>3. Case Study Analysis: Students will examine case studies involving real lab reports, focusing on interpreting the data, identifying abnormalities, and discussing the potential clinical implications of those findings. (60 minutes)<br>4. Application of Clinical Guidelines: Students will apply clinical guidelines and protocols for interpreting specific tests, working through examples that illustrate how to integrate lab results with patient assessments. (30 minutes)<br>5. Interactive Group Critique: In small groups, students will critique sample lab reports, discussing discrepancies, identifying common errors, and proposing corrections to enhance accuracy in interpretation. (30 minutes)<br>Total duration: 4 hours |
| Experiential-Learning Learning 7.4: Correlation of Examination of Stool, Semen and Sputum |
| 1. Students will work on case studies related to these tests (60 minutes) |

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| 2. Students will participate in analyzing and interpreting these investigations (60 minutes)<br>3. Students will apply Unani principles to understand disease pathology of cases and to develop treatment plans.(30 minutes)<br>4. Students will engage in discussions and reflections on how various tests can inform Unani diagnosis and treatment, promoting critical thinking and clinical correlation. (30 minutes)<br>Total duration: 3 hours |
| Experiential-Learning Learning 7.5: Clinical pathology & Cytopathology |
| 1. Each student will be assigned a workstation with relevant samples for hands-on testing.<br>2. Students will perform diagnostic tests following SOPs, ensuring precision and accuracy (2 hours).<br>3. Observations and readings will be meticulously recorded, focusing on clarity and reliability (1 hour).<br>4. Students will analyze collected data and draft a preliminary report, applying critical thinking skills (30 minutes).<br>5. A final discussion will allow students to review findings, clarify doubts, and reinforce key concepts (30 minutes).<br>Total duration: 4 hours |
| Experiential-Learning Learning 7.6: Histopathological Instruments |
| 1. Students explore histopathological instruments, understanding their principles and applications (30 min).<br>2. Students observe SOP demonstrations for proper handling and maintenance (60 min).<br>3. Hands-on practice with instruments and sample processing under supervision (90 min).<br>4. Presentation by students on SOPs and applications of instruments (60 min).<br>5. Group discussions on challenges, innovations, and best practices (60 min)<br>Total duration: 5 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
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| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Make practical poster on clinical pathology, surgical pathology, and histopathology specimens. Assessment should be done on following points: (25 Marks)<br>Content Accuracy (10 Marks)<br>Visual Appeal and Organization (5 Marks)<br>Relevance and Depth of Practical Information (5 Marks)<br>Presentation Skills and Knowledge Demonstration (5 Marks)<br>Conduct Open Book Test (25 Marks) considering following aspects.<br>Understanding the concept - 5 marks<br>Application of knowledge - 10 marks<br>Accuracy of answer - 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |
| **Module 8 : Radiology** | |
| Module Learning Objectives<br>(At the end of the module, the students should be able to)<br>1- Describe the X- ray report, ECG, Ultrasound, Mammography, Sonomammography, MRI, CT and Hysterosalpingography (HSG) | |

2- Demonstrate different Interpretations and reports of X- ray report, ECG, Ultrasound, Mammography, Sonomammography, MRI, CT and Hysterosalpingography (HSG).

3- Identify different findings of X- ray report, ECG, Ultrasound, Mammography, Sonomammography, MRI, CT and Hysterosalpingography (HSG).

**Unit 1 Radiolog-I**

8.1.1. Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation with;

8.1.1.1. X-ray

8.1.1.2. Ultrasound, Mammography & Sonomammography

8.1.1.3. Computed Tomography (CT)

**References:** 35

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Describe principles of X-ray, Ultrasound, Mammography, Sonomammography, and CT. | 4 | Lecture | CC | Knows-how | L&PPT ,L |
| CO3,CO6,CO7,CO8 | Demonstrate the SOPs/techniques of X-ray, Mammography, Sonomammography, and CT. | 7 | Practical8.1 | PSY-SET | Shows-how | DIS,Mnt,PT,SDL,X-Ray |
| CO3,CO6,CO7,CO8 | Interpret X-rays for the diagnosis of diseases. | 4 | Experiential-Learning8.1 | PSY-GUD | Does | DL,CBL,LRI,DIS,D |
| CO3,CO6,CO7,CO8 | Discuss the findings and abnormalities of the USG and CT scan. | 3 | Experiential-Learning8.2 | PSY-GUD | Does | CBL,DIS,L&PPT ,LRI,DL |

**Unit 2 Radiology-II**

8.2.1 Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation with;

8.2.1.1. MRI

8.2.1.2. PET SCAN

8.2.1.3. Doppler study

**References:** 35

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Describe principles of MRI, PET SCAN, and Doppler study. | 3 | Lecture | CC | Knows-how | L |
| CO3,CO6,CO7,CO8 | Demonstrate the SOPs of the MRI, PET scan, and Doppler studies. | 6 | Practical8.2 | PSY-SET | Shows-how | DIS,D,PT,L&PPT ,DL |
| CO3,CO6,CO7,CO8 | Discuss the findings and abnormalities of MRI. | 4 | Experiential-Learning8.3 | CAP | Does | L&PPT ,DIS,D,CBL |
| CO3,CO6,CO7,CO8 | Present the findings and abnormalities of the PET scan and Doppler studies. | 4 | Experiential-Learning8.4 | CAP | Does | DIS,D,L&PPT |

**Unit 3 Radiology and other Special investigations**

8.3.1 Principle, Standard Operative Procedure (SOPs), Report interpretation, Clinical Correlation and Unani correlation with;

8.3.1.1. Electrocardiogram (ECG), Electroencephalogram (EEG), Treadmill Test (TMT), Echocardiography

8.3.1.2. Special investigation- Barium Meal, Barium swallow, Barium follow through, Barium Enema, Intravenous pyelogram (IVP), Hysterosalpingography (HSG)

**References:** 35

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|

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|---|---|---|---|---|---|---|
| CO3,CO6,CO7,CO8 | Describe the principles of Electrocardiogram (ECG), Electroencephalogram (EEG), Treadmill Test (TMT), and Echocardiography. | 3 | Lecture | CC | Knows-how | L&PPT ,L |
| CO3,CO6,CO7,CO8 | Interpret Electrocardiogram (ECG). | 4 | Experiential-Learning8.5 | CAP | Does | D,LRI,L&PPT ,DIS |
| CO3,CO6,CO7,CO8 | Illustrate Barium Meal, Barium swallow, Barium follow through, Barium Enema, Intravenous pyelogram (IVP), Hysterosalpingography (HSG). | 4 | Experiential-Learning8.6 | CAP | Does | DL,DIS,PER |
| CO3,CO6,CO7,CO8 | Demonstrate Electrocardiogram (ECG), Electroencephalogram (EEG), Treadmill Test (TMT), and Echocardiography. | 7 | Practical8.3 | PSY-SET | Shows-how | DL,CBL,LRI,PT,DIS |
| CO3,CO6,CO7,CO8 | Correlate and interpret radiological investigations with the diagnostic concept within Unani medicine. | 3 | Experiential-Learning8.7 | CE | Does | D,DIS,LRI,L&PPT ,W |
| **Practical Training Activity** | | | | | | |
| Practical Training 8.1 Radiology | | | | | | |
| 1. Introduction (60 min) – The instructor will explain the principles, applications, and SOPs of X-ray, mammography, sonomammography, and CT imaging.<br>2. Demonstration (90 min): The instructor will demonstrate the operation of each imaging modality, emphasizing safety measures and best practices.<br>3. Hands-on Practice (120 min) – Under supervision, students will interact with imaging equipment, perform basic scans, and understand positioning techniques.<br>4. Image Interpretation (90 min) – The instructor will guide students through analyzing imaging results, focusing on diagnostic accuracy.<br>5. Review & Discussion (60 min) – The instructor will facilitate discussions on clinical applications, challenges, and innovations in radiology.<br>Total duration: 7 hours | | | | | | |
| Practical Training 8.2 MRI, PET scan, and Doppler studies | | | | | | |
| 1. Introduction (60 min) – The instructor will explain the principles, applications, and SOPs of MRI, PET scan, and Doppler studies. | | | | | | |

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| 2. Demonstration (60 min): The instructor will demonstrate the operation of each imaging modality, emphasizing safety measures and best practices.<br>3. Hands-on Practice (90 min) – Under supervision, students will interact with imaging equipment, perform basic scans, and understand positioning techniques.<br>4. Image Interpretation (90 min) – The instructor will guide students through analyzing imaging results, focusing on diagnostic accuracy.<br>5. Review & Discussion (60 min) – The instructor will facilitate discussions on clinical applications, challenges, and innovations in radiology.<br>Total duration: 6 hours |
| Practical Training 8.3 Electrocardiogram (ECG), Electroencephalogram (EEG), Treadmill Test (TMT), and Echocardiography |
| 1. The instructor will introduce the principles and applications of ECG, EEG, TMT, and Echocardiography, explaining their significance in diagnostic radiology (60 min).<br>2. The instructor will demonstrate equipment setup, patient preparation, and proper electrode placement, handling the probe for accurate testing (90 min).<br>3. The instructor will guide students through performing basic tests, ensuring correct readings and waveform analysis (120 min).<br>4. The instructor will facilitate group discussions, helping students compare normal and abnormal findings to refine diagnostic skills (90 min).<br>The instructor will lead a final review session, summarizing key learnings, addressing challenges, and reinforcing clinical applications (60 min).<br>Total duration: 7 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 8.1: Interpretation of X-rays |
| 1. Students will begin by reviewing basic X-ray principles and identifying key anatomical structures in different radiographs (60 min).<br>2. Students will observe case-based X-ray interpretations, analyzing disease patterns under instructor guidance (60 min).<br>3. Students will independently examine sample X-rays, applying diagnostic techniques to identify abnormalities (60 min).<br>4. Students will present their findings in group discussions, comparing interpretations and refining diagnostic accuracy (30 min).<br>5. Students will engage in a final review session, addressing challenges and consolidating key learnings (30 min).<br>Total duration: 4 hours |

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| Experiential-Learning Learning 8.2: USG and CT scan |
| 1. Students will review USG and CT scan images, identifying key anatomical structures and common abnormalities (30 min).<br>2. Students will analyze case-based imaging studies, comparing normal and pathological findings under instructor guidance (30 min).<br>3. Students will independently interpret selected scans, applying diagnostic principles and discussing observations (60 min).<br>4. Students will present findings in group discussions, debate interpretations, and refine analytical accuracy (30 min).<br>5. Students will engage in a final review session, summarizing key concepts, clarifying doubts, and discussing clinical relevance (30 min).<br>Total duration: 3 hours |
| Experiential-Learning Learning 8.3: MRI |
| 1. Students will review MRI, identifying key anatomical structures and common abnormalities (60 min).<br>2. Students will analyze case-based imaging studies, comparing normal and pathological findings under instructor guidance (60 min).<br>3. Students will independently interpret selected scans, applying diagnostic principles and discussing observations (60 min).<br>4. Students will present findings in group discussions, debate interpretations, and refine analytical accuracy (30 min).<br>5. Students will engage in a final review session, summarizing key concepts, clarifying doubts, and discussing clinical relevance (30 min).<br>Total duration: 4 hours |
| Experiential-Learning Learning 8.4: PET scan and Doppler study |
| 1. Students will review PET scans and Doppler studies, identifying key anatomical structures and common abnormalities (60 min).<br>2. Students will analyze case-based imaging studies, comparing normal and pathological findings under instructor guidance (60 min).<br>3. Students will independently interpret selected scans, applying diagnostic principles and discussing observations (60 min).<br>4. Students will present findings in group discussions, debate interpretations, and refine analytical accuracy (30 min).<br>5. Students will engage in a final review session, summarizing key concepts, clarifying doubts, and discussing clinical relevance (30 min).<br>Total duration: 4 hours |

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| Experiential-Learning Learning 8.5: ECG interpretation |
| 1. Students will review ECG, identifying key changes and common abnormalities (60 min).<br>2. Students will analyze a case-based ECG study, comparing normal and pathological findings under instructor guidance (60 min).<br>3. Students will independently interpret selected ECGs, applying diagnostic principles and discussing observations (60 min).<br>4. Students will present findings in group discussions, debate interpretations, and refine analytical accuracy (30 min).<br>5. Students will engage in a final review session, summarizing key concepts, clarifying doubts, and discussing clinical relevance (30 min).<br>Total duration: 4 hours |
| Experiential-Learning Learning 8.6: Barium tests & special investigation |
| 1. Introduction (60 min) – The instructor will explain the principles, applications, and SOPs of Describe Barium Meal, Barium swallow, Barium follow through, Barium Enema, Intravenous pyelogram (IVP), and Hysterosalpingography.<br>2. Demonstration (60 min): The instructor will demonstrate the operation of each imaging modality, emphasizing safety measures and best practices.<br>3. Hands-on Practice (30 min) – Under supervision, students will interact with imaging equipment, perform basic scans, and understand positioning techniques.<br>4. Image Interpretation (30 min) – The instructor will guide students through analyzing imaging results, focusing on diagnostic accuracy.<br>5. Review & Discussion (60 min) – The instructor will facilitate discussions on clinical applications, challenges, and innovations in radiology.<br>Total duration: 4 hours |
| Experiential-Learning Learning 8.7: Correlation of radiology with Unani Medicine |
| 1. Introduction (30 minutes)<br>Overview of Unani medicine and radiological investigations.<br>Objectives and expectations.<br>2. Group Discussion (45 minutes)<br>Small groups discuss Unani diagnostic methods. |

Explore correlations with radiological findings.

3. Case Study Analysis (1 hour)

Analyze provided case studies with corresponding radiological results.

Groups present their analysis and correlations.

4. Practical Application (30 minutes)

Examine sample radiological images.

Discuss interpretations in the context of Unani diagnoses.

5. Reflection and Closing (15 minutes)

Share insights and key takeaways.

Summary of session and further exploration ideas.

Total duration: 3 hours

**Modular Assessment**

| Assessment | Hour |
|---|---|
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Interpret radiological images (15) as follows;<br>Understand radiological principles (5 Marks),<br>Apply them in clinical practice: (5 Marks)<br>Conduct practical case taking (25 Marks) considering the following aspects;<br>Understanding of case - 5 marks<br>Accuracy of diagnosis - 10 marks | 4 |

| | |
|---|---|
| Case presentation skill - 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

**Paper No : 2(Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology))**

**Semester No : 3**

**Module 9 : Ta'diya wa Ta‘affun**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe the general pathogenesis of Ḥummā ‘Ufūniyya, Ḥummā Wabā’iyya, and infections.

2. Categorize the different types of Ḥummā ‘Ufūniyya, infectious diseases, and methods of disinfection and sterilization.

3. Identify/diagnose different types of Ḥummā ‘Ufūniyya.

4. Apply appropriate methods of disinfection and sterilization in different healthcare settings.

**Unit 1 Concept of ‘Ufūnat, Ḥummā and Wabā’**

9.1.1. Concept of ‘Ufūnat, Ḥummā ‘Ufūniyya and Ḥummā Wabā’iyya عفونت، حمی عفونیہ اور حمی وبائیہ کا تصور

**References:** 1,2,3,4,5,6,9

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO5,CO7, CO8 | Describe Ruṭūbat and Ḥarārat Gharība and their role in the pathogenesis of ufoonat. | 2 | Lecture | CC | Knows-how | L |
| CO5,CO7, CO8 | Discuss the etiopathogenesis of Ḥummā ‘Ufūniyya and Ḥummā Wabā’iyya. | 2 | Lecture | CC | Knows-how | L&PPT |
| CO5,CO7, CO8 | Classify & Present Ḥummā ‘Ufūniyya with their etiopathogenesis and clinical features. | 5 | Practical9.1 | CAN | Shows-how | L&GD |

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|---|---|---|---|---|---|---|
| CO5,CO7, CO8 | Differentiate Ḥummā ‘Ufūniyya and Ḥummā Wabā’iyya. | 3 | Practical9.2 | CAN | Shows-how | DIS |
| CO1,CO3, CO7,CO8 | Plan investigations for different kinds of Ḥummā ‘Ufūniyya | 5 | Experiential-Learning9.1 | CS | Does | SDL,DIS,TUT |
| CO1,CO3, CO5,CO7, CO8 | Plan investigations for Ḥummā Wabā’iyya. | 2 | Experiential-Learning9.2 | CS | Does | DIS,CBL |
| CO1,CO3, CO5,CO7, CO8 | Interpret the Unani pathogenesis of newly emerging viral fevers. | 3 | Experiential-Learning9.3 | CE | Does | DIS,PER |
| **Unit 2 Infection, types, transmission, pathogenesis and microbial pathogenicity.**<br>9.2.1. Infection, its types, transmission methods, stages of the pathogenesis of infection<br>9.2.2. Factors predisposing to microbial pathogenicity.<br>**References:** 13,14,15,16,23 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO1,CO3, CO7,CO8 | Describe infection, types of infections, and infectious diseases. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO5,CO7, CO8 | Elaborate the types of microorganisms and factors predisposing to microbial pathogenicity. | 2 | Lecture | CC | Knows-how | L&PPT ,L_VC |

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|---|---|---|---|---|---|---|
| CO5,CO7, CO8 | Discuss the stages of the pathogenesis of infection. | 3 | Practical9.3 | CAN | Shows-how | L&PPT ,DIS |
| CO5,CO7, CO8 | Discuss the methods of transmission of infection. | 3 | Practical9.4 | CAN | Shows-how | LS,L&GD,C_L |
| CO5,CO7, CO8 | Analyze the routes of entry of infection in different infectious diseases | 3 | Experiential-Learning9.4 | CAN | Does | C_L,PL,DIS |
| CO3,CO5, CO7,CO8 | Discuss the bacterial toxins and their mechanism of action. | 3 | Experiential-Learning9.5 | CAN | Does | LS,DIS,PAL,Mnt |
| CO3,CO5, CO7,CO8 | Analyze the mechanism used by bacteria for intracellular survival. | 2 | Experiential-Learning9.6 | CE | Does | LS,L_VC,L&PPT ,DIS |

**Unit 3 Disinfection and sterilization**

9.3.1. Methods of disinfection and sterilization

**References:** 13,14,16,17,18,20,21,23

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO5,CO7, CO8 | Describe the principles, uses, and types of physical and chemical methods of sterilization and disinfection. | 3 | Lecture | CC | Knows-how | L&PPT ,L |
| CO5,CO7, CO8 | Demonstrate the procedures of different methods of sterilization and disinfection. | 5 | Practical9.5 | PSY-GUD | Shows-how | DL,D |
| CO5,CO7, CO8 | Discuss the methods used for testing disinfectants. | 1 | Practical9.6 | CC | Shows-how | LS,FC |

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|---|---|---|---|---|---|---|
| CO5,CO7, CO8 | Apply different methods of disinfection and sterilization in healthcare settings/laboratory, clinical, and surgical practice. | 4 | Experiential-Learning9.7 | PSY-MEC | Does | D,PSM |
| CO5,CO7, CO8 | Illustrate the role of different Methods of disinfection and sterilization in control of disease outbreak. | 4 | Experiential-Learning9.8 | PSY-ADT | Does | RP,D,C_L |

**Practical Training Activity**

Practical Training 9.1 Classification of Ḥummā ‘Ufūniyya

1. The teacher will explain different types of Ḥummā ‘Ufūniyya with their pathogenesis (180 min).
2. The teacher will ask students to differentiate and classify different types of Ḥummā ‘Ufūniyya as per their clinical presentation, followed by the teacher's conclusive remarks (120 min).

Total duration: 5 hours

Practical Training 9.2 Ḥummā ‘Ufūniyya Versus Ḥummā Wabā’iyya.

The teacher will explain the differentiating points between Ḥummā ‘Ufūniyya and Ḥummā Wabā’iyya based on pathogenesis (45 min).

1. Students will engage in discussions (45 min)
2. The teacher will give some case scenarios and ask students to identify these two based on clinical presentations (45 min).
3. Students will write an essay on the topic (45 min).

Total duration: 3 Hours

Practical Training 9.3 Stages of the pathogenesis of infection

1. The teacher will explain the topic to the students. (60 min)
2. The teacher will assign some infectious diseases to students.
3. After that, Students will discuss the stages of the pathogenesis of those infections (60 min).

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| 4. One or two students will present the topic to the class. (60 min.)<br>Total duration: 3 Hours |
| Practical Training 9.4 Transmission of infection. |
| 1. The students will collect the material on the topic under the teacher's guidance (60 min).<br>2. The students will discuss methods of transmission of infection in terms of reservoir, mode, host, and route of entry facilitated by the teacher (60 min).<br>3. Then, each group will discuss their topic, followed by the teacher's conclusive remarks (60 min).<br>Total duration: 3 Hours |
| Practical Training 9.5 Methods of disinfection and sterilization -1 |
| 1. The teacher will demonstrate the SOP of different methods of sterilization and disinfection (180 min).<br>2. After that, students will demonstrate under the supervision of the teacher (120 min).<br>Total duration: 5 hours |
| Practical Training 9.6 Testing of disinfectants |
| 1. The teacher will provide study materials in the form of PDF and PPT etc. to the students for self-study.<br>2. Then, students will teach the class in front of the teacher for 60 minutes.<br>Total duration: 1 hour |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 9.1: Diagnosis of Ḥummā ‘Ufūniyya |
| 1. The students will collect literary material on Ḥummā ‘Ufūniyya (60 min).<br>2. They will write a summary on diagnosis & investigations for different kinds of Ḥummā ‘Ufūniyya (120 min) |

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| 3. Students will be given a Case scenario of Ḥummā ‘Ufūniyya. They will make the diagnosis according to Unani principles and then plan investigations for the given case (120 min).<br>Total duration: 5 Hours |
| Experiential-Learning Learning 9.2: Diagnosis of Ḥummā Wabā’iyya |
| 1. Students will be given a Case scenario of Ḥummā Wabā’iyya. They will make the diagnosis according to Unani principles (30 min)<br>2. They will plan an investigation for the given case. (30 min).<br>2. They will engage in discussions with other groups. (60 min).<br>Total duration: 2 Hours |
| Experiential-Learning Learning 9.3: Unani interpretation of newly emerging viral fevers |
| 1. One student will give a presentation on the Unani pathogenesis of any new emerging viral fever assigned by the teacher (90 min).<br>2. Students will do a group discussion to interpret the Unani pathogenesis of newly emerging viral fevers (90 min).<br>Total duration: 3 Hours |
| Experiential-Learning Learning 9.4: Routes of infection |
| 1. Students will prepare a list of infectious diseases of the system or specific organs, divided among them. (30 min.)<br>2. Each group will compile the routes of entry for those infectious diseases (60 min).<br>3. Each group will present the assigned topic to the other groups (60 min).<br>4. Discussion or question-answer session (30 min).<br>Total duration: 3 Hours |
| Experiential-Learning Learning 9.5: Bacterial Toxins |
| 1. The students will collect the information material related to exotoxins and endotoxins with their clinical significance, from the library (60 min). |

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| 2. They will prepare a list of bacterial exotoxins with their mechanism of action and discuss with peers. (60 min)<br>3. They will prepare a list of bacterial endotoxins with their mechanism of action and discuss with peers. (60 min)<br>Total duration: 3 Hours |
| Experiential-Learning Learning 9.6: Mode of transmission of infection |
| 1. The students will review the literature and prepare a list of facultative and obligate intracellular bacteria. (60 min)<br>2. Students will present the mechanism used by bacteria for intracellular survival through a PPT. (60 min)<br>Total duration: 2 hours |
| Experiential-Learning Learning 9.7: Methods of disinfection and sterilization-2 |
| 1. The students will discuss different methods of disinfection and sterilization applied in healthcare settings. (60 min)<br>2. They will demonstrate the appropriate disinfection and sterilization methods in the lab/OT. (120 min).<br>3. They will write detailed procedures in the logbook. (60 min)<br>Total duration: 4 hours |
| Experiential-Learning Learning 9.8: Methods of disinfection and sterilization-3 |
| 1. As part of role play, two or three diseases will be assigned to the students. They will create two or three scenarios of disease outbreaks. (60 min.)<br>2. They will prepare a short role-play on appropriate methods of sterilization and disinfection to control those disease outbreaks. (90 min.)<br>3. Each group will demonstrate the role-play to the other group. (90 min)<br>Total duration: 4 Hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
|---|---|

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|---|---|
| Instructions: Conduct a structured modular assessment. The assessment will be for 50 marks for this module. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the modular grade point as per Table 6C.<br>Conduct a viva exam (25 marks), considering the following aspects:<br>Knowledge and understanding- 5 marks<br>Critical thinking and reasoning- 5 marks<br>Clarity and expression marks<br>Application of knowledge- 5 marks<br>Handling questions- 5 marks<br>Conduct a case-based assessment by providing case scenario (25 Marks) considering following aspects.<br>Understanding of case- 5 marks<br>Accuracy of diagnosis-10 marks<br>Case presentation skill- 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |

**Module 10 : General Bacteriology**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe general bacteriology in terms of morphology, growth, and reproduction of bacteria.
2. Categorize the bacteria based on various classifications.

3. Perform staining techniques.
4. Identify bacteria based on conventional and rapid methods.

**Unit 1 Classification, Morphology, Bacterial Genetics, Growth and Nutrition of Bacteria**

10.1.1. Classification, Morphology,

10.1.2. Bacterial Genetics,

10.1.3. Growth and Nutrition of Bacteria

**References:** 13,14,16,18,19,22,23,37

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO5,CO7, CO8 | Describe the classification, general Morphology and genetic makeup of bacteria. | 4 | Lecture | CC | Knows-how | L&PPT |
| CO5,CO7, CO8 | Discuss the Growth and Nutrition of Bacteria. | 3 | Practical10.1 | CAN | Shows-how | L&GD,L&PPT |
| CO5,CO7, CO8 | Illustrate the types and uses of extrachromosomal genetic elements and mutation. | 3 | Practical10.2 | CC | Shows-how | DIS,L_VC |
| CO5,CO7, CO8 | Analyze & illustrate the phenotype and genotype variation. | 3 | Experiential-Learning10.1 | CAN | Does | FC,DIS,C_L |
| CO5,CO7, CO8 | Discuss the principle and application of artificial gene transfer/ genetic engineering. | 4 | Experiential-Learning10.2 | CAP | Does | PER,SDL |
| CO5,CO7, CO8 | Describe & appraise gene therapy, its types, and applications. | 3 | Experiential-Learning10.3 | CAP | Does | DIS,PER |

**Unit 2 Bacterial Culture, Identification, and staining (Gram andAcid fast)**

10.2.1. Bacterial Culture, Identification, and staining

**References:** 13,14,16,17,18,19,20,21,23,36,37

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO5,CO7 | Describe the importance of bacterial culture, staining, and identification in bacteriology. | 2 | Lecture | CC | Knows-how | L&PPT |
| CO5,CO7, CO8 | Describe different types of culture media and their uses. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO5,CO7, CO8 | Demonstrate different types of culture methods. | 3 | Practical10.3 | PSY-GUD | Shows-how | PER,DL |
| CO5,CO7, CO8 | Discuss the biochemical tests (sugar fermentation, indole production, urease production, citrate utilization test, triple-sugar iron agar, catalase test, oxidase test, phenylalanine deaminase test, coagulase test, Methyl Red test, Voges-Proskauer test ). | 3 | Practical10.4 | PSY-GUD | Shows-how | DIS,DL |
| CO5,CO7, CO8 | Interpret the biochemical tests (sugar fermentation, indole production, urease production, citrate utilization test, catalase test, oxidase test, phenylalanine deaminase test, triple-sugar iron agar, coagulase test). | 2 | Practical10.5 | CE | Shows-how | LRI,DIS |
| CO5,CO7, CO8 | Discuss types of stains and their uses. | 2 | Experiential-Learning10.4 | CAN | Does | LS,SDL |

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|---|---|---|---|---|---|---|
| CO5,CO7, CO8 | Perform Gram, Acid-fast and Modified acid-fast staining techniques. | 3 | Experiential-Learning10.5 | PSY-MEC | Does | DL,PT |
| CO5,CO7, CO8 | Identify bacteria based on conventional and rapid methods. | 4 | Experiential-Learning10.6 | PSY-MEC | Does | DL,PT |

**Unit 3 Normal microbial flora of the human body,antimicrobial agents and Bacterial resistance,Bacteriology of water, milk and air**

10.3.1. Normal microbial flora of the human body,

10.3.2. Antimicrobial agents and Bacterial resistance,

10.3.3. Bacteriology of water, milk and air

**References:** 13,14,16,17,18,23

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO5,CO7 | Describe the mechanism of action of Antimicrobial agents and Bacterial resistance. | 3 | Lecture | CC | Knows-how | L&PPT ,L&GD,L |
| CO5,CO7 | Discuss resident and transient flora, normal microbial flora of the human body present in various organs and their beneficial and harmful effects. | 5 | Practical10.6 | CC | Shows-how | DIS,C_L |
| CO5,CO7, CO8 | Illustrate the importance of Prebiotics and Probiotics. | 1 | Practical10.7 | CAN | Shows-how | L&PPT |
| CO5,CO7, CO8 | Apply therapeutic uses of gut flora in a variety of clinical conditions. | 2 | Experiential-Learning10.7 | CAP | Does | SDL,LS |
| CO5,CO7, CO8 | Identify the approaches for assessing microbial contamination in water, milk, and air, and understand their significance. | 5 | Experiential-Learning10.8 | CAP | Does | SDL,LS,DIS |

| Practical Training Activity |
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| Practical Training 10.1 Growth and Nutrition of Bacteria. |
| 1. The teacher will explain the growth and multiplication of bacteria, generation time, bacterial count, and bacterial growth curve. (60 min)<br>2. The teacher will discuss the factors affecting the growth and nutrition of the bacteria. (45 min)<br>3. The teacher will explain bacterial metabolism (45 min)<br>4. The students will engage in group discussion (30 min)<br>Total duration: 3 Hours |
| Practical Training 10.2 Extrachromosomal genetic elements and mutation. |
| 1. The teacher will explain the types and uses of extrachromosomal genetic elements (60 min).<br>2. The teacher will explain the different types of mutation and their uses in medical science. (60 min)<br>3. After that, students will be divided into groups for discussion (60 min).<br>Total duration: 3 Hours |
| Practical Training 10.3 Culture methods |
| 1. The teacher will demonstrate methods of culture (streak, lawn, stroke, stab, pour plate, and liquid). Students will observe and assist the teacher. (90 min)<br>2. Then, students will demonstrate the methods under the supervision of the teacher/ lab assistant. (90 min)<br>Total duration: 3 Hours |
| Practical Training 10.4 Biochemical tests |
| 1. The teacher will discuss the Standard Operating Procedure (SOP) and the clinical significance of biochemical tests (sugar fermentation, indole production, urease production, citrate utilization test, and triple-sugar iron agar) with the students. (60 min) |

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| 2. The teacher will discuss SOP and the clinical significance of biochemical tests (catalase test, oxidase test, phenylalanine deaminase test, coagulase test, Methyl Red test, and Voges-Proskauer test) with students.(60 min)<br>3. The students will write these tests in the logbook. (60 min)<br>Total duration: 3 Hours |
| Practical Training 10.5 Interpretation of biochemical tests |
| Students will be provided with lab reports of biochemical tests. They will be asked to interpret those reports. The teacher will guide them in the practical understanding. (2 Hrs)<br>Total duration: 2 hours |
| Practical Training 10.6 Microflora of human body |
| 1. The teacher will explain resident and transient flora (60 min).<br>2. Students will be divided into groups and each group will be assigned the microflora of one organ/system. They will discuss the list of microflora of the assigned organ/system with their beneficial and harmful effects etc. (120 min)<br>3. After the discussion, they will present the same to other groups, followed by the teacher's conclusive remarks. (120 min)<br>Total duration: 5 Hours |
| Practical Training 10.7 Prebiotics and Probiotics. |
| Students will be assigned this topic for presentation through PPT 30 minutes).<br>It will be followed by discussion and the teacher's conclusive remarks (30 min).\<br>Total duration: 1 hour |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 10.1: Phenotype and genotype variation |

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| Students will be provided with study materials in the form of PDFs and PPTs etc.<br>1. Students will teach the same to the class in front of the teacher. (120 min)<br>2. Students will discuss the topic among themselves (60 min)<br>Total Duration: 3 hours |
| Experiential-Learning Learning 10.2: Genetic engineering. |
| 1. The students will learn this topic through self-directed learning. They may access the topic from online platforms and visit libraries for relevant content. (180 min)<br>2. Students will write an essay or give a class presentation on the topic. (60 min)<br>Toatal duration: 4 hours |
| Experiential-Learning Learning 10.3: Gene therapy |
| The teacher will assign this topic to students for presentation.<br>1. The students will present on gene therapy and types (60 min).<br>2. They will present on applications of gene therapy (90 min)<br>3. They will engage in post-presentation discussions (30 min)<br>Total Duration: 3 Hours |
| Experiential-Learning Learning 10.4: Types of stains |
| 1. Students will be allotted this topic for self-directed learning. They will be asked to access the online journal articles, library and other platforms for relevant material (60 min).<br>2. Students will engage in discussions (60 min).<br>Total duration: 2 hours |

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| Experiential-Learning Learning 10.5: Staining techniques |
| 1. Students will learn preparation of the bacterial smear on a slide and heat-fix it to ensure proper adhesion (60 minutes).<br>2. They will learn to apply the necessary stains for Gram, Acid-fast, and Modified Acid-fast staining, following the correct sequence of primary stain, mordant (if required), decolorizer, and counterstain (60 minutes).<br>3. They will examine the stained samples under the microscope, identify bacterial characteristics based on color retention, and document their findings (60 minutes).<br>Total Duration: 3 Hours |
| Experiential-Learning Learning 10.6: Identification of Bacteria. |
| 1. Students will identify the bacteria of the given samples based on culture and staining. (120 min)<br>2. Students will identify bacteria by rapid automated method. (120 min)<br>Total duration: 4 Hours |
| Experiential-Learning Learning 10.7: Therapeutic uses of Gut flora |
| The teacher will assign this topic to the students for self-directed learning.<br>1. They can access this topic from online platforms and will visit libraries for relevant content. They will analyze the therapeutic uses of gut flora in different diseases (60 min).<br>2. Students will write an essay on the topic (60 min).<br>Total Duration: 2 Hours |
| Experiential-Learning Learning 10.8: Microbial contamination of water, milk, and air |
| 1. The teacher will assign this topic to the students for self-directed learning. They may access these topics from online platforms, and they may also visit the library for the collection of relevant content. |

2. Students will examine the methods used for assessing microbial contamination in water, milk, and air (150 min).

3. After that, students will give a class presentation on the topic (90 min).

4. A discussion session will be conducted for clarification of doubts (60 min).

Total Duration: 5 Hours

**Modular Assessment**

| Assessment | Hour |
|---|---|
| Instructions: Conduct a structured modular assessment. The assessment will be for 50 marks for this module. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the modular grade point as per Table 6C.<br>Conduct a quiz competition (25 marks) considering the following aspects:<br>Simple level quizzes- 10 marks<br>Moderate level quizzes- 10 marks<br>Difficult level quizzes- 5 marks<br>Conduct a Direct Observation of Practical Skills (DOPS) (25 marks).<br>Allot the procedure/practical from the curriculum. Provide a DOPS form to the examiner. Allocate the time. Observe the students performing practicals in the lab. The examiner completes the DOPS form, documenting the students' performance against predefined assessment criteria.<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |

**Semester No : 4**

**Module 11 : General description of the Gram-positive and Miscellaneous bacteria**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe the general characteristics of individual Gram-positive and miscellaneous bacteria.

2. Elaborate on the antigenic nature and pathogenicity of the individual Gram-positive and miscellaneous bacteria.

3. Analyze the lab diagnosis of individual Gram-positive and miscellaneous bacteria.

4. Apply the appropriate lab investigation to diagnose the infections caused by Gram-positive bacteria.

**Unit 1 Gram-positive bacteria**

11.1.1. Staphylococcus, Streptococcus, Corynebacterium, Bacillus, Mycobacteria, Clostridium

**References:** 13,14,15,16,18,23,37

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO5,CO7 | Describe morphology, classification (if any), and epidemiology of Staphylococcus, Streptococcus Corynebacterium, Bacillus Mycobacteria and Clostridium. | 7 | Lecture | CC | Knows-how | L_VC,L&PPT |
| CO5,CO7, CO8 | Illustrate cultural characteristics, biochemical reactions, and laboratory diagnosis of Staphylococcus, Streptococcus, and Corynebacterium. | 7 | Practical11.1 | PSY-GUD | Shows-how | DL,SIM,RP |
| CO5,CO7, CO8 | Illustrate cultural characteristics, biochemical reactions, and laboratory diagnosis of Bacillus, Mycobacteria, and Clostridium. | 7 | Practical11.2 | PSY-GUD | Shows-how | DL,DIS,PT |
| CO5,CO7, CO8 | Analyze the resistance, antigenic nature and pathogenicity of Staphylococcus, Streptococcus, and Corynebacterium. | 9 | Experiential-Learning11.1 | PSY-MEC | Does | SDL,DIS,SIM,LS,RP |

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| CO5,CO7, CO8 | Analyze the resistance, antigenic nature, and pathogenicity of Bacillus Mycobacteria, Clostridium. | 9 | Experiential-Learning11.2 | CAN | Does | CBL,SDL,RP,DIS |

**Unit 2 Miscellaneous Bacteria:**

11.2.1. Chlamydia, Rickettsia, Spirochetes

**References:** 13,14,15,16,18,23,37

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO5,CO7, CO8 | Discuss the resistance, antigenic nature, and pathogenicity of Chlamydia, Rickettsia, and Spirochetes. | 8 | Experiential-Learning11.3 | PSY-GUD | Does | SIM,LS,PL,SDL,C_L |
| CO5,CO7, CO8 | Describe morphology, classification (if any), and epidemiology of Chlamydia, Rickettsia, and Spirochetes. | 3 | Lecture | CC | Knows-how | L_VC,L&PPT |
| CO5,CO7, CO8 | Present cultural characteristics, biochemical reactions, and laboratory diagnosis of Chlamydia, Rickettsia, and Spirochetes. | 6 | Practical11.3 | PSY-GUD | Shows-how | PT,CBL,DL,DIS |

**Practical Training Activity**

Practical Training 11.1 Gram-positive bacteria-I (Staphylococcus, Streptococcus, Corynebacterium)

1. Staphylococcus Resistance and Antigenic Nature (90 min) Teachers will guide students in analyzing MRSA strains, performing disk diffusion tests, and interpreting ELISA data.

2. Diseases Caused by Staphylococcus (90 min) Teachers will facilitate diagnostic exercises using case reports and oversee patient communication practice.

3. Streptococcus Resistance and Antigenic Nature (60 min) Teachers will instruct students on beta-lactam resistance analysis and supervise mock agglutination tests.

4. Pathogenicity of Streptococcus (60 min) Teachers will lead media reviews on infections and guide infographic creation on pathogenic mechanisms.

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| 5. Corynebacterium Resistance and Antigenic Nature (60 min) Teachers will oversee analysis of Corynebacterium diphtheriae resistance and interpretation of toxin assay results.<br>6. Corynebacterium Outbreak Simulation (60 min) Teachers will facilitate an outbreak simulation, supervising virtual tests and patient history analysis.<br>Total Duration: 7 hours |
| Practical Training 11.2 Gram-positive bacteria-II (Bacillus, Mycobacteria, Clostridium) |
| 1. Demonstration of Mycobacteria (60 min): The teacher will show the cultural characteristics and biochemical reactions, while students observe.<br>2. Student Practical on Mycobacteria (60 min): Students will perform the same practical tasks under the teacher's supervision.<br>3. Lab Diagnosis of Mycobacteria (60 min): Discussion will be held on methods for diagnosing Mycobacteria, with a Q&A session.<br>4. Explanation of Bacillus Characteristics (60 min): The teacher will explain the characteristics and reactions of Bacillus.<br>5. Lab Diagnosis of Bacillus (60 min): Group discussion will be conducted on diagnostic methods for Bacillus.<br>6. Explanation of Clostridium Characteristics (60 min): The teacher will explain the characteristics and reactions of Clostridium.<br>7. Lab Diagnosis of Clostridium (60 min): Peer discussion on diagnostic methods for Clostridium will be held.<br>Total Duration: 7 Hours |
| Practical Training 11.3 Chlamydia, Rickettsia, and Spirochetes |
| 1. Introduction & Demonstration (60 minutes) – The teacher will explain cultural characteristics, biochemical reactions, and lab diagnosis of *Chlamydia, Rickettsia, and Spirochetes*, demonstrating staining techniques.<br>2. Guided Microscopy & Culture (120 minutes) – The teacher will supervise slide preparation, staining, and observation under the microscope, ensuring students learn bacterial morphology.<br>3. Biochemical Testing (90 minutes) – The teacher will demonstrate tests (oxidase, urease, antigen-antibody interactions) while students will record results and discuss interpretations.<br>4. Case-Based Diagnosis (90 minutes) – One student will present patient cases, guide students in analyzing findings, and lead discussions on diagnostic approaches, followed by the teacher's conclusive remark. |

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| Total Duration: 6 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 11.1: Gram-positive bacteria III |
| 1. Staphylococcus Resistance & Antigenic Nature (90 min) – Research MRSA and antigenic properties, analyze a clinical case, and discuss findings with teacher guidance.<br>2. Diseases Caused by Staphylococcus (90 min) – Explore symptoms and treatments through storytelling, followed by a clinician role-play.<br>3. Streptococcus Resistance & Antigenic Nature (90 min) – Study resistance mechanisms, create a comparison mind map, and clarify concepts in teacher-led discussion.<br>4. Pathogenicity of Streptococcus (90 min) – Prepare and present PowerPoint slides on virulence factors with teacher feedback.<br>5. Corynebacterium Resistance & Antigenic Nature (90 min) – Research resistance patterns, conduct peer-led teaching, and participate in a teacher Q&A.<br>6. Diseases Caused by Corynebacterium (90 min) – Simulate an outbreak response and reflect on disease impact.<br>Total duration: 9 hours |
| Experiential-Learning Learning 11.2: Gram positive bacteria IV |
| 1. Mycobacteria Resistance & Antigenic Nature – Review and discuss key concepts (90 min).<br>2. Diseases by Mycobacteria – Analyze case studies and debate the challenges (90 min).<br>3. Bacillus Resistance & Antigenic Nature – Study, map concepts, and quiz (90 min).<br>4. Pathogenicity of Bacillus – Create and present PPT slides on infections (90 min).<br>5. Clostridium Resistance & Antigenic Nature – Study resistance and diagnostic methods (90 min).<br>6. Diseases by Clostridium – Role-play diagnosis and discuss findings (90 min).<br>Total Duration: 9 hours |
| Experiential-Learning Learning 11.3: Miscellaneous bacteria |

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| 1. Case Study & Discussion (120 min) – Analyze real-world Rickettsial infections, focusing on resistance, antigenicity, and pathogenicity.<br>2. Interactive Lab Simulation (90 min) – Use digital tools or simulated demonstrations to diagnose Rickettsial diseases.<br>3. Peer-led Workshops (90 min) – Groups study spirochetes (Treponema, Borrelia, Leptospira) and present key findings.<br>4. Quiz & Debate (60 min) – Compete in a quiz and debate major challenges in treating spirochetal infections.<br>5. Creative Presentation (120 min) – Design posters or infographics summarizing research findings and present them.<br>Total Duration: 8 hours |

**Modular Assessment**

| Assessment | Hour |
|---|---|
| Instructions: Conduct a structured modular assessment. The assessment will be for 50 marks for this module. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the modular grade point as per Table 6C.<br>Conduct a written test by LAQ (25 marks) considering the following aspects:<br>Content quality- 10 marks<br>Language and structure- 10 marks<br>Analytical skill- 5 marks<br>Assess the students by their seminar presentations (25 marks), considering the following aspects:<br>Content quality- 10 marks<br>Presentation method- 10 marks<br>Communication skills- 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks) | 4 |

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| and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

**Module 12 : General description of the Gram-negative bacteria**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe the general characteristics of individual Gram-negative bacteria.

2. Discuss the pathogenesis of infection caused by most of the Gram-negative bacteria.

3. Analyze the lab diagnosis of Gram-negative bacteria

4. Apply the appropriate lab investigation to diagnose the infections caused by Gram-negative bacteria.

**Unit 1 Gram-negative bacteria:**

12.1.1. Nesseria, Enterobacterium (E. coli, Salmonella, Shigella), Yersinia, Vibrio, Pseudomonas, Haemophilus, Bordetella, Brucella, Campylobacter, Helicobacter, Pasteurella

**References:** 13,14,15,16,18,23

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO5,CO7, CO8 | Describe morphology, classification (if any), and epidemiology of Nesseria, Enterobacterium, Vibrio, Pseudomonas, Haemophilus, Bordetella, Brucella, Campylobacter, Helicobacter, and Pasteurella. | 10 | Lecture | CC | Knows-how | L,L_VC,L&PPT |
| CO5,CO7, CO8 | Discuss cultural characteristics, biochemical reactions, and laboratory diagnosis of Neisseria, Enterobacterium, Vibrio, and Pseudomonas. | 10 | Practical12.1 | PSY-GUD | Shows-how | DL,SDL,SY,DIS |

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| CO5,CO7, CO8 | Illustrate cultural characteristics, biochemical reactions, and laboratory diagnosis of Haemophilus, Bordetella, Brucella, Campylobacter, Helicobacter, and Pasteurella. | 10 | Practical12.2 | PSY-GUD | Shows-how | LS,DL,DIS,L&PPT ,SDL |
| CO5,CO7, CO8 | Analyze the resistance, antigenic nature, and pathogenicity of Nesseria, Enterobacterium, and Vibrio. | 10 | Experiential-Learning12.1 | CAP | Does | C_L,SDL,DL,DIS |
| CO5,CO7, CO8 | Examine the resistance, antigenic nature, and pathogenicity of Pseudomonas, Haemophilus, Bordetella, and Brucella. | 9 | Experiential-Learning12.2 | CAN | Does | DIS,C_L,LS,CBL,W |
| CO5,CO7, CO8 | Analyze resistance, antigenic nature, and pathogenicity of Campylobacter, Helicobacter, and Pasteurella. | 7 | Experiential-Learning12.3 | CAN | Does | SDL,JC,DIS,W |

**Practical Training Activity**

Practical Training 12.1 Gram negative bacteria-I

1. Teachers will demonstrate Neisseria growth on selective media, explain oxidase and sugar fermentation tests, and guide students through observation and Q&A (60 min). They will present diagnostic cases, lead Gram staining and PCR analysis, and discuss antimicrobial susceptibility (60 min).
2. Students will research Enterobacterium (E. coli, Klebsiella) colony morphology and biochemical tests, then present findings with teacher feedback (120 min). They will study selective media growth and biochemical reactions for Shigella and Salmonella, followed by presentations and teacher discussion (120 min).
3. Teachers will demonstrate Vibrio and Yersinia growth on TCBS and CIN agar, explain biochemical tests, and lead interactive observation (60 min). They will guide students through mock lab reports, PCR results, and rapid diagnostic methods (60 min).
4. Teachers will demonstrate Pseudomonas growth, pigment production, and oxidase test, followed by student observation and discussion (60 min). They will lead a case study simulation, guiding students through antibiograms and resistance testing discussion (60 min).

Total duration: 10 hours

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| Practical Training 12.2 Gram negative bacteria-II |
| 1. Teachers will guide students through bacterial growth patterns, biochemical tests, and diagnostic methods for Haemophilus, Bordetella, Brucella, Campylobacter, Helicobacter, and Pasteurella (60 minutes each).<br>Demonstrations will include selective media growth, key biochemical reactions, and diagnostic workflows.<br>2. Students will engage in structured self-study (60 minutes), case analyses (60 minutes), and presentations to reinforce learning (60 minutes).<br>3. They will research colony morphology, selective media, and resistance patterns, followed by teacher-led discussions and feedback (60 minutes).<br>Total duration: 10 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 12.1: Gram-negative Bacteria-III |
| 1. Students will explore topics related to bacterial resistance, antigenic properties, and pathogenicity of Neisseria, E. coli, Klebsiella, Shigella, Salmonella, Vibrio, and Yersinia through self-guided research (50 minutes each). They will utilize online resources, textbooks, and academic journals to understand resistance mechanisms, antigenic variation, and diagnostic approaches.<br>2. Students will engage in structured self-study (70 minutes) and conduct case analyses (60 minutes) on selected bacterial pathogens. They will prepare presentations to share their findings and reinforce their learning (60 minutes).<br>3. Students will research virulence factors, compare resistance strategies, and discuss clinical implications in small groups, receiving peer feedback during their discussions (60 minutes).<br>Total duration: 10 hours |
| Experiential-Learning Learning 12.2: Gram negative Bacteria-IV |
| 1. Students will independently research bacterial resistance mechanisms and antigenic properties of Pseudomonas, Haemophilus, Bordetella, and Brucella using online platforms and library materials (60 minutes each).<br>2. They will analyze case reports to understand disease presentations, symptoms, and treatment strategies (120 minutes). |

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| 3. Collaborative activities will include group discussions, comparative analysis, mind mapping, and presentations to reinforce learning (120 minutes).<br>4. Students will create visual summaries and engage in peer-led workshops to deepen understanding of resistance patterns, pathogenicity, and vaccine relevance (60 minutes).<br>Total duration: 9 hours |
| Experiential-Learning Learning 12.3: Gram-negative Bacteria-V |
| 1. Students will independently research bacterial resistance mechanisms, antigenic properties, and pathogenicity of Campylobacter, Helicobacter, and Pasteurella using online platforms and library materials (180 min).<br>2. They will analyze case reports to understand disease presentations, symptoms, and treatment strategies (90 min).<br>3. Collaborative activities will include group discussions, comparative analysis, simulations, and presentations to reinforce learning (90 min).<br>4. Students will create visual summaries, interpret diagnostic data, and engage in peer-led workshops to deepen understanding of resistance patterns, pathogenicity, and vaccine relevance (60 min).<br>Total duration: 7 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
|---|---|
| Instructions: Conduct a structured modular assessment. The assessment will be for 50 marks for this module. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the modular grade point as per Table 6C.<br>Conduct an essay writing test (25 marks), considering the following aspects:<br>Quality of content- 10 marks<br>Language and writing skills- 10 marks<br>Structure of essay- 5 marks | 4 |

and

Conduct assessment by MCQs (25 marks).

3 Knowledge based questions = 9 marks

2 Application-based questions = 8 marks

2 Analysis-based questions = 8 marks

Or

Any practical in converted form can be taken for assessment. (25 Marks)

and

Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks)

**Semester No : 5**

**Module 13 : Virology**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe various viruses' structure, genomics, general characteristics, and biological processes.
2. Conduct classification and lab diagnosis of different viruses and viral diseases.
3. Identify different types of viruses and their clinical manifestations, especially HIV and AIDS.
4. Discuss the process of viral replication and the pathogenesis of viral infections.

**Unit 1 General characteristics of viruses**

13.1.1 Classification of viruses: Hepatotropic viruses (A, B, C, D, E), Oncogenic viruses, DNA viruses, RNA viruses

**References:** 13,14,15,18,44

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|

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| CO5,CO7, CO8 | Discuss virology and its significance. | 1 | Lecture | CC | Knows-how | L |
| CO5,CO7, CO8 | Describe the nature and General characteristics of viruses: | 1 | Lecture | CC | Knows-how | DIS,L |
| CO3,CO5, CO7,CO8 | Categorize viruses based on morphology and their genomics, host range (human/animal), replication strategy (lysogenic/ lytic), and mode of transmission. | 4 | Experiential-Learning13.1 | CAN | Does | SDL,DIS,PER |
| CO3,CO5, CO7,CO8 | Assess morphology, genetics, antigenic nature, and pathogenesis of major Hepatotropic viruses (A, B, C, D, E, F, G). | 5 | Experiential-Learning13.2 | PSY-GUD | Does | PER,DIS |
| CO3,CO5, CO7,CO8 | Compare and analyze the complications and preventive modes of major Hepatotropic viruses (A, B, C, D, E, F, G). | 4 | Experiential-Learning13.3 | CAN | Does | DIS,SDL,C_L |
| CO3,CO5, CO7,CO8 | Demonstrate the laboratory diagnosis of major Hepatotropic viruses (A, B, C, D, E, F, G). | 7 | Practical13.1 | PSY-GUD | Shows-how | CBL,DIS,DL |
| CO3,CO5, CO7,CO8 | Analyze the morphology, antigenic nature, pathogenesis, and complications of oncogenic viruses. | 5 | Experiential-Learning13.4 | CAN | Does | SDL,DIS,LS,C_L |
| CO3,CO5, CO7,CO8 | Demonstrate the clinical and laboratory diagnosis of common oncogenic viruses. | 7 | Practical13.2 | PSY-GUD | Shows-how | Mnt,DIS,DL,LS |
| CO3,CO5, CO7,CO8 | Describe the role of oncogenic viruses in the evolution of virus-associated malignancies. | 1 | Lecture | CC | Knows-how | L&GD |

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| CO3,CO7, CO8 | Describe the mechanisms of the pathological processes and antigenic structures of DNA viruses such as Poxviridae, Herpesviridae, Adenoviridae, Hepadnaviridae, and Papovaviridae. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO3,CO7 | Discuss the pathogenesis and antigenic structure of RNA viruses like Enteroviruses, Flavivirus, Retroviridae, Human immunodeficiency virus (HIV), Arboviruses, and Coronaviridae. | 2 | Lecture | CC | Knows-how | L&PPT |
| CO3,CO6, CO7 | Define and describe the pathogenesis and pathology of HIV and AIDS. | 1 | Lecture | CC | Knows-how | L,L&GD,SDL |
| CO3,CO7 | Illustrate HIV prevention strategies. | 2 | Experiential-Learning13.5 | CAN | Does | PER,DIS |
| **Unit 2 Viral replication, Identification of viruses. Pathogenesis of viral infections, AIDS**<br>13.2.1 Viral replication, identification of viruses. Pathogenesis of viral infections, AIDS<br>**References:** 13,14,15,18,19 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO3,CO5, CO7 | Describe the process of replication of viruses. | 3 | Lecture | CC | Knows-how | L&PPT ,DIS |
| CO3,CO5, CO7 | Demonstrate the lab diagnosis and Identification of common viral infections. | 6 | Practical13.3 | CAN | Shows-how | D,CBL |

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| CO3,CO5, CO7 | Discuss the epidemiology, pathogenesis, clinical presentation, and preventive measures of viral infections such as monkeypox, coronavirus, cervical cancer, dengue, and adult T-cell leukemia (ATL). | 6 | Experiential-Learning13.6 | CC | Does | JC,DIS,LS,CBL |

**Practical Training Activity**

Practical Training 13.1 Hepatotropic viruses-3

1: Teacher Demonstration (120 minutes) The teacher will demonstrate various diagnostic methods for hepatotropic viruses according to standard operating procedures (SOPs). Techniques covered will include PCR, microarray, DNA sequencing, viral hemagglutination assay, viral plaque assay, viral DNA/RNA extraction, the use of monoclonal antibodies, and ELISA.

2: Group Division and Case Assignment (30 minutes) Students will be divided into groups, and each group will be assigned a specific case of viral infection. They will receive instructions on how to proceed with identifying the clinical presentation of their assigned case.

3: Case Identification (90 minutes) Each group will work collaboratively to identify the clinical presentation of their case and discuss the relevant diagnostic methods or investigations that would be appropriate for diagnosis.

4: Demonstration of Diagnostic Method (90 minutes) Groups will select one specific diagnostic method relevant to their case and demonstrate its application. This will help solidify their understanding of the chosen diagnostic approach.

5: Practice of Common Diagnostic Tests (90 minutes) Students will have the opportunity to perform important and commonly used diagnostic tests such as PCR, microarray, and DNA sequencing under the teacher's supervision. This hands-on experience is crucial for reinforcing their learning.

Total duration: 7 hours

Practical Training 13.2 Oncogenic viruses-2

1. Introduction to Diagnostic Methods (120 minutes) The teacher will demonstrate various lab techniques for diagnosing oncogenic viruses according to SOPs, including PCR, microarray, DNA sequencing, and ELISA.

2. Group Division and Case Assignment (30 minutes) Students will be divided into groups and assigned specific cases of viral infection, and review related

literature.

3. Clinical Presentation Identification (90 minutes) Groups will analyze their assigned cases to identify clinical presentations, sharpening their diagnostic skills through real-world context application.

4. Diagnostic Method Selection (90 minutes) Groups will determine the most appropriate diagnostic methods for their cases, and search the procedure in available literature.

5. Demonstration and Independent Practice (90 minutes) The teacher will demonstrate diagnostic techniques, after which students will perform essential tests independently, solidifying their understanding and proficiency in using diagnostic tools.

Total duration: 7 hours

Practical Training 13.3 Diagnosis of Common Viral Infections

1. The teacher will demonstrate various viral diagnostic methods, including virus isolation, assays, and PCR techniques. Duration: 120 minutes.

2. Students will be divided into groups and assigned a case of viral infection.

3. Each group will identify the clinical presentation and appropriate diagnostic methods for their case. Duration: 90 minutes for presentation and 90 minutes for diagnostic methods.

4. Groups will demonstrate the specific features of the diagnostic methods used for their case. Duration: 60 minutes.

Total duration: 6 hours

**Experiential Learning Activity**

Experiential-Learning Learning 13.1: Categorization of viruses

1. Virus Morphology & Genomics (60 min) – Students examine viral structures using images and categorize viruses by genome type.

2. Host Range & Replication Strategy (60 min) – Groups classify viruses by human/animal hosts and simulate lytic vs. lysogenic cycles.

Mode of Transmission (60 min) – Students map viral transmission routes and propose prevention strategies.

Comparative Case Study (60 min) – Groups analyze viral outbreaks and present findings, comparing viruses across classification criteria.

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| Total duration: 4 hours |
| Experiential-Learning Learning 13.2: Hepatotropic viruses-1 |
| 1. The teacher will divide the students into groups.<br>2. Each group will discuss the morphology, genetics, and antigenic nature of the major hepatotropic viruses for 120 minutes.<br>3. Following that, each group will discuss the pathogenesis, clinical features, and complications caused by these viruses for 120 minutes.<br>4. Finally, students will present a PowerPoint presentation on different aspects of hepatotropic viruses in class for 60 minutes.<br>Total duration: 5 hours |
| Experiential-Learning Learning 13.3: Hepatotropic Viruses-2 |
| 1. Students will first explore the complications and different preventive measures related to hepatotropic viruses (60 minutes).<br>2. They will investigate various preventive measures from different books (60 minutes).<br>3. Students will research the pathogenesis of different types of hepatotropic viruses (60 minutes).<br>4. A discussion will be held on the complications caused by each type of hepatotropic virus (60 minutes).<br>5. Finally, students will compare the major hepatotropic viruses (A, B, C, D, E, F, G) and engage in an open discussion about them (60 minutes).<br>Total duration: 4 hours |
| Experiential-Learning Learning 13.4: Oncogenic viruses-1 |
| 1. Students can access the university library and various online platforms to study the morphology of different oncogenic viruses (60 minutes).<br>2. Investigate the antigenic characteristics of various oncogenic viruses (90 minutes).<br>3. Examine the pathogenesis associated with different oncogenic viruses (60 minutes).<br>4. Identify the complications and systemic involvement caused by various oncogenic viruses (90 minutes).<br>Total duration: 5 hours |

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| Experiential-Learning Learning 13.5: HIV Prevention Strategies |
| 1. Students will be divided into groups to discuss various HIV preventive strategies, including disclosure and stigma, over 60 minutes.<br>2. They will then create an HIV prevention campaign and design a program for a specific population, presenting their findings in a PowerPoint presentation for 30 minutes.<br>3. Finally, they will analyze and compare condom use versus abstinence and pre-exposure prophylaxis versus post-exposure prophylaxis in 30 minutes.<br>Total duration: 2 hours |
| Experiential-Learning Learning 13.6: Monkeypox, Coronavirus, Cervical Cancer, Dengue, Adult T-cell leukaemia (ATL) |
| 1. Students will engage in a discussion about the epidemiology and pathogenesis of viral infections (90 minutes).<br>2. They will form small groups and examine assigned patients to analyze their clinical presentations (90 minutes).<br>3. Students will dive into the pathogenesis of monkeypox, COVID-19, cervical cancer, dengue, and adult T-cell leukemia (ATL) within their groups and document their findings in their Record books (90 minutes).<br>4. They will explore various modes of prevention and reflect on how their findings align with current knowledge (90 minutes).<br>Total duration: 6 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
|---|---|
| Instructions- Conduct a structured modular assessment. Assessment will be for 50 marks per module of 2 credits. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the modular grade point as per Table 6C.<br>Conduct practical case taking (25 marks) considering the following aspects:<br>Understanding of case- 5 marks | 4 |

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| Accuracy of diagnosis- 10 marks<br>Case presentation skill- 10 marks<br>Conduct an open-book test (25 marks), considering the following aspects.<br>Understanding the concept- 5 marks<br>Application of knowledge- 10 marks<br>Accuracy of answer- 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

**Module 14 : Mycology**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe the general introduction and scope of Mycology
2. Discuss the morphology and antigenic structure of medically important fungi.
3. Identify and classify the fungi of medical importance
4. Analyze the pathogenicity, clinical presentations, and complications of medically important fungi.
5. Demonstrate the methods of diagnosis of Superficial, subcutaneous, and systemic mycosis

**Unit 1 General introduction and classification, laboratory diagnosis of some fungi of medical importance**

14.1.1 General introduction and classification, laboratory diagnosis of some fungi of medical importance

**References:** 13,14,18,19,43

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|

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|---|---|---|---|---|---|---|
| CO3,CO6 | Discuss mycology and its significance. | 1 | Lecture | CC | Knows-how | L&GD |
| CO3,CO7 | Describe the general characteristics of fungui. | 3 | Lecture | CC | Knows-how | L&GD |
| CO3,CO7 | Describe fungi based on morphology and taxonomy. | 3 | Lecture | CC | Knows-how | L&PPT |
| CO3,CO7 | Identify the methods and phases of the reproduction of fungi. | 4 | Experiential-Learning14.1 | CS | Does | D,PAL,LS,CBL,DIS |
| CO3,CO7 | Analyze the antigenic structure, pathogenicity, and complications of some medically important fungi such as Candida, Cryptococcus, Mucor, and Aspergillus. | 4 | Experiential-Learning14.2 | CAN | Does | CBL,C_L,DIS,PL |
| CO3,CO7 | Analyze the antigenic structure, pathogenicity, and complications of some medically important fungi, such as Pneumocystis, Histoplasma, Blastomyces, Coccidioides, Actinomycetes, and Nocardia. | 8 | Experiential-Learning14.3 | CAN | Does | DIS,C_L,CBL,LS |
| CO3,CO7 | Demonstrate laboratory diagnosis and clinical manifestations of some fungi of medical importance like Pneumocystis, Histoplasma, Blastomyces, Coccidioides, Actinomycetes &.Nocardia. | 7 | Practical14.1 | PSY-SET | Shows-how | Mnt,DL |
| CO3,CO7 | Demonstrate laboratory diagnosis and clinical manifestations of some fungi of medical importance, like Candida, Cryptococcus, Mucor, and Aspergillus. | 7 | Practical14.2 | PSY-GUD | Shows-how | DL,Mnt,LRI,PT,DIS |
| **Unit 2 Superficial, subcutaneous and systemic Mycosis**<br>14.2.1 Superficial, subcutaneous and systemic Mycosis | | | | | | |

**References:** 13,14,16,18

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO3,CO6 | Discuss the etiopathogenesis of superficial, subcutaneous, and systemic mycosis. | 3 | Lecture | CC | Knows-how | L&PPT |
| CO3,CO5, CO7 | Evaluate the clinical manifestations of patients with superficial, subcutaneous and systemic mycosis. | 10 | Experiential-Learning14.4 | CAN | Does | C_L,SDL,ML,CBL |
| CO3,CO5, CO7 | Demonstrate the methods of diagnosis of superficial, subcutaneous and systemic mycosis. | 6 | Practical14.3 | PSY-GUD | Shows-how | DL,PER,DIS,Mnt,TUT |

**Practical Training Activity**

Practical Training 14.1 Pneumocystis, Histoplasma, Blastomyces, Coccidioides, Actinomycetes &.Nocardia - 2

1: Microscopy (2 hours) Teacher will show sample preparation and staining. Students will examine Pneumocystis, Histoplasma, and Blastomyces.

2: Culture Methods (2 hours) Teacher will guide fungal culture setup. Students will observe colony growth of Coccidioides, Nocardia, and Actinomycetes.

3: Serology & PCR (1.5 hours) Teacher will demonstrate ELISA and PCR techniques. Students will analyze results and compare findings.

4: Case Discussion (1.5 hours) Teacher will present fungal infection cases. Students will connect lab results with clinical symptoms.

Total duration: 7 hours

Practical Training 14.2 Candida, Cryptococcus, Mucor, Aspergillus -2

1: Microscopy (2 hours): Teacher will demonstrate sample preparation and staining techniques. Students will examine Candida, Cryptococcus, Mucor, and Aspergillus under the microscope.

2: Culture Methods (2 hours): Teacher will guide sample inoculation on appropriate media. Students will observe colony characteristics and growth patterns.

3: Serology & PCR (1.5 hours): Teacher will introduce serological tests and molecular diagnostics. Students will analyze results and compare findings with clinical

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| presentations.<br>4: Case Discussion (1.5 hours): Teacher will present infection case studies. Students will correlate laboratory findings with patient symptoms.<br>Total duration: 7 hours |
| Practical Training 14.3 Lab Diagonosis of Mycosis |
| 1. Introduction to Fungal Diagnostics (1 hour) The teacher will explain specimen collection, staining techniques, and diagnostic workflows.<br>2. Case Study Analysis (1.5 hours) Students will work in groups to identify fungal infections and select diagnostic methods.<br>3. Microscopy & Staining (1.5 hours) Students will prepare slides, stain specimens, and observe fungal structures under supervision.<br>4. Comparing Diagnostic Methods (1 hour) Groups will present findings, and the teacher will lead discussions on accuracy and limitations.<br>5. Review & Reflection (1 hour) Students will participate in a quiz and discuss key takeaways with teacher guidance.<br>Total duration: 6 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 14.1: Fungal reproduction |
| 1. Research Fungal Reproduction (60 minutes) Students will study asexual and sexual reproduction methods and learn about life cycle phases. They will take notes and create an outline.<br>2. Observe Fungal Growth (60 minutes) Students will look at fungal cultures on agar plates and document different reproductive structures.<br>3. Analyze Reproductive Structures (60 minutes) Students will compare images of fungal structures with references and discuss their observations and the differences in reproduction.<br>4. Group Research and Presentation (60 minutes) Students will research a specific fungus in groups, create a diagram of its reproduction methods, and present their findings.<br>Total duration: 4 hours |
| Experiential-Learning Learning 14.2: Candida, Cryptococcus, Mucor, Aspergillus |

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| 1. Self-Study: Students will read materials on the epidemiology and pathogenesis of Candida, Cryptococcus, Mucor, and Aspergillus, focusing on transmission routes, risk factors, and clinical manifestations (60 minutes).<br>2. Group Work: Students will analyze assigned clinical case studies involving infections from specific fungi, examining symptoms and correlating them with the causative organism (60 minutes).<br>3. Identification: Students will identify the etiology as causative fungi in their cases, discuss how they invade the host, and explain the corresponding clinical manifestations (60 minutes).<br>4. Discussion: Students will explore complications of fungal infections and prevention methods, sharing their findings through group presentations (60 minutes).<br>Total duration: 4 hours |
| Experiential-Learning Learning 14.3: Pneumocystis, Histoplasma, Blastomyces, Coccidioides, Actinomycetes &.Nocardia |
| 1: Research (120 minutes) Students will research six fungi: Pneumocystis, Histoplasma, Blastomyces, Coccidioides, Actinomycetes, and Nocardia, focusing on their structure, infection mechanisms, and clinical effects.<br>2: Group Analysis (120 minutes) In small groups, students will analyze their assigned fungus, discussing its antigenic properties and pathogenicity, and create a presentation of their findings.<br>3: Case Studies (120 minutes) Groups will review clinical cases of their fungi, identifying symptoms and complications linked to infections and summarizing their insights in a report.<br>4: Observations and Discussions (120 minutes): Students will observe fungal cultures and images and note key features.<br>Total Duration: 8 hours |
| Experiential-Learning Learning 14.4: Superficial, Subcutaneous and Systemic Mycosis |
| 1. Explore Fungal Infections (2 hours) Students will read materials and watch videos to understand fungal types, transmission, and risk factors.<br>2. Case Study Analysis (2 hours) Students will examine cases, identify pathogens, and discuss disease progression and treatment.<br>3. Observe Fungal Growth (2 hours) Students will inoculate plates and record observations on colony characteristics. |

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| 4. Identify Fungi (2 hours) Students will analyze images and compare features with reference materials.<br>5. Research Prevention (2 hours) Students will investigate strategies and summarize findings on fungal infection prevention.<br>Total duration: 10 hours | |
| **Modular Assessment** | |
| **Assessment** | **Hour** |
| Instructions- Conduct a structured modular assessment. Assessment will be for 50 marks per module of 2 credits. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the modular grade point as per Table 6C.<br>Assess the students' ability by case presentation (30 marks) considering the following aspects:<br>Understanding of case- 10 marks<br>Accuracy of diagnosis- 10 marks<br>Case presentation skill- 10 marks<br>Conduct OSCE assessments of students in the following areas (25 marks):<br>History taking- 5 marks<br>Clinical Examination- 5 marks<br>Diagnosis- 5 marks<br>Differential Diagnosis- 5 marks<br>Addressing clinical questions related to case- 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |

**Semester No : 6**

## Module 15 : Parasitology

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Demonstrate the methods of identification of protozoan parasites, helminths & ectoparasites.

2. Demonstrate the methods of identification of arthropods& vectors

3. Analyze the pathogenesis, antigenic constitution, clinical presentations, and lab diagnosis of helminths and protozoan parasites.

4. Demonstrate the methods of diagnosis of malaria, dengue, chikungunya.

**Unit 1 Introduction of some parasites, helminths & ectoparasites of medical importance**

15.1.1 Introduction and classification, Methods of identification, some parasites, helminths & ectoparasites of medical importance

**References:** 24,25

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO3,CO5, CO7 | Discuss parasitology and its significance | 2 | Lecture | CC | Knows-how | L&GD |
| CO3,CO5, CO7 | Describe general characteristics of parasites | 2 | Lecture | CC | Knows-how | L&GD |
| CO3,CO7, CO8 | Describe the classification and morphology of parasites. | 3 | Lecture | CC | Knows-how | L&GD |
| CO3,CO7, CO8 | Demonstrate the methods of identification of protozoan parasites | 5 | Practical15.1 | PSY-GUD | Shows-how | DL,DIS,Mnt |

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| CO3,CO5, CO7 | Demonstrate the methods of identification of helminths | 4 | Practical15.2 | PSY-GUD | Shows-how | DL,TBL,D-M |
| CO3,CO5, CO7 | Demonstrate the methods of identification of arthropods & vectors | 5 | Practical15.3 | PSY-GUD | Shows-how | DIS,Mnt,TBL,DL,D |
| CO3,CO5, CO7 | Analyze the antigenic constitution of protozoan parasites of medical importance like Entamoeba, Giardia, Trichomonas, Plasmodium, Toxoplasma, Leishmania, and Trypanosoma | 6 | Experiential-Learning15.1 | PSY-GUD | Does | D,CBL |
| CO3,CO7 | Explore and analyze the pathogenesis, antigenic properties, and laboratory diagnostic methods of medically important helminths, including tapeworms (Cestoda) and flukes (Trematoda). | 6 | Experiential-Learning15.2 | PSY-MEC | Does | PT,DIS,PER,PL,DL |
| CO3,CO7 | Evaluate the pathogenesis, antigenic properties, and laboratory diagnostic methods of medically important nematodes, including Trichinella spiralis, Strongyloides stercoralis, Ascaris lumbricoides, and P. westermani | 3 | Experiential-Learning15.3 | PSY-MEC | Does | PER,PAL |
| **Unit 2 Protozoa and Helminths**<br>15.2.1 Protozoa and Helminths<br>**References:** 24,25 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO3,CO6, CO7 | Describe the different types of ectoparasites. | 3 | Lecture | CC | Knows-how | L&PPT |

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| CO3,CO5, CO7 | Examine the life cycle of arthropod vectors, including mosquitoes, sand flies, ticks, mites, and lice, and their role in disease transmission. | 6 | Experiential-Learning15.4 | PSY-MEC | Does | DL,D-M,BS |
| CO3,CO7, CO8 | Analyze the pathogenesis and clinical manifestations of common vector-borne diseases, including dengue, malaria, and chikungunya. | 5 | Experiential-Learning15.5 | CE | Does | CBL,SDL,PAL,DIS,C_L |
| CO3,CO5, CO7 | Demonstrate the methods of diagnosis of malaria, dengue, chikungunya. | 3 | Practical15.4 | PSY-GUD | Shows-how | DL,PT |
| CO3,CO5, CO7 | Demonstrate the methods of diagonosis of various ectoparacites. | 3 | Practical15.5 | PSY-GUD | Shows-how | DL,C_L,DIS,CBL |

**Practical Training Activity**

Practical Training 15.1 Identification of protozoan parasites

1. Introduction to Protozoan IdentificationThe teacher will explain key identification methods, sample types, and diagnostic techniques. (30 minutes)

2. Wet Mount & Microscopy Students will learn to prepare wet mounts, observe motile protozoa, and record distinguishing features.(90 minutes)

3. Staining Techniques Students will learn to apply stains (Giemsa, Trichrome, Acid-Fast) and examine protozoan morphology.(60 minutes)

4. Fluorescent Microscopy & Specimen Analysis Students will observe stained slides under a fluorescent microscope and compare findings with references. (60 minutes)

5. Immunological Tests & Review Students will practice to perform antigen-antibody detection techniques and discuss diagnostic applications. (30 minutes)

6. Teacher will assess the students by Viva,or practical exams or interaction,or demonstration observation assisstance performance, or direct observation of procedural skill.(30 minutes)

Total Duration: 5 hours

Practical Training 15.2 Identification of helminths

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| 1. Introduction to Helminth Identification: The teacher will explain key identification methods, including morphological, molecular, and chemical techniques. (30 minutes)<br>2. Microscopy & Morphological Features :Students will examine helminth specimens under a microscope, identify key features, and record observations.(60 minutes)<br>3. Using Dichotomous Keys: Students will apply dichotomous keys to systematically identify helminth species based on morphology. (60 minutes)<br>4. Dissection & Internal Structures: Students will learn to dissect helminth specimens, observe internal anatomy, and document findings. (30 minutes)<br>5. Molecular & Chemical Identification : Students will learn to extract DNA, observe PCR amplification (if available), and perform chromatography for species identification.(30 minutes)<br>6. Teacher will assess the students by interaction or practical identification.(30 minutes)<br>Total Duration: 4 hours |
| Practical Training 15.3 Identification of Arthropods & Vectors |
| 1. Introduction to Arthropod Identification (60 minutes) The teacher will explain key identification methods, including morphology, dichotomous keys, and molecular techniques.<br>2. Microscopy & Morphological Features (60 minutes) Students will examine arthropod specimens under a microscope, identify key features, and record observations.<br>3. Using Dichotomous Keys (60 minutes) Students will apply dichotomous keys to systematically identify arthropod species based on morphology.<br>4. Dissection & Internal Structures (60 minutes) Students will learn to dissect arthropod specimens, observe internal anatomy, and document findings.<br>5. Molecular & Chemical Identification (60 minutes) Students will learn to extract DNA, observe PCR amplification (if available), and perform chromatography for species identification.<br>Total Duration: 5 hours |
| Practical Training 15.4 Malaria, Dengue, Chikungunya-2 |

1. Teacher will demonstrate the methods of diagnosis of Malaria, Dangue and chikungunia. ( 60 minutes)

2. Provide students with peripherial blood smear and help them to identify the Plasmodium species (P falciparm, P vivax ) using a microscope. (30 minutes)

3. Provide students with serum samples and guide them to perform NS1 antigen detection test for dangue, IgM, ELISA IgM ELISA for chikungunyachik and interpret the results. (30 minutes)

4. Give students blood sample and facilitate them to do RDT and PCR for malaria , PCR for dangue and interpret the results. ( 30 minutes)

5. Provide students with serum samples and support them to attempt to isolate the chikungunya virus using cell culture. ( 30 minutes)

Total duration: 3 hours

Practical Training 15.5 Diagnosis of various ectoparacites

1. Teacher will demonstrate the methods of diagnosis of ectparasites like parasite morphology shape, size, color, microscopy-wet mount preparations, egg identification, specicemin examination, slide preparation etc under SOP set for each parasite. ( 60 minutes)

2. Provide students with the images or slides of different ectoparasites and help them to describe the morphology and identify the ectoparasite. ( 30 minutes)

3. Provide students with the slides of different ectoparasites like lice, fleas, ticks, mites and guide them to identify the parasite uaing a microscope. ( 30 minutes)

4. Give students samples of skin scrapping and hair, facilitating them to examine it and isolate the ectoparasites using a suitable medium ( egg-agar plate). ( 30 minutes)

5. Give students a slide of eggs of different parasites and ask them to dentify the ectoparasites using a microscope. (30 minutes)

Total duration: 3 hours

**Experiential Learning Activity**

Experiential-Learning Learning 15.1: Entamoeba, Giardia, Trichomonas, Plasmodium, Toxoplasma. Leishmania, Trypanosoma

1. Explore Protozoan Morphology (120 minutes) Students will study reference materials and create visual summaries of key protozoan structures.

2. Group Discussion on Antigenic Features (90 minutes) Students will analyze antigenic properties and compare their role in immune response and diagnosis.

3. Antigen Extraction & Purification (60 minutes) Students will go through basic antigen extraction and document purification methods.

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| 4. Case Study Analysis (60 minutes) Students will examine clinical cases, identify parasites, and correlate findings with antigenic characteristics.<br>5. Review & Reflection (30 minutes) Students will summarize key takeaways and discuss applications in diagnostics.<br>Total Duration: 6 hours |
| Experiential-Learning Learning 15.2: Cestoda and Trematoda |
| 1. Independent Research on Helminths (2 hours) Students will study curated resources to understand the pathogenesis, antigenic constitution, and diagnostic methods of helminths.<br>2. Group Discussion on Pathogenesis (1.5 hours) Students will collaborate in groups to analyze disease mechanisms of Cestoda and Trematoda, creating visual summaries.<br>3. Antigenic Constitution Analysis (1 hour) Students will research antigenic properties, their role in immunity, and diagnostic relevance, then share findings through presentations.<br>4. Lab Diagnosis Review (1.5 hours) Students will examine diagnostic techniques like stool microscopy and serological tests, document key features, and compare methods.<br>Total duration: 6 Hours |
| Experiential-Learning Learning 15.3: Trichinella spiralis, Strongyloides stercoralis, Ascaris lumbricoides, and P. westermani |
| 1. Study on Helminths (60 minutes) Students will review curated resources to understand the pathogenesis, antigenic constitution, and diagnostic methods of helminths.<br>2. Group Discussion & Visual Summaries (60 minutes) Students will collaborate in groups to analyze disease mechanisms, antigenic features, and diagnostic relevance, creating visual aids.<br>3. Self-Guided Diagnostic Practice (60 minutes) Students will examine stool slides or images, simulate serological tests, and document key diagnostic observations.<br>Total Duration: 3 Hours |

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| Experiential-Learning Learning 15.4: Life cycle of Arthropods and vectors |
| 1. Independent Research on Arthropod Life Cycles (120 minutes) Students will study assigned arthropods using provided resources and create flowcharts summarizing life cycle stages and disease significance.<br>2. Visual Mapping & Model Creation (90 minutes) Students will design 3D models or diagrams linking life cycle stages to disease transmission and control strategies.<br>3. Observation & Documentation (90 minutes) Students will examine arthropod specimens (live, preserved, or virtual) and record life cycle stages and anatomical features.<br>4. Control Strategy Development (60 minutes) Students will brainstorm vector control methods targeting life cycle stages and present their strategies.<br>Total duration: 6 hours |
| Experiential-Learning Learning 15.5: Dengue, Malaria, and Chikungunya |
| 1. Independent Study on Pathogenesis (60 minutes) Students will review curated resources to understand the pathogenesis and clinical manifestations of dengue, malaria, and chikungunya.<br>2. Group Case Analysis (60 minutes) Students will collaborate in groups to analyze case studies, identify symptoms, and correlate findings with pathology.<br>3. Research on Advances in Diagnosis & Treatment (60 minutes) Students will explore recent developments in diagnostics and treatment, creating visual summaries.<br>4. Pathology Observation & Discussion (60 minutes) Students will examine digital slides or images, identify pathological features, and discuss their relevance to symptoms.<br>5. Complications & Prevention Strategies (60 minutes) Students will engage in peer-led discussions on disease complications and propose prevention strategies.<br>Total duration: 5 Hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
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| Instructions- Conduct a structured modular assessment. Assessment will be for 50 marks per module of 2 credits. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the modular grade point as per Table 6C.<br>Conduct a debate and assess students (25 marks) considering the following aspects:<br>Reasoning and evidence- 10 marks<br>Response ability- 10 marks<br>Expression and delivery- 5 marks<br>Conduct practical case taking (25 marks) considering the following aspects:<br>Understanding of case- 5 marks<br>Accuracy of diagnosis- 10 marks<br>Case presentation skill- 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |

**Module 16 : Diagnostic Microbiology**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe the history and need for automation in diagnostic microbiology
2. Analyze the principles of diagnostic microbiology
3. Demonstrate the basic knowledge of molecular diagnostics methods, especially Recombinant DNA technology, Southern, northern and western blotting, DNA amplification techniques Diagnostic PCR, and different methods of PCR product detection (liquid hybridization, ELISA).

4. Conduct diagnostic tests like PCR, Microarray and Western blot etc.
5. Demonstrate efficient knowledge about working and applications of electron Microscopy

**Unit 1 Approach to Lab Diagnosis.Rapid and Automation methods in Microbiology**

16.1.1 PCR and Nucleotide sequencing. Microarray technology. Automated media preparators. Automated colony counters. Automated urine microscopy analyzer, Automated gram staining, automated collection and processing of samples. Cytospin centrifuge. Automated antimicrobial susceptibility test system. Automated western blot processor, Biosensors Haemagglutinin test, Electron microscopy (TEM and SEM)

**References:** 16,17,21,26,28,29,30,31,39,40,41,45,46

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO3,CO6 | Describe the basics of Diagnostic Microbiology. | 4 | Lecture | CC | Knows-how | L |
| CO3,CO5, CO7 | Describe the history and evolution of diagnostic microbiology. | 4 | Lecture | CC | Knows-how | L&GD |
| CO3,CO5, CO7 | Discuss the limitations of Diagnostic Microbiology. | 2 | Lecture | CC | Knows-how | L&GD |
| CO3,CO5, CO7 | Evaluate the principles of diagnostic microbiology, focusing on disease processes and their application in various diagnostic tests. | 7 | Experiential-Learning16.1 | CAN | Does | PER,BS,DL,ML,LS |
| CO3,CO5, CO7 | Demonstrate acquaintance with the principles and steps involved in molecular diagnostic techniques, including PCR, Western Blot, ELISA, DNA amplification, and Microarray technology. | 10 | Practical16.1 | PSY-GUD | Shows-how | D-M |

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| CO3,CO5, CO7 | Illustrate the principles, working mechanisms, and applications of automated media preparators, colony counters, urine microscopy analyzers, and automated sample collection and processing systems. | 9 | Experiential-Learning16.2 | PSY-MEC | Does | C_L,PT,LS,ML,D |
| CO3,CO5, CO7 | Demonstrate the principles, techniques, and practical applications of automated Gram staining, antimicrobial susceptibility testing, biosensors, haemagglutinin testing, and flow cytometry | 10 | Practical16.2 | PSY-GUD | Shows-how | DIS,ML,Mnt,C_L,LS |
| CO3,CO5, CO7 | Evaluate the principles and applications of light, fluorescence, and electron microscopes, including transmission electron microscopy (TEM) and scanning electron microscopy (SEM). | 10 | Experiential-Learning16.3 | PSY-MEC | Does | C_L,DIS,CD,DL,PT |

**Practical Training Activity**

Practical Training 16.1 Polymerase Chain Reaction (PCR), Western Blot, ELISA, DNA amplification, and Microarray technology

1. Introduction & Demonstration (60 minutes) The teacher will explain and demonstrate the principles, procedures, and interpretation of PCR, Western Blot, DNA amplification, ELISA, and Microarray technology using models.
2. Guided Hands-On Practice (120 minutes) Students will go through diagnostic techniques under teacher supervision, setting up PCR reactions, analyzing gel electrophoresis, and conducting Western Blot procedures.
3. Supervised DNA Extraction & ELISA Assay (120 minutes) Students will learn to extract DNA, amplify target sequences, and perform ELISA using a microplate reader, guided by the teacher.
4. Microarray Analysis & Interpretation (180 minutes) Students will learn to prepare microarray slides, perform hybridization, scan results, and analyze gene expression patterns with teacher guidance.
5. Assessment & Review (120 minutes) The teacher will evaluate students through direct observation, practical viva, or presentations to assess procedural understanding and interpretation skills.

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| Total Duration:10 Hours |
| Practical Training 16.2 Automated Gram staining, antimicrobial susceptibility testing, biosensors, haemagglutinin testing, and flow cytometry |
| 1. Introduction & Sample Preparation (120 minutes) The teacher will explain principles and procedures of automated Gram staining, antimicrobial susceptibility testing, biosensors, and flow cytometry. Students will prepare bacterial samples (blood, urine, saliva) under supervision.<br>2. Hands-On Operation & Flow Cytometry Analysis (150 minutes) Students will perform automated Gram staining, susceptibility testing, and biosensor diagnostics. They will prepare and analyze samples for flow cytometry, including blood, bone marrow, and tissue specimens.<br>3. Antimicrobial Resistance Testing & Biosensor Application (120 minutes) Students will conduct antimicrobial resistance testing using automated systems and apply biosensors for diagnostic testing (e.g., glucose monitoring, infectious disease detection).<br>4. Data Interpretation & Analysis (150 minutes) Students will analyze and interpret results from automated Gram staining, susceptibility testing, biosensors, and flow cytometry, comparing findings with reference data.<br>5. Assessment & Review (60 minutes) The teacher will evaluate students through direct observation, practical viva, or presentations to assess procedural understanding and interpretation skills.<br>Total Duration:10 Hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 16.1: Diagnostic microbiology |
| 1. Student group will search the litrature and pre recorded videos regarding role of diagnostic microbiology, its principles their application in disease processes.(90 minutes)<br>2. The student group discuss various diagnostic tests used in microbiology, and create a concept map summarizing key principles and applications. (90 minutes)<br>3. The student group will discuss with peers various case studies, regarding diseases and their diagnostic challenges. (60 minutes)<br>4. The students groups explore a list of instruments (e.g., PCR machine, ELISA reader, microscopes) and their uses. (60 minutes) |

5. Students critically evaluate diagnostic tools and understand their strengths and weaknesses. (60 minutes)

6. Teacher will assess the students by class presentation or practical identification or practical exams. (60 minutes)

Total Duration: 7 Hours

Experiential-Learning Learning 16.2: Automated Microbiology Methods

1. Independent Research on Automated Microbiology Machines (90 minutes) Students will explore offline and online resources to understand principles, working mechanisms, and applications of automated microbiology machines.

2. Hands-On Operation & Troubleshooting (120 minutes) Students will perform practical activities on machine operation, troubleshooting, and sample collection & processing.

3. Automated Media Preparation & Colony Counting (120 minutes) Students will learn to operate automated media preparators for agar and broth preparation and use colony counters to enumerate bacterial colonies.

4. Urine Sample Analysis & Barcode Tracking (120 minutes) Students will analyze urine samples using automated microscopy and learn barcode scanning for sample tracking and management.

5. Sample Collection & Processing (90 minutes) Students will collect and process samples using automated systems like Vacutainer and document their findings.

Total Duration: 9 hours

Experiential-Learning Learning 16.3: Microscopes (light, fluorescence, and electron microscope)

1. Independent Research on Microscopy (120 minutes) Students will explore online and offline resources to understand the principles and applications of light, fluorescence, and electron microscopy.

2. Group Discussion & Comparison (120 minutes) Students will analyze differences between TEM and SEM, discuss their applications in microbiology and medicine, and create visual summaries.

3. Hands-On Microscope Operation (120 minutes) Students will practice using light and fluorescence microscopes, prepare samples, and troubleshoot common imaging issues.

4. Image Analysis & Resolution Study (120 minutes) Students will examine pre-captured images from various microscopes, compare resolution and clarity, and

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| document key observations.<br>5. Diagnostic Application & Reporting (120 minutes) Students will use light microscopy to analyze clinical samples, identify disease-causing organisms, and record findings in a diagnostic report.<br>Total Duration:10 hours |

| **Modular Assessment** | |
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| **Assessment** | **Hour** |
| Instructions- Conduct a structured modular assessment. Assessment will be for 50 marks per module of 2 credits. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the modular grade point as per Table 6C.<br>Conduct the ABQ test (25 marks) considering the following aspects:<br>Relevance of concept- 5 marks<br>Extent of application and innovation- 10 marks<br>Justification and evidence- 5 marks<br>Presentation and communication- 5 marks<br>Practical performance of any test related to this module, considering the following points (25 marks);<br>Correct methodology- 15 marks<br>Interpretation- 5 marks<br>Communication- 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |

**Paper No : 3(Ilmul Amraz Nizami (Systemic Pathology) – I)**

**Semester No : 3**

**Module 17 : Amrāz Ra's, 'Ayn, Uzun, Anf, Halq امراض رأس، عین،اذن،انف، حلق**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe Asbab and Alamat of Amrāz A'za' Nafsāniyya
2. Discuss Mahiyat of Amrāz A'za' Nafsāniyya
3. Identify the diagnostic features of Amrāz A'za' Nafsāniyya

**Unit 1 Amrāz Ra's (Auja', Awram & Af'al Siyasi) امراض راس(اوجاع،اورام،افعال سیاسی)**

17.1.1 Ṣudā', Shaqīqa, Sarsām, Subāt, Sahar, Nisyān, Mālankhūliyā صداع،شقیقہ،سرسام،سبات،سہر،نسیان،مالنخولیا

**References:** 1,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Discuss types alamat of Ṣudā', | 1 | Practical17.1 | CAP | Shows-how | DIS,LS |
| CO1,CO2, CO3,CO4 | Describe suda and its mahiyat | 1 | Lecture | CK | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Discuss mahiyat and alamat of Shaqiqa. | 1 | Lecture | CK | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Illustrate the asbab and mahiyat of Sarsaam | 1 | Practical17.2 | CAP | Shows-how | L&GD,BS |

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| CO1,CO2, CO3,CO4 | Discuss the asbab of Subat | 1 | Experiential-Learning17.1 | CAP | Does | DIS,C_L |
| CO1,CO2, CO3,CO4 | Identify mahiyat and alamat of Subat | 1 | Experiential-Learning17.2 | CK | Does | LS,DIS |
| CO1,CO2, CO3,CO4 | Illustrate mahiyat , asbab and alamat of sehar | 1 | Practical17.3 | CAP | Shows-how | DIS,L,LS |
| CO1,CO2, CO3,CO4 | Discuss type and alamat of Nisyan | 2 | Experiential-Learning17.3 | CAP | Does | LS,SDL,ML |
| CO1,CO2, CO3,CO4 | Evaluate mahiyat of Nisyan. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Illustrate asbab wa mahiyat of Mālankhūliyā | 2 | Practical17.4 | CK | Shows-how | LS,ML,C_L,FC |
| CO1,CO2, CO3,CO4 | Identify alamat of Mālankhūliyā | 2 | Experiential-Learning17.4 | CAP | Does | ML,SDL,LS |

**Unit 2 Amrāz Ra's (Af'al Harkat & 'Asb) امراض راس(افعال حرکت وعصب)**

17.2.1 Sadr & Duwār, Ṣar', Sakta, Istirkhā' & Fālij, Tashannuj & Tamaddud, Laqwa, Ra'sha, Khadr, Ikhtilāj سدر و دوار، صرع، سکتہ، استرخاء و فالج، تشنج و تمدد، لقوہ، رعشہ، خدر، اختلاج

**References:** 1,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Identify the asbab and mahiyat of Sadr&Duwār | 1 | Lecture | CAN | Knows-how | L&PPT |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe alamat of Sadr & Duwār | 1 | Practical17.5 | CAN | Shows-how | DIS,BS |
| CO1,CO2, CO3,CO4 | Diagnose Sakta and its mahiyat | 1 | Experiential-Learning17.5 | PSY-MEC | Does | LS,DIS |
| CO1,CO2, CO3,CO4 | Discuss Alamat of Sakta. | 1 | Lecture | CK | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Illustrate Istirkhā' and its mahiyat | 2 | Practical17.6 | CAP | Shows-how | L,BS |
| CO1,CO2, CO3,CO4 | Identify asbab and mahiyat of Fālij, | 2 | Experiential-Learning17.6 | CK | Does | C_L,RLE |
| CO1,CO2, CO3,CO4 | Describe alamat of Fālij, | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Discuss asbab and mahiyat of Tashannuj, | 1 | Practical17.7 | CAP | Shows-how | L,BS |
| CO1,CO2, CO3,CO4 | Discuss alamat of Tashannuj. | 2 | Experiential-Learning17.7 | CC | Does | PrBL,DIS,LS,C_L |
| CO1,CO2, CO3,CO4 | Diagnose mahiyat and alamat of Tamaddud | 1 | Experiential-Learning17.8 | PSY-GUD | Does | LS,C_L |
| CO1,CO2, CO3,CO4 | Describe asbab and mahiyat of Laqwa | 1 | Practical17.8 | CAP | Shows-how | L,BS |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Identify Alamat of Laqwa | 1 | Experiential-Learning17.9 | CC | Does | LS,DIS |
| CO1,CO2, CO3,CO4 | Describe mahiyat and alamat of Ra'sha | 1 | Lecture | CAP | Knows-how | L&GD |
| CO1,CO2, CO3,CO4 | Illustrate mahiyat and alamat of Khadr, | 1 | Practical17.9 | CK | Shows-how | BS,L |
| CO1,CO2, CO3,CO4 | Identify mahiyat and Alamat of Ikhtilāj | 2 | Experiential-Learning17.10 | CC | Does | LS,ML,SDL |

**Unit 3 Amrāz 'Ayn, Uzun, Anf, Halq امراض عین،اذن،انف،حلق**

17.3.1 Ramad, Nuzūlul Mā', Juḥūẓul 'Ayn, Zu'f Baṣar, Dam'a, Waja'ul Uzun, Ṭarash, Waqr & Ṣamam, Dawī & Ṭanīn, Khasham, Nazla & Zukām, Ru'āf, 'Uṭās, Khunāq, Buḥḥatus Ṣawt, Khushūnate Ḥalq رمد،نزول الماء،جحوظ العین،ضعف بصر،دمعہ،وجع الاذن،طرش،وقروصمام،دوی وطنین، خشم،نزلہ وزکام،رعاف،عطاس،خناق،بحۃ الصوت،خشونت حلق

**References:** 1,4,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of Ramad. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of NuzūlulMā | 2 | Practical17.10 | CK | Shows-how | BS,L |
| CO1,CO2, CO3,CO4 | Discuss asbab, mahiyat and alamat of Juḥūẓul 'Ayn, | 2 | Experiential-Learning17.11 | CAN | Does | LS,C_L |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of Zu'fe Baṣar. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Discuss asbab, mahiyat and alamat of Dam'a, | 2 | Practical17.11 | CAP | Shows-how | BS,L |
| CO1,CO2, CO3,CO4 | Discuss asbab, mahiyat and alamat of Waja'ul Uzun | 1 | Experiential-Learning17.12 | CAP | Does | DIS,C_L |
| CO1,CO2, CO3,CO4 | Discuss asbab, mahiyat and alamat of Ṭarash | 1 | Experiential-Learning17.13 | CAP | Does | DIS,LS |
| CO1,CO2, CO3,CO4 | Illustrate asbab mahiyat and alamat of Waqr & Ṣamam, | 2 | Practical17.12 | CAN | Shows-how | BS,C_L |
| CO1,CO2, CO3,CO4 | Identify asbab mahiyat and alamat of Dawī & Ṭanīn, | 1 | Experiential-Learning17.14 | CE | Does | DIS,CBL |
| CO1,CO2, CO4 | Discuss asbab, mahiyat and alamat of Khasham. | 1 | Experiential-Learning17.15 | CAN | Does | DIS,C_L |
| CO1,CO2, CO3,CO4 | Discuss asbab, mahiyat and alamat of Nazla & Zukām | 1 | Practical17.13 | CE | Shows-how | BS,L |
| CO1,CO2, CO3,CO4 | Identify asbab, mahiyat and alamat of Ru'āf, | 2 | Experiential-Learning17.16 | CS | Does | LS,ML,C_L |
| CO1,CO2, CO3,CO4 | Identify asbab, mahiyat and alamat of Uṭās, | 1 | Experiential-Learning17.17 | CAP | Does | LS,DIS |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of Khunāq. | 2 | Practical17.14 | CE | Shows-how | LS,DIS |
| CO1,CO2, CO3,CO4 | Discuss asbab, mahiyat and alamat of Buḥḥatus Ṣawt, | 2 | Experiential-Learning17.18 | CAN | Does | D,LS |
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of Khushūnate Ḥalq. | 1 | Lecture | CC | Knows-how | L&PPT |

**Practical Training Activity**

Practical Training 17.1 Ṣudā‘,

1.Teacher will explain the concept of Ṣudā‘ to students and split them into small groups, (15 minutes).

2. Instruct the students to review the literature regarding types alamat of Ṣudā‘,and to discuss among them. (30 minutes).

3. Teacher will conduct the viva and presentation of the topic to review and assess the task they completed. (15 minutes).

Total Duration: 1 hour

Practical Training 17.2 Sarsaam

1. Teacher will divide the students in small groups and explain the topic of Sarsaam,(15 minutes)

2.The student group will brainstorm about the asbab and mahiyat of Sarsaam and each group will record their idea on white board or flipchart.(30 minutes)

3. Teacher will conduct viva and Interact with students to review and assess the task they completed. (15 minutes)

Total Duration: 1 hours

Practical Training 17.3 sehar

1 Teacher will explain the concept of sehar, to students and split them into small groups, (15 minutes).

2 Instruct the students to review the literature and to discuss regarding mahiyat , asbab and alamat of sehar among them. (30 minutes).

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| 3 Teacher will conduct the viva and presentation of the topic to review and assess the task they completed. (15 minutes).<br>Total Duration: 1 hour |
| Practical Training 17.4 Mālankhūliyā |
| 1.Teacher will provide pre class material such as videos,study materials of Mālankhūliyā to the students.(30 minutes)<br>2.Teacher will divide students into groups and ask them to review the literature,videos regarding asbab wa mahiyat of Mālankhūliyā, and discuss among them. (30 minutes)<br>3. In the classroom students will ask the questions and share their findings.(30 minutes)<br>4. Teacher will assess and evaluate the students ability by conducting a presentation or viva of the topic (30 minutes)<br>Total duration: 2 hours |
| Practical Training 17.5 Sadr & Duwār |
| 1.Teacher will divide the students in small groups and explain the topic of Sadr & Duwār,(15 minutes)<br>2. The student group will brainstorm about the alamat of Sadr & Duwār and each group will record their idea on white board or flipchart.(30 minutes)<br>3. Teacher will assess and evaluate the students knowledge by conducting a viva and presentation of the topic (15 minutes)<br>Total Duration: 1 hours |
| Practical Training 17.6 Istirkhā |
| 1. Teacher will divide the students in small groups and explain the topic of Istirkhā,(15 minutes)<br>2. The student group will brainstorm about the Istirkhā' and its mahiyat and each group will record their idea on white board or flipchart.(60 minutes)<br>3. Teacher will assess and evaluate the students knowledge by conducting a Theory open book test and viva of the topic (45 minutes)<br>Total Duration: 2 hours |
| Practical Training 17.7 Tashannuj, |

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| 1 Teacher will divide the students in small groups and explain the topic of Tashannuj,(15 minutes)<br>2 The student group will brainstorm about the asbab and mahiyat of Tashannuj, and each group will record their idea on white board or flipchart.(30 minutes)<br>3 Teacher will assess and evaluate the students knowledge by presentation and interaction with them. (15 minutes)<br>Total Duration: 1 hours |
| Practical Training 17.8 Laqwa |
| 1.Teacher will divide the students in small groups and explain the topic of Laqwa,(15 minutes)<br>2.The student group will brainstorm about the asbab and mahiyat of Laqwa and each group will record their idea on white board or flipchart.(30 minutes)<br>3. Teacher will assess and evaluate the students knowledge by conducting a Presentation of the topic (15 minutes)<br>Total Duration: 1 hours |
| Practical Training 17.9 Khadr, |
| 1. Teacher will divide the students in small groups and explain the topic of Khadr.,(15 minutes)<br>2. The student group will brainstorm about the mahiyat and alamat of Khadr,and each group will record their idea on white board or flipchart.(30 minutes)<br>3. Teacher will Interact with students to review and assess the task they completed (15 minutes).<br>Total Duration: 1 hours |
| Practical Training 17.10 NuzūlulMā |
| 1. Teacher will divide the students in small groups and explain the topic of NuzūlulMā. (30 minutes)<br>2. The student group will brainstorm about the asbab ,mahiyat and alamat of NuzūlulMā and each group will record their idea on white board or flipchart.(60 minutes)<br>3. Teacher will assess and evaluate the students knowledge by interaction and Presentation of the topic (30 minutes)<br>Total Duration: 2 hours |

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| Practical Training 17.11 Dam‘a, |
| 1.Teacher will divide the students in small groups and explain the topic of Dam‘a,(30 minutes)<br>2. The student group will brainstorm about the asbab ,mahiyat and alamat of Dam‘a, and each group will record their idea on white board or flipchart.(60 minutes)<br>3.Teacher will assess and evaluate the students by interaction and presentation.(30 minutes)<br>Total Duration: 2 hours |
| Practical Training 17.12 Waqr & Ṣamam, |
| 1.Teacher will divide the students in small groups and explain the topic of Waqr & Ṣamam. (30 minutes)<br>2.The student group will brainstorm about the asbab mahiyat and alamat of Waqr & Ṣamam, and each group will record their idea on white board or flipchart.(30 minutes)<br>3.Each group of student share their ideas with the class .(30 minutes)<br>4. Teacher will assess and evaluate the students knowledge by conducting a Theory open book test and viva of the topic (30 minutes)<br>.Total Duration:2 hours |
| Practical Training 17.13 Nazla & Zukām |
| 1.Teacher will divide the students in small groups and explain the topic of Nazla & Zukām,(15 minutes)<br>2.The student group will brainstorm about the asbab ,mahiyat and alamat of Nazla & Zukām and each group will record their idea on white board or flipchart.(30 minutes)<br>3.Teacher will assess and evaluate the students knowledge by conducting a Theory open book test and presentation of the topic (15 minutes)<br>Total Duration: 1 hours |
| Practical Training 17.14 Khunāq |
| 1. Teacher will explain the of concept of Khunāq, to students. (30 minutes). |

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| 2 Split students into small groups, and give them topics for discussion on asbab ,mahiyat and alamat t.(30 minutes).<br>3. Instruct the students to review the literature , and to discuss among them. (30 minutes).<br>4. Teacher will assess and evaluate the students ability by conducting the theory open book test and viva of the topic (30 minutes)<br>Total Duration: 2 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 17.1: Subat |
| 1.Teacher will instruct the students to complete the task through following steps;<br>2. Students will prepare the question related to asbab of Subat, and discuss among themselves (30 minutes)<br>3. Teacher will Interact with students and take viva to review and assess the task they completed (30 minutes).<br>Total Duration: 1 hour |
| Experiential-Learning Learning 17.2: Subat |
| 1.Teacher will instruct the students to complete the task through following steps;<br>2.Students will prepare the question related to mahiyat and alamat of Subat, and discuss among themselves (30 minutes)<br>3. Teacher will Interact with students to review and assess the task they completed (30 minutes).<br>Total Duration: 1 hour |
| Experiential-Learning Learning 17.3: Nisyan |
| 1.Teacher will ask the students to cover the topic under self-directed learning through the following steps;<br>2.literature review, With the aid of numerous offline Unani literature and online tools. (30 minutes)<br>3. Students will discuss the topics among them and make a summary regarding type and alamat of Nisyan. (60 minutes) |

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| 4. Teacher will conduct the viva and quiz to review and assess the task they completed (30 minutes).<br>Total Duration: 2 hours |
| Experiential-Learning Learning 17.4: Mālankhūliyā |
| 1. Teacher will ask the students to cover the topic under self-directed learning through the following steps;<br>2. literature review, With the aid of numerous offline Unani literature and online tools, (30 minutes)<br>3. Students will discuss the topics among them and make a summary regarding alamat of Mālankhūliyā . (60 minutes)<br>4. Teacher will conduct the presentationa and interaction to review and assess the task they completed (30 minutes).<br>Total Duration: 2 hours |
| Experiential-Learning Learning 17.5: Sakta |
| 1. Teacher will divide the students in small groups<br>2. Students will prepare the question related to diagnosis of Sakta and its mahiyat, and discuss among themselves (30 minutes)<br>3. Teacher will assess the students by interaction and presentation. (30 minutes).<br>Total Duration: 1 hour |
| Experiential-Learning Learning 17.6: Fālij, |
| 1. Teacher will divide the students into small groups and provide each group with a case study of a patient with Fālij,(15 minutes)<br>2. Teacher will ask each group to analyse the case study to Identify asbab and mahiyat of Fālij, (15 minutes)<br>3.Students will analyse and discuss the case among themselves and observe the real life experience.(60 minutes)<br>4. Teacher will assess the students by interaction and presentation. (30 minutes).<br>Total Duration: 2 hours |
| Experiential-Learning Learning 17.7: Tashannuj. |

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| Teacher will instruct the students to complete the task through .in following steps;<br>1.Students will review the topic from offline and online sources and make summary of key points (60 minutes)<br>2. Students will discuss the alamat of Tashannuj., in innovative and comprehensive way (30 minutes)<br>3. Teacher will assess and evaluate the students knowledge by conducting a presentation and viva of the topic (30 minutes)<br>Total Duration = 2 hours |
| Experiential-Learning Learning 17.8: Tamaddud |
| 1. The teacher will explain the mahiyat and alamat of Tamaddud, (15 minutes)<br>2.Student will search the topic and draw conclusion based on their findings and exchange the findings among the collegue(30 minutes)<br>3.Teacher will arrange the viva to review and assess the task they completed (15 minutes).<br>Total Duration: 1 hours |
| Experiential-Learning Learning 17.9: Laqwa |
| 1. Teacher will ask the students to cover the topic of Laqwa.<br>2. Students will prepare the question related to Alamat of Laqwa and discuss among themselves (30 minutes)<br>3. Teacher will conduct viva to review and assess the task they completed (30 minutes).<br>Total Duration: 1 hour |
| Experiential-Learning Learning 17.10: Ikhtilāj |
| 1. Teacher will ask the students to cover the topic under self-directed learning through the following steps;<br>2. literature review, With the aid of numerous offline Unani literature and online tools. (60 minutes)<br>3. Students will discuss the mahiyat and Alamat of Ikhtilāj among them and make a summary. (30 minutes)<br>4. Teacher will conduct the presentationa or viva to review and assess the task they completed (30 minutes)<br>Total Duration: 2 hours |

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| Experiential-Learning Learning 17.11: Juḥūẓul ‘Ayn, |
| 1.The teacher will explain the concept of Juḥūẓul ‘Ayn, (30minutes)<br>2. Student will search the topic of asbab, mahiyat and alamat of Juḥūẓul ‘Ayn, and draw conclusion based on their findings and generate their own questions.(30 minutes)<br>3. student will exchange the findings among the collegue (30 minutes)<br>4. Teacher will conduct the viva and presentation to review and assess the task they completed (30 minutes).<br>Total Duration: 2 hours |
| Experiential-Learning Learning 17.12: Waja‘ul Uzun |
| 1.Teacher will ask the students to cover the topic of Waja‘ul Uzun.<br>2. Students will prepare the question related to asbab, mahiyat and alamat of Waja‘ul Uzun and discuss among themselves (30 minutes)<br>3. Teacher will interact and conduct the viva to review and assess the task they completed (30 minutes).<br>Total Duration: 1 hour |
| Experiential-Learning Learning 17.13: Ṭarash |
| 1.Teacher will ask the students to cover the topic of Ṭarash<br>2. Students will prepare the question related to asbab ,mahiyat and alamat of Ṭarash, and discuss among themselves (30 minutes)<br>3. Teacher will Interact and conduct viva with students to review and assess the task they completed (30 minutes).<br>Total Duration: 1 hour |
| Experiential-Learning Learning 17.14: Dawī & Ṭanīn, |
| 1.Teacher will divide the students into small groups and provide a case study of a patient |

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| 2.Teacher will ask each group to Identify asbab mahiyat and alamat of Dawī &Ṭanīn, students will analyse and discuss the case among themselves and observe the real life experience (30 minutes)<br>3.Teacher will conduct the class presntation and interaction with students to review and assess the task they completed (30 minutes).<br>Total Duration: 1 hour |
| Experiential-Learning Learning 17.15: Khasham |
| 1.Teacher will instruct the students to complete the task through following steps;<br>2.Students will prepare the question related to asbab ,mahiyat and alamat of Khasham,, and discuss among themselves (30 minutes)<br>3.Teacher will conduct viva and Interact with students to review and assess the task they completed (30 minutes).<br>Total Duration: 1 hour |
| Experiential-Learning Learning 17.16: Ru'āf, |
| 1.The teacher will explain the concept of Ru'āf, (30minutes)<br>2.Student will search the topic and draw conclusion based on their findings and generate their own questions.(30 minutes)<br>3.student will exchange the findings among the collegue (30 minutes)<br>4.Teacher will conduct the viva and interation to review and assess the task they completed (30 minutes).<br>Total Duration: 2 hours |
| Experiential-Learning Learning 17.17: Ụtās |
| 1. Teacher will instruct the students to complete the task through following steps<br>2. Students will prepare the question related to asbab ,mahiyat and alamat of Ụtās, and discuss among themselves (30 minutes)<br>3.Teacher will assess the student by presentation and interaction(30 minutes).<br>Total Duration: 1 hour |

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| Experiential-Learning Learning 17.18: Buḥḥatus Ṣawt, |
| 1.Teacher will demonstrate with the help of charts, posters or hand on activities to enhance understanding of the asbab,mahiyat and alamat of Buḥḥatus Ṣawt.(30 minutes).<br>2.Split students into small groups, and give them topics for discussion (Asbab, Mahiyat and Alamat).(30 minutes).<br>3. Instruct the students to review the literature and to discuss among them for better understanding and appropriate categorization (30 minutes).<br>4. Teacher will assess the students by prtesentation and interaction, (30 minutes).<br>Total Duration: 2 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
|---|---|
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct Essay writing test (30 Marks) considering following aspects;<br>Quality of content - 10 marks<br>Language and writing skill - 10 marks<br>Structure of essay - 10 marks<br>Conduct assessment by MCQs (20 Marks)<br>4 Knowledge based questions - 8 marks<br>3 Application based questions - 6 marks<br>3 Analysis based questions - 6 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks) | 4 |

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| and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

**Module 18 : Diseases of Nervous System**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe etiology, pathogenesis, pathological changes and clinical features of Nervous System, Degenerative disorders, tumors, disorders of the nerve and muscle and disease of Eye, Nose, and Paranasal sinuses

2. Conduct discussion on differential diagnosis of diseases Nervous System, Degenerative disorders, tumors, disorders of the nerve and muscle and disease of Eye, Nose, and Paranasal sinuses

3. Identify the appropriate diagnostic investigations required for various diseases of Nervous System, Degenerative disorders, tumors, disorders of the nerve and muscle and disease of Eye, Nose, and Paranasal sinuses

**Unit 1 Infections &Vascular & Demyelinating Diseases**

18.1.1 Meningitis, Encephalitis, Cerebrovascular Disease, Multiple Sclerosis

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Describe etiopathognesis, clinical features,diagnostic critaria of Meningitis, | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Describe etiopathognesis, clinical features,diagnostic critaria of Encephalitis | 3 | Practical18.1 | CAP | Shows-how | LS,D |

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| CO1,CO2, CO3 | Discuss types, etiopathognesis, of Cerebrovascular Disease | 4 | Experiential-Learning18.1 | CAP | Does | DIS |
| CO1,CO2, CO3 | Identify clinical features,diagnostic critaria of Cerebrovascular Disease | 4 | Experiential-Learning18.2 | PSY-MEC | Does | CBL,DIS |
| CO1,CO2, CO3 | Define Multiple sclerosis and its etiopathogenesis | 2 | Lecture | CE | Knows-how | L&PPT |
| CO1,CO2, CO3 | Discuss clinical feature and diagnostic criteria of Multiple sclerosis | 3 | Practical18.2 | CAN | Shows-how | ML,SDL,LS |

**Unit 2 Degenerative Diseases, Tumours, Disorders of Nerves & Muscles**

18.2.1 Alzheimer Disease, Parkinson Disease, Cerebro Meningeal Tumours, Neurogenic and Myopathic Disorders, Neurofibromas

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Describe etiopathognesis, clinical features,diagnostic critaria of Alzheimer Disease | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Illustrate etiopathognesis, clinical features, diagnostic critaria of Parkinson Disease, | 3 | Practical18.3 | CAP | Shows-how | ML,LS,TUT |
| CO1,CO2, CO3 | Discuss etiopathognesis, clinical features,diagnostic critaria of Cerebro Meningeal Tumours | 4 | Experiential-Learning18.3 | PSY-MEC | Does | PrBL,LS,DIS |
| CO1,CO2, CO3 | Describe etiopathognesis, clinical features,diagnostic critaria of Neurogenic and Myopathic Disorders | 1 | Lecture | CE | Knows-how | L&GD |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Discuss etiopathognesis, clinical features,diagnostic critaria of Neurofibromas | 3 | Practical18.4 | CAP | Shows-how | DIS,LS |
| **Unit 3 Diseases of Eyes, Nose & Paranasal Sinuses**<br>18.3.1 Proptosis, Conjunctivitis, Cataract, Glaucoma, Retinal Vascular Disease, Rhinitis, Sinusitis<br>**References:** 11,12 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO1,CO2, CO3 | Illustrate etiopathognesis, clinical features, of Proptosis | 4 | Experiential-Learning18.4 | CAN | Does | LS,D-M |
| CO1,CO2, CO3 | Describe etiopathognesis, clinical features,diagnostic critaria of Conjunctivitis | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Describe etiopathognesis, clinical features,diagnostic critaria of Cataract | 4 | Practical18.5 | CAP | Shows-how | LS,IBL,L |
| CO1,CO2, CO3 | Discuss etiopathognesis, clinical features,diagnostic critaria of Glaucoma. | 5 | Experiential-Learning18.5 | CK | Does | LS,ML,PL |
| CO1,CO2, CO3 | Describe the etiopathogenesis and clinical features of Retinal Vascular Disease. | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Illustrate etiopathogenesis and clinical features of Rhinitis. | 4 | Practical18.6 | PSY-GUD | Shows-how | IBL,LS,L |
| CO1,CO2, CO3 | Discuss etiopathognesis, clinical features, of Sinusitis | 5 | Experiential-Learning18.6 | CAP | Does | LS,DIS,PER |

| Practical Training Activity |
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| Practical Training 18.1 Encephalitis |
| 1. Teacher will ask the students to discuss the topic and present in the following steps<br>2. Ask them to explore the etiopathognesis, clinical features and diagnostic critaria of the topic ( 90minutes)<br>3. Students will make posters or ppt for demonstration (60 minutes)<br>4. Teacher will conduct the practical viva and presentation to review and assess the task they completed (30 minutes).<br>Total Duration : 3 hours |
| Practical Training 18.2 Multiple sclerosis |
| 1. Teacher will ask the students to cover the topic under self-directed learning through the following steps;<br>2. litrature review, educational video watching (60 minutes)<br>3. making a summary (30 minutes)<br>4. discussion with teachers by the help of charts (60 minutes)<br>5. Teacher will assess the ability of students by interaction and viva (30 minutes)<br>Total Duration : 3 hours |
| Practical Training 18.3 Parkinson Disease |
| 1. Teacher will cover the topic in the tutorial in the following steps;<br>2. Distribution of different part of topic to different students.<br>3. Review of related literature (60 minutes).<br>4. Identification and understanding of etiopathognesis, clinical features ,diagnostic critaria (60 minutes).<br>5. Ask them to make presentation .in classroom. encourage them to discuss their queries and interact with teachers (60minutes).<br>Total Duration : 3 hours |

| Practical Training 18.4 Neurofibromas |
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| 1. Teacher will explain the topic.(30 minutes)<br>2. Teacher will ask the students to discuss and present the topic<br>3. Ask them to explore the etiopathogenesis,clinical manifestations and clinical diagnostic approach (60 minutes)<br>4. Instruct them to discuss their learning points with each other with the help of poster or ppt (60 minutes)<br>5.Teacher will conduct the practical viva and presentation to review and assess the task they completed (30 minutes)<br>Total Duration : 3 hours |
| Practical Training 18.5 Cataract |
| 1. The teacher will explain the etiopathognesis, clinical features and diagnostic criteria of Cataract(30minutes)<br>2. Teacher help student to generate their own questions (30 minutes)<br>3. Student will search the topic and draw conclusion based on their findings (90 minutes)<br>4. student will exchange the findings among the collegue (60 minutes)<br>5. Teacher will conduct the practical viva and presentation to review and assess the task they completed (30 minutes).<br>Total Duration: 4 hours |
| Practical Training 18.6 Rhinitis |
| 1. The teacher will explain the etiopathogenesis, clinical features of Rhinitis(30minutes)<br>2. Teacher will help the student to generate their own questions (30 minutes)<br>3. Student will search the topic and draw a conclusion based on their findings (90 minutes)<br>4. Students will exchange the findings among their colleagues (60 minutes)<br>5. Teacher will conduct the viva and interaction to review and assess the task they completed (30 minutes).<br>Total Duration: 4 hours |

| Experiential Learning Activity |
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| Experiential-Learning Learning 18.1: Cerebrovascular Disease |
| 1. Teacher will ask students to make charts and posters on the topic (90 minutes)<br>2. Students will discuss the types and etiopathogenesis of Cerebrovascular Diseases (60 minutes)<br>3. Students will make a presentation (60 minutes)<br>4. Teacher will review and assess the task they completed through presentation and interaction.(30 minutes)<br>Total Duration: 4 hours |
| Experiential-Learning Learning 18.2: Cerebrovascular Disease |
| 1. Teacher will instruct the students to present case individually in following steps;<br>2. review of literature and online educational sources and examination of any such case (90 minutes)<br>3. making summary of clinical manifestations and diagnostic criteria (60 minutes)<br>4. discussion with collaegues. (30 minutes)<br>5. Teacher will assess by Presentation and viva. ( 60 minutes)<br>Total Duration : 4 hours |
| Experiential-Learning Learning 18.3: Cerebro Meningeal Tumours |
| 1. Teacher will instruct the students to complete the task through Project based learning.in following steps;<br>2. review of the topic from offline and online sources (90 minutes)<br>3. summary of key points (30minutes)<br>4. compilation of project and discussion with peers (60 minutes)<br>5. student will make their presentation and interact in class room. (60 minutes).<br>Total Duration :4 hours |

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| Experiential-Learning Learning 18.4: Proptosis |
| 1. Teacher will explain the topic with the help of models (30 minutes)<br>2. Split students into small groups, and give them topics for discussion (etiopathognesis, clinical features, of Proptosis ).(90 minutes)<br>3. Instruct the students to review the literature , and to discuss among them for better understanding. (90 minutes).<br>4. student will make their presentation in class room and interact with teacher.(30 minutes).<br>Total Duration 4 hours |
| Experiential-Learning Learning 18.5: Glaucoma |
| 1. Teacher will instruct the students to complete the task through following steps;<br>2. review of the topic from offline and online sources (2 hours)<br>3 summary of key points (1 hour)<br>4 Presenting the characteristic features in innovative and comprehensive way (1 hour)<br>5. Teacher will assess the student`s ability by compilation of litrature and presentation (1 hour)<br>Total Duration : 5 hours |
| Experiential-Learning Learning 18.6: Sinusitis |
| **Discussion Activity:**<br>1. The Teacher will explain concept of Sinusitis,to students (60 minutes).<br>2. Split students into small groups, and give them topics for discussion (etiopathognesis, clinical features).<br>3. Instruct the students to review the literature (90 minutes),<br>4. Students discuss among them for better understanding and appropriate categorization (60 minutes).<br>4. Instruct the students to give presentation of the topic (60 minutes).<br>5. Interact with them to review and assess the task they completed (30 minutes). |

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| Total Duration: 5 hours | |
| **Modular Assessment** | |
| **Assessment** | **Hour** |
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern.<br>Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct a Poster Presentation on any topic of the module (25 Marks) as follows;<br>Relevance and clarity of the topic- 10 marks<br>Depth and accuracy of information - 10 marks<br>Use of visual aids and graphics - 5 marks<br>Conduct a case-based assessment using any investigation report/history of any case (25 Marks). Considering the following aspects;<br>Understanding of case - 5 marks<br>Accuracy of diagnosis- 10 marks<br>Case presentation skill - 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |
| **Semester No : 4** | |
| **Module 19 : Amrāz Qalb & ʻUrūq امراض قلب وعروق** | |

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe Asbab and Alamat of Amrāz Qalb & Ri'a

2. Conduct discussion on Mahiyat of Amrāz Qalb & Ri'a

3. Identify the Diagnostic features of Amrāz Qalb & Ri'a

**Unit 1 Amrāz Qalb -I امراض قلب**

19.1.1 Sū'I Mizāj Qalb, Khafaqān, Ghashī سوءمزاج قلب، خفقان، غشی

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe asbab, aqsam,alamat of Sū'iMizāj Qalb | 2 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Discuss asbab,alamat of Khafaqān | 2 | Practical19.1 | CAP | Shows-how | BS,LS,L |
| CO1,CO2, CO3,CO4 | Identify asbab, mahiyat and alamat of Ghashī | 4 | Experiential-Learning19.1 | CAN | Does | LS,DIS |

**Unit 2 Amrāz Qalb -II امراض قلب**

19.2.1 Waram Uzunayi'l Qalb, Waram Ghishā' Qalb, Zaghṭul Qalb, Imtilā' Ghilāf Qalb, Taqashshurul Qalb, Qadhful Qalb, Iḥtiwā'ur Ruṭūba 'ala'l Qalb, 'Illat Dukhāniyya, Jazbul Qalb ورم اذنی القلب، ورم غشاء قلب، ضغط القلب، امتلاء غلاف قلب، تقشر القلب، قذف القلب، احتواء الرطوبات علی القلب، علت دخانیہ، جذب القلب

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe Waram Uzunayi'l Qalb, its asbab and alamat. | 1 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Describe Waram Ghishā' Qalb and its asbab wa alamat | 2 | Practical19.2 | CAP | Shows-how | FC,DIS |
| CO1,CO2, CO3,CO4 | Identify Zagḥtul Qalb,by its asbab and alamat | 4 | Experiential-Learning19.2 | CAN | Does | C_L,L,IBL,LS |
| CO1,CO2, CO3,CO4 | Describe asbab and alamat of Imtilā' Ghilāf Qalb, | 1 | Lecture | CE | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Discuss asbab and alamat of Taqashshurul Qalb | 3 | Practical19.3 | CAP | Shows-how | LS,DIS |
| CO1,CO2, CO3,CO4 | Evaluate asbab and alamat of Qadhful Qalb | 3 | Experiential-Learning19.3 | CE | Does | IBL,ML,LS |
| CO1,CO2, CO3,CO4 | Describe asbab,alamat of Iḥtiwā'ur Ruṭūba 'ala'l Qalb. | 1 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Illustrate asbab, alamat of 'IllatDukhāniyya | 2 | Practical19.4 | CE | Shows-how | C_L,DIS,LS |
| CO1,CO2, CO3,CO4 | Identify asbab, alamat of Jazbul Qalb | 3 | Experiential-Learning19.4 | CAN | Does | LS,C_L,DIS |

**Unit 3 Amrāz Ri'a امراض رئة**

19.3.1 Zīqun Nafas, Buhr & Rabw, Su'āl, Zātur Ri'a, Sill, Nafsud Dam &Nasful Midda, Zatul Janb, Barsām ضیق النفس، بہر و ربو، سعال، ذات الرئۃ، سل، نفث الدم و نفث المدہ، ذات الجنب، برسام

| References: 1,3,4,6,8,9,10 | | | | | | |
|---|---|---|---|---|---|---|
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO1,CO2, CO3,CO4 | Describe asbab,and alamat of Zīqun Nafas, Buhr & Rabw | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Discuss mahiyat of ZīqunNafas, Buhr and Rabw | 2 | Practical19.5 | CAP | Shows-how | BS,C_L |
| CO1,CO2, CO3,CO4 | Identify asbab, aqsam, of Su‘āl, | 3 | Experiential-Learning19.5 | CE | Does | LS,ML,IBL |
| CO1,CO2, CO3,CO4 | Describe alamat and mahiyat of Su‘āl, | 1 | Lecture | CK | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Illustrate asbab & aqsam, of ZāturRi’a. | 3 | Practical19.6 | PSY-GUD | Shows-how | LS,L,DIS |
| CO1,CO2, CO3,CO4 | Discuss and analyze alamat and mahiyat of ZāturRi’a, | 3 | Experiential-Learning19.6 | CAN | Does | IBL,L,LS |
| CO1,CO2, CO3,CO4 | Describe Sill, and its alamat | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Illustrate asbab and mahiyat of Sill | 2 | Practical19.7 | CAP | Shows-how | BS,C_L |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Identify asbab and mahiyat of Nafsud Dam | 3 | Experiential-Learning19.7 | CAN | Does | IBL,L,LS |
| CO1,CO2, CO3,CO4 | Describe alamat of Nafsud Dam | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Discuss asbab,mahiyat, alamat of Nasful Midda, | 2 | Practical19.8 | CAP | Shows-how | DIS,L |
| CO1,CO2, CO3,CO4 | Identify asbab and mahiyat of Zatul Janb, | 3 | Experiential-Learning19.8 | CE | Does | LS,BS |
| CO1,CO2, CO3,CO4 | Describe alamat of Zatul Janb | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Illustrate Barsām, its mahiyat and alamat. | 2 | Practical19.9 | CAP | Shows-how | DIS,LS |

**Practical Training Activity**

Practical Training 19.1 Khafaqān

1. Teacher will divide the students in small groups and explain the topic of Khafaqān (30 minutes)
2. The student group will brainstorm about the asbab,alamat of Khafaqān and each group will record their idea on white board or flipchart.(30 minutes)
3. Each group of student share their ideas with the class .(30 minutes)
4. Teacher will assess and evaluate the students ability by conducting a practical recitation and presentation of the topic (30 minutes)

Total Duration: 2 hours

Practical Training 19.2 Waram Ghishā' Qalb

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| 1. Before class, students study the topic by watching videos or reading materials provided by the teacher.(30 minutes)<br>2. In classroom students will discuss, and debate on Waram Ghishā' Qalb.(60 minutes)<br>3. Teacher will interact and conduct viva of students to review and assess the task they completed (30 minutes).<br>Total Duration: 2 hours |
| Practical Training 19.3 Taqashshurul Qalb |
| 1.Teacher will explain the concept of Taqashshurul Qalb,to students (30 minutes).<br>2.Split students into small groups, and give them topics for discussion on asbab and alamat.(30 minutes).<br>3. Instruct the students to review the literature , and to discuss among themselves. (90 minutes).<br>4. Instruct the students to perform presentation and practical recitation of the topic to review and assess the task they completed. (30 minutes).<br>Total Duration: 3 hours |
| Practical Training 19.4 'IllatDukhāniyya |
| 1. Explain concept of 'IllatDukhāniyya,to students (30 minutes).<br>2. Split students into small groups, and give them topics for discussion asbab and alamat.(30 minutes)<br>3. Instruct the students to review the literature, and to discuss among them. (30 minutes).<br>4.Instruct the students to give presentation and interact with them to review and assess the task they completed. (30 minutes).<br>Total Duration: 2 hours |
| Practical Training 19.5 ZīqunNafas, Buhr and Rabw |
| 1.Teacher will divide the students in small groups and explain the mahiyat of ZīqunNafas, Buhr &Rabw (30 minutes)<br>2.The student group will brainstorm about the mahiyat of ZīqunNafas, Buhr &Rabw and each group will record their idea on white board or flipchart.(30 minutes)<br>3. Each group of student share their ideas with the class .(30 minutes)<br>4. Teacher will assess and evaluate the students ability by conducting a viva and presentation of the topic (30 minutes) |

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| Total Duration: 2 hours |
| Practical Training 19.6 Zātur Ri'a |
| 1.Teacher will explain the concept of ZāturRi'a,,to students (30 minutes).<br>2. Split students into small groups, and give them topics for discussion on asbab and aqsam.(60 minutes).<br>3. Instruct the students to review the literature , and to discuss among them. (60 minutes).<br>4. Teacher will conduct the viva and presentation to evaluate and assess their knowledge. (30 minutes).<br>Total Duration: 3 hours |
| Practical Training 19.7 Sill |
| 1.Teacher will divide the students in small groups and explain the asbab and mahiyat of Sill (30 minutes)<br>2. The student group will brainstorm about the asbab and mahiyat of Sill and each group will record their idea on white board or flipchart.(30 minutes)<br>3.Each group of student share their ideas with the class .(30 minutes)<br>4.Teacher will assess and evaluate the students ability by conducting a viva and presentation of the topic (30 minutes)<br>Total Duration: 2 hours |
| Practical Training 19.8 Nasful Midda, |
| 1. Teacher will explain the concept of Nasful Midda to students (30 minutes).<br>2. Split students into small groups, and give them topics for discussion (asbab,mahiyat and alamat).<br>3. Instruct the students to review the literature , and to discuss among them. (60 minutes).<br>4. Instruct the students to give presentation and viva of the topic to review and assess the task they completed. (30 minutes).<br>Total Duration: 2 hours |
| Practical Training 19.9 Barsām, |

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| 1.Explain concept of Barsām,to students (30 minutes).<br>2. Split students into small groups, and give them topics for discussion (mahiyat and alamat).<br>3. Instruct the students to review the literature , and to discuss among them. (60 minutes).<br>4. Instruct the students to give presentation and interact with them to review and assess the task they completed. (30 minutes).<br>Total Duration: 2 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 19.1: Ghashī |
| 1. Teacher will explain concept of Ghashī,to students (30 minutes).<br>2. Students will prepare the question related to asbab, mahiyat and alamat of Ghashī (90 minutes)<br>3.Student will review the litrature of the topiic, and discuss among themselves.(90 minutes)<br>4. Teacher will arrange debate and viva of students to review and assess the task they completed (30 minutes).<br>Total Duration: 4 hours |
| Experiential-Learning Learning 19.2: Zaghṭul Qalb |
| 1. The teacher will explain the asbab and alamat of Zaghṭul Qalb (30minutes)<br>2. Teacher help student to generate their own questions (30 minutes)<br>3. Student will search the topic and draw conclusion based on their findings (90 minutes)<br>4. student will exchange the findings among the collegue (60 minutes)<br>5.Teacher will arrange the presentation and viva of the topic to review and assess the task they completed. (30 minutes)<br>Total Duration: 4 hours |
| Experiential-Learning Learning 19.3: Qadhful Qalb |

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| 1.The teacher will explain the asbab and alamat of Qadhful Qalb, (30minutes)<br>2.Teacher help student to generate their own questions (30 minutes)<br>3.Student will search the topic and draw conclusion based on their findings (60 minutes)<br>4.student will exchange the findings among the collegue (30 minutes)<br>5. Teacher will arrange the class presentation and viva to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 19.4: Jazbul Qalb |
| 1.Teacher will explain concept of Jazbul Qalb,to students (30 minutes).<br>2.Students will prepare the question related to asbab, alamat of Jazbul Qalb (60 minutes)<br>3.Student will review the litrature of the topiic, and discuss among themselves.(60 minutes)<br>4. Teacher will Interact with students and conduct viva to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 19.5: Su‘āl, |
| 1.The teacher will explain the asbab, aqsam, of Su‘āl,, (30minutes)<br>2. Teacher help student to generate their own questions (30 minutes)<br>3. Student will search the topic and draw conclusion based on their findings (60 minutes)<br>4.student will exchange the findings among the collegue (30 minutes)<br>5.Teacher will arrange the class presentation and viva to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 19.6: ZāturRi’a, |
| 1. The teacher will explain the alamat and mahiyat of ZāturRi’a, (30minutes) |

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| 2.Teacher help student to generate their own questions (30 minutes)<br>3.Student will search the topic and draw conclusion based on their findings (60 minutes)<br>4. student will exchange the findings among the collegue (30 minutes)<br>5.Teacher will arrange the class presentation and viva to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 19.7: Nafsud Dam |
| 1. The teacher will explain the asbab and mahiyat of Nafsud Dam (30minutes)<br>2. Teacher help student to generate their own questions (30 minutes)<br>3.Student will search the topic and draw conclusion based on their findings (60 minutes)<br>4. student will exchange the findings among the collegue (30 minutes)<br>5. Teacher will conduct the viva and Quiz to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 19.8: Zatul Janb |
| 1. Teacher will divide the students in small groups and explain the asbab and mahiyat of Zatul Janb,(30 minutes)<br>2. The student group will brainstorm about the asbab and mahiyat of Zatul Janb, and each group will record their idea on white board or flipchart.(60 minutes)<br>3. Each group of student share their ideas with the class.(60 minutes)<br>4.Teacher will assess and evaluate the students knowledge by conducting a viva and presentation of the topic (30 minutes)<br>Total Duration: 3 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
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| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern.<br>Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct assessment by theory case study (25 Marks) considering following aspects;<br>Understanding of theoretical concept - 10 marks<br>Analysis of case study - 5 marks<br>Application of concept - 5 marks<br>Writing and presentation - 5 marks<br>Conduct Debate and assess students (25 Marks) considering following aspects;<br>Reasoning and evidence - 10 marks<br>Response ability - 10 marks<br>Expression and delivery - 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |

**Module 20 : Diseases of Heart & Blood Vessels**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe etiology, pathogenesis, pathological changes and clinical features of Diseases of Heart & Blood Vessels
2. Conduct discussion on differential diagnosis of diseases of Diseases of Heart & Blood Vessels
3. Identify the appropriate diagnostic investigations required for various diseases of Heart & Blood Vessels

**Unit 1 Diseases of Heart -I**

20.1.1 Heart Failure, Congenital Heart disease, Ischaemic Heart Disease (Angina Pectoris & Myocardial Infarction), Arrhythmias, Hypertensive Heart Disease

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Illustrate Etiopathogenesis of Heart Failure | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Illustrate types and Etiopathogenesis of Congenital Heart disease | 4 | Practical20.1 | CAP | Shows-how | SIM,DIS |
| CO1,CO2, CO3 | Identify etiopathogenesis, types and diagnostic criteria of Angina Pectoris | 5 | Experiential-Learning20.1 | CAP | Does | DIS,PBL |
| CO1,CO2, CO3 | Discuss etiopathogenesis and morphological changes of Myocardial Infarction. | 2 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3 | Discuss diagnostic criteria and complications of Myocardial Infarction | 4 | Practical20.2 | CAN | Shows-how | FC,LRI,ML |
| CO1,CO2, CO3 | Identify Arrhythmias,and its etiopathogenesis | 3 | Experiential-Learning20.2 | CAN | Does | LRI,IBL |
| CO1,CO2, CO3 | Describe left and right sided Hypertensive Heart Disease. | 2 | Lecture | CAN | Knows-how | L&PPT |

**Unit 2 Diseases of Heart-II**

20.2.1 Cor Pulmonale, Rheumatic Heart disease, Endocarditis, Valvular Heart disease, Cardiomyopathy

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Describe etiopathogenesis and morphology of Cor pulmonale | 3 | Practical20.3 | CE | Shows-how | BS,L |
| CO1,CO2, CO3 | Discuss etiopathogenesis, diagnostic criteria and pathological changes of Rheumatic Heart disease. | 5 | Experiential-Learning20.3 | CAP | Does | LS,PER,PrBL |
| CO1,CO2, CO3 | Illustrate types,etiopathogenesis, diagnostic critaria and pathological changes of Endocarditis | 2 | Lecture | CAP | Knows-how | L&GD |
| CO1,CO2, CO3 | Describe etiopathogenesis, pathological changes and complications of of mitral and aortic stenosis, insufficiency | 5 | Practical20.4 | CAN | Shows-how | SIM,D-M |
| CO1,CO2, CO3 | Identify type and etiopathogenesis Cardiomyopathy. | 5 | Experiential-Learning20.4 | PSY-MEC | Does | BS,L |

**Unit 3 Diseases of Pericardium & Blood Vessels**

20.3.1 Pericarditis, Arteriosclerosis, Aneurysms, Vasculitis, Varicose Veins

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Describe etiopathogenesis,types and morphological changes of Pericarditis | 1 | Lecture | CAP | Knows-how | L&GD |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Describe risk factors, etiopathogenesis,types and morphological changes of Arteriosclerosis | 2 | Practical20.5 | CAN | Shows-how | L&PPT ,SIM |
| CO1,CO2, CO3 | Discuss the risk factors,etiopathogenesis,morphological changes and complications of Hypertention. | 4 | Experiential-Learning20.5 | CAN | Does | LS,CBL |
| CO1,CO2, CO3 | Identify etiopathogenesis, types, and pathological changes of Aneurysms | 4 | Experiential-Learning20.6 | PSY-MEC | Does | DIS,LS |
| CO1,CO2, CO3 | Illustrate etiopathogenesis, types, and morphological features of Vasculitis, | 1 | Lecture | CE | Knows-how | L&PPT |
| CO1,CO2, CO3 | Describe etiopathogenesis, types and complication of Varicose Veins. | 2 | Practical20.6 | CAP | Shows-how | LS,IBL |

**Practical Training Activity**

Practical Training 20.1 Congenital Heart disease

1.Teacher will Create or obtain simulation models of the heart including Congenital Heart disease.(30 minutes)

2. Teacher will develop simulation scenario that illustrate different types of CHD such as atrial septal defect, ventricular septal defect, tetrology of fallots and transposition of great arteries. (60 minutes)

3.Students will observe , operate and analyse the scenario and discuss types and Etiopathogenesis of the disease.(90 minutes)

4. Teacher will assess and evaluate the students ability by conducting a debat or viva of the topic (60 minutes)

Total Duration 4 hours

Practical Training 20.2 Myocardial Infarction

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| 1.Teacher will assign students a pre-class assignment, such as watching a video on the diagnostic criteria for Myocardial Infarction, reading a chapter on the complications of Myocardial Infarction, Completing an online quiz or module on Myocardial Infarction. (60 minutes)<br>2.Teacher will divide students into small groups and provide each group with a case study of patient with Myocardial Infarction and ask them to analyse the case study and identify the diagnostic criteria and potential complication. (60 minutes)<br>3.Teacher will facitilate group discussion on diagnostic criteria and complication of Myocardial Infarction and provide students with hands on practice with ECG interpretation and cardiac enzyme anslysis using real world example or simulated cases. (90 minutes)<br>4. Assess and evaluate the students by interaction or viva on the topic. (30 minutes)<br>Total Duration: 4 hours |
| Practical Training 20.3 Cor pulmonale |
| 1.Teacher will divide the student into groups and introduce the topic of cor pulmonale & provide each group with case study including etiopathogenesis & morphology of the disease. (30 minutes)<br>2.Each student group will brainstorm idea about the etiopathogenesis & morphology of cor pulmonale & record their ideas on white board or flipchart & share their ideas with the class and buld on each other`s thougts.(90 minutes)<br>3. The teacher will assess the students by the interaction or presentation on the given topic(60 minuts)<br>Total Duration:3 hours |
| Practical Training 20.4 mitral and aortic stenosis, insufficiency |
| 1. Teacher will Create or obtain simulation models of the heart, including mitral and aortic valves.(30 minutes)<br>2. Teacher will develop simulation scenario for each valve condition including mitral stenosis, mitral insufficiency, aortic stenosis aortic insufficiency.(90 minutes)<br>3. Students will observe , operate and analyse the scenario and discuss risk factors, etiopathogenesis , pathological changes and complications.(90 minutes)<br>4. Teacher will assess and evaluate the students ability by conducting a debate or viva of the topic (90 minutes)<br>Total Duration: 5 hours |

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| Practical Training 20.5 Arteriosclerosis |
| 1. Teacher will Create or obtain simulation models of the arterial system, including healthy and diseased arteries.<br>2. Students will Prepare cards or handouts with different risk factors for arteriosclerosis,(30 minutes)<br>3. Student will Prepare diagrams or illustrations showing the etiopathogenesis, and types of arteriosclerosis, also Prepare PPT slides or images showing the morphological changes associated with arteriosclerosis,(30 minutes)<br>4. Students will go through the simulated model to see risk actors, etiopathogenesis , types and morphologal changes. ,(30 minutes)<br>5. Teacher will assess and evaluate the students ability by conducting an interaction or presentation of the topic (30 minutes)<br>Total Duration: 2 hours |
| Practical Training 20.6 Varicose Veins. |
| 1. Teacher wil divide the student into small groups<br>2. The teacher will explain the etiopathogenesis, types and complication,of Varicose vein(30minutes)<br>3. assign each students group a specific role such as group -1: etiopathogenesis of varicose vein group.2 types of varicose vein. group 3. complication of varicose veins. (30minutes)<br>4. Student will search the topic and draw conclusion based on their findings (30 minutes)<br>5. Teacher will conduct the presentation or online Quiz to review and assess the task they completed (30 minutes).<br>Total Duration: 2 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 20.1: Angina Pectoris |
| 1.Teacher will divide the students into groups and provide a case study of patient with angina pectoris.(60 minutes)<br>2.Students will analyse the case study and develop problem based learning questions such as causes of chestpain, past history of patient and diagnostic criteria to confirm the diagnosis. (90minutes) |

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| 3.Teacher will conduct a group discussion on case study and students will present their finding to the class using visual aids (90 minutes)<br>4.Teacher will assess the students by evaluating their knowledge of identifying the etiopathogenesis, types and diagnostic criteria of Angina Pectoris by class presentation or theory open book test. (60 minutes)<br>Total Duration 5 hours |
| Experiential-Learning Learning 20.2: Arrhythmias |
| 1.Teacher will introduce the topic of Arrhythmia & its etiopathogenesis & provide case studies of patient of different types of arrhythmias including ECG strips & clinical presentations.(60 minutes)<br>2.Student will anlyse ECG strips and identify the arrhythmia, using their knowledge of arrhythmia and etiopathogenesis.(60 minutes)<br>3.Teacher will evaluate students ability to analyse case studies and identify arrhythmia and its etiopathogenesis by interaction and quiz.(60 minutes)<br>Total Duration 3 hours |
| Experiential-Learning Learning 20.3: Rheumatic Heart disease |
| 1. Teacher will assign a project on the topic related to Rheumatic heart disese such as etiopathogenesis, diagnostic criteria and pathological changes. (30 minutes)<br>2. Teacher will divide students into 3-4 groups and assign each group a specific aspet of Rheumatic heart disease. (30 minutes)<br>3. Each student group will conduct research and investigation on their assign topic using variety of resources such as text book, articles,by offline and online sources (90 minutes)<br>4. Student group will analyse & synthesize their findings & develop their project using variety of format such as chart, model or any kind of innovative compilation in a comprehensive way highlighting the etiopathogenesis, diagnostic criteria and pathological changes of Rheumatic Heart disease (60 minutes)<br>5.each group will present their project to the class using variety of format such as oral or poster presentation. (60 minutes)<br>6. teacher will assess & evaluate the students by interaction or viva.(30 minutes)<br>Total Duration :5 hours |

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| Experiential-Learning Learning 20.4: Cardiomyopathy |
| 1.Teacher will divide the students in small groups and explain the type and etiopathogenesis of cardiomyopathy.(90 minutes)<br>2. The student group will brainstorm about the type and etiopathogenesis of cardiomyopathy and each group will record their idea on white board or flipchart.(90 minutes)<br>3. Each group of student share their ideas with the class and build on each other ideas.(60 minutes)<br>4. Teacher will assess the student by class presentation and Quiz( 60 minutes)<br>Total Duration: 5 hours |
| Experiential-Learning Learning 20.5: Hypertention |
| 1 Teacher will Select 3-4 case studies of hypertension, each with different risk factors, etiopathogenesis, morphological changes, and complications.(30 minutes)<br>2 Teacher will divide the student into groups, and assign role to each group such as group.1 risk factor identification group.2 analysis of etiopathogenesis group.3 morphological changes identifications. group.4 complication prediction.(60 minutes)<br>3. Students will discuss the case studies in small groups focusing on their assigned role and present their findings using visual aid.(90 minutes)<br>4. Teacher will interact and facitilate class presentation and encourage students to ask the questions and share their thoughts.(60 minutes)<br>Total Duration.4 hours |
| Experiential-Learning Learning 20.6: Aneurysms |
| 1. Teacher will divide students in small group, and assign each group a specific role such as group.1 etiopathogenesis of aneurysm, group.2 types of aneurysm. group.3 pathological changes of aneurysm. (60 minutes)<br>2. Teacher will provide each group with relevent resources such as artcle or book chapters on aneurysm, diagram or illustration of vascular system, case studies or patient scenarios.(60 minutes)<br>3.Teacher will ask students to discuss and answer questions related to their assign topic, encourage them to share their thoughts from other group.(60 minutes)<br>4. student will interact and explain what they have learn . (30 minutes) |

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| 5. Teacher will interact with students and arrange debate to review and assess the task they completed (30 minutes).<br>Total Duration: 4 hours | |
| **Modular Assessment** | |
| **Assessment** | **Hour** |
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern.<br>Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct a scenario-based assessment (25 Marks) considering the following aspects;<br>Understanding of the scenario context and requirement- 10 marks<br>Development of a well-supported solution- 10 marks<br>Depth and thoroughness of analysis and evaluation -5 marks<br>Conduct a Theory Open Book assessment on any topic of the module (25 Marks), considering the following aspects;<br>Understanding the concept- 5 marks<br>Application of knowledge - 10 marks<br>Accuracy of answer- 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |
| **Semester No : 5** | |
| **Module 21 : Diseases of Lungs** | |

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe etiology, pathogenesis, pathological changes and clinical features of Diseases of Lungs

2. Conduct discussion on differential diagnosis of diseases of Lungs

3. Identify the appropriate diagnostic investigations required for various of Diseases of Lungs

**Unit 1 Obstructive Lung Diseases**

21.1.1 Chronic Bronchitis, Emphysema, Bronchial asthma, Bronchiectasis

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Illustrate chronic Bronchitis its etiopathogenesis and clinical course. | 1 | Lecture | CE | Knows-how | L&GD |
| CO1,CO2, CO3 | Identify diagnostic criteria and morphology of chronic Bronchitis | 4 | Experiential-Learning21.1 | CAP | Does | DIS,X-Ray |
| CO1,CO2, CO3 | Describe Emphysema its type and etiopathogenesis | 1 | Lecture | CAP | Knows-how | L&PPT |
| CO1,CO2, CO3 | Describe diagnostic criteria and pathological changes of Emphysema | 4 | Practical21.1 | CAN | Shows-how | IBL,X-Ray,L |
| CO1,CO2, CO3 | Discuss Bronchial Asthma: its type, clinical features, and etiopathogenesis. | 1 | Lecture | CAN | Knows-how | L&PPT |

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| CO1,CO2, CO3 | Discuss the diagnostic criteria and pathological changes of Bronchial asthma, | 4 | Experiential-Learning21.2 | CE | Does | D,D-M |
| CO1,CO2, CO3 | Describe Bronchiectasis and explain its etiopathogenesis and clinical features. | 1 | Lecture | CE | Knows-how | L&PPT |
| CO1,CO2, CO3 | Discuss diagnostic criteria and pathological changes of Bronchiectasis | 4 | Practical21.2 | CAP | Shows-how | X-Ray,SIM |
| **Unit 2 Restrictive Vascular & Acute Lung Diseases**<br>21.2.1 Interstitial Lung Disease, Acute lung injury, Pulmonary Hypertension<br>**References:** 11,12 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO1,CO2, CO3 | Illustrate Interstitial Lung Disease, its etiopathogenesis and clinical features. | 1 | Lecture | CK | Knows-how | L&GD |
| CO1,CO2, CO3 | Illustrate diagnostic criteria and morphology of Interstitial Lung Disease. | 4 | Practical21.3 | CAN | Shows-how | IBL,X-Ray |
| CO1,CO2, CO3 | Describe Acute lung injury, its etiopathogenesis and clinical features | 1 | Lecture | CAP | Knows-how | L&PPT |
| CO1,CO2, CO3 | Identify diagnostic criteria, morphology and complication of Acute lung injury | 5 | Experiential-Learning21.3 | CE | Does | X-Ray,DIS |
| CO1,CO2, CO3 | Define and describe Pulmonary Hypertension, its etiopathogenesis, and clinical course. | 1 | Lecture | CAN | Knows-how | L&PPT |

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| CO1,CO2, CO3 | Discuss diagnostic criteria, morphology and complication of Pulmonary Hypertension | 4 | Experiential-Learning21.4 | CAP | Does | L,X-Ray,BS |
| **Unit 3 Infections & Tumours of Lung & diseases of Pleura**<br>21.3.1 Pneumonia, Lung abscess, Lung carcinoma, Pleural effusion, Pneumothorax<br>**References:** 11,12 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO1,CO2, CO3 | Describe Pneumonia its type and etiopathogenesis. | 1 | Lecture | CAP | Knows-how | L&PPT |
| CO1,CO2, CO3 | Discuss diagnostic criteria, clinical course and morphology of Pneumonia | 4 | Practical21.4 | CE | Shows-how | IBL,X-Ray |
| CO1,CO2, CO3 | Illustrate Lung abscess, its etiopathogenesis, morphology and clinical course. | 1 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3 | Identify diagnostic criteria and morphology of Lung abscess | 3 | Experiential-Learning21.5 | CAP | Does | DIS,X-Ray |
| CO1,CO2, CO3 | Describe etiopathogenesis, classification, and staging of Lung carcinoma. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Discuss morphology, clinical course and complications of Lung carcinoma. | 3 | Experiential-Learning21.6 | CE | Does | SIM,BS,X-Ray |
| CO1,CO2, CO3 | Analyze etiopathogenesis, morphology, and clinical course of pleural effusion. | 4 | Practical21.5 | CAN | Shows-how | X-Ray,DIS |

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| CO1,CO2, CO3 | Discuss Pneumothorax, its etiopathogenesis and clinical course. | 3 | Experiential-Learning21.7 | CE | Does | X-Ray,DIS,LS |

**Practical Training Activity**

Practical Training 21.1 Emphysema

1. Teacher will introduce the topic of Emphysema and provide background information and case study of the disease. (30minutes)
2. Student have to generate Inquiry based questions related to the case study(60 minutes)
3. Teacher will provide the students with images of Emphysema such as chest x-ray or CT scan and ask them to identify the diagnostic criteria and pathological changes..(60 minutes)
5. Teacher will facilitate a group discussion on the case study and inquiry based learning questions, encouraging studets to share their findings. (60 minutes)
6. Teacher will conduct the practical viva or debabte to evaluate and assess their knowledge and their ability to analyse the radiological images. (30 minutes).

Total Duration: 4 hours

Practical Training 21.2 Bronchiectasis

1. Teacher will explain the topic and Create or obtain simulation models of the Bronchiectasis. (60 minutes)
2.. Teacher will develop simulation scenario using mannikins that illustrate the Bronchiectasis and ask the students to identify diagnostic criteria and pathological changes (60 minutes)
3. Teacher will provide x-ray or CT scan of the disease to the students. and tell them to dicsuss the diagnostic criteria and pathological changes of bronchiectasis . (60 minutes)
4. Teacher will assess and evaluate the students ability by conducting a presentation or viva of the topic (60 minutes)

Total Duration :4 hours

Practical Training 21.3 Interstitial Lung Disease

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| 1. Teacher will introduce the topic of Interstitial Lung Disease and provide background information and case study of the disease. (30minutes)<br>2. Student have to generate Inquiry based questions related to the case study(60 minutes)<br>3. Teacher will provide the students with images of Interstitial Lung Disease such as chest x-ray or CT scan and ask them to identify the diagnostic criteria and morphology of Interstitial Lung Disease.(30 minutes)<br>4. Teacher will facilitate a group discussion on the case study and inquiry bsed learning questions, encouraging studets to share their findings. (60 minutes)<br>5. Teacher will conduct the practical viva or presentation to evaluate and assess their knowledge and their ability to analyse the radiological images. (60 minutes).<br>Total Duration: 4 hours |
| Practical Training 21.4 Pneumonia |
| 1. Teacher will introduce the topic of Pneumonia and provide background information and case study of the disease. (30minutes)<br>2. Student have to generate Inquiry based questions related to the case study(30 minutes)<br>3. Teacher will provide the students with images of Pneumonia such as chest x-ray or CT scan and ask them to identify the characteristic morphological feature of pneumonia.(60 minutes)<br>4. Teacher will facilitate a group discussion on the case study and inquiry bsed learning questions, encouraging studets to share their findings. (60 minutes)<br>5. Teacher will conduct the practical viva or debate to evaluate and assess their knowledge and their ability to analyse the radiological images. (60 minutes).<br>Total Duration: 4 hours |
| Practical Training 21.5 Pleural Effusion |
| 1. Teacher will explain concept of Pleural effusion,to students and preparea case study of a patient of the disease. (30 minutes).<br>2. Teacher will provide he discussion question related to case study such as etiopathogenesis, morphology and clinical course of the pleural effusion and provide student chest x-ray or CT scan of the disease. (90 minutes)<br>3. Students will discuss the case study using discussion questions as a guide and identify clinical course, the location and extent of pleural effusion and describe morphological changes in pleura by analysing the scan. (90 minutes).<br>4. Teacher will conduct the presntation of students or by making of posters to review and assess the task they completed (30 minutes). |

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| Total Duration: 4 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 21.1: chronic Bronchitis |
| 1. Teacher will explain concept of chronic Bronchitis,to students and preparea case study of a patient of the disease. (30 minutes).<br>2. Students will prepare the discussion question related to case study such as diagnostic criteria and morphology of the chronic Bronchitis and provide student chest x-ray or CT scan of the disease. (90 minutes)<br>3. Students will discuss the case study using discussion questions as a guide to identify diagnostic criteria and describe morphological changes by analysing the scan. (90 minutes).<br>4. Teacher will arrange practical viva or presentation to review and assess the task they completed (30 minutes).<br>Total Duration: 4 hours |
| Experiential-Learning Learning 21.2: Bronchial asthma, |
| 1. Teacher will introduce the topic and Provide a demonstration model of the respiratory system, and diagnostic equipments such as spirometer or peak flow meter. (30 minutes)<br>2. Teacher will provide the case study and ask students to analyse it. (90 minutes)<br>3. Students will observe the models and diagnostic equipments and analyse the case study to identify the diagnostic criteria and pathological changes of bronchial asthma.(90 minutes)<br>4. Teacher will assess the ability and knowledge of students by arranging a presentation or viva..(30 minutes)<br>Total Duration: 4 hours |
| Experiential-Learning Learning 21.3: Acute lung injury |

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| 1. Teacher will explain concept of acute Lung injury,to students and prepare case study of the disease and provide student chest x-ray or CT scan of the disease.. (60 minutes).<br>2. Students will prepare the discussion question related to diagnostic criteria, morphology and complication of the acute Lung injury. (90 minutes)<br>3.Students will discuss the case study using discussion questions as a guide to identify diagnostic criteria and describe morphological changes in lungs by analysing the scan. (90 minutes).<br>4. Teacher will Interact with students and conduct viva to review and assess the task they completed (60 minutes).<br>Total Duration: 5 hours |
| Experiential-Learning Learning 21.4: Pulmonary Hypertension |
| 1.Teacher will explain concept of Pulmonary hypertention to students and prepare a case study, and provide chest x-ray or CT scan of the disease.(30 minutes).<br>2. Students will develop brainstorming question related to case study such as diagnostic criteria, morphology, and complications, . (60 minutes)<br>3. Students will discuss the case study using brainstorming questions as a guide and identify diagnostic criteria and complications, describe morphological changes by analysing the scan. (60 minutes).<br>4. Students will indulge in simulation based learning to mimic real world scenario, such as patient presenting with symptoms of Pulmonary hypertention(60 minutes)<br>5. Teacher will conduct the debate or presentation of students to review and assess the task they have completed (30 minutes).<br>Total Duration: 4 hours |
| Experiential-Learning Learning 21.5: Lung abscess |
| 1. Teacher will explain concept of Lung Abscess,to students and preparea case study of a patient of the disease. (30 minutes).<br>2.Teacher will provide the discussion question related to case study such as diagnostic criteria and morphology of the Lung Abscess and provide student chest x-ray or CT scan of the disease. (60 minutes)<br>3.Students will discuss the case study using discussion questions as a guide to identify diagnostic criteria and describe morphological changes in lungs by analysing the scan. (60 minutes). |

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| 4. Teacher will Interact with students or conduct viva to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 21.6: Lung carcinoma |
| 1. Teacher will explain concept of Lung Carcinoma to students and prepare a case study of the disease and provide the brainstorming question such as morphology, clinical course and complications, and provide student chest x-ray or CT scan of the disease. (30 minutes).<br>2.Students will discuss the case study using brainstorming questions as a guide and identify clinical course and complications, describe morphological changes in lungs by analysing the scan. (90 minutes).<br>3.Students will use simulation based learning to mimic real world scenario, such as patient presenting with symptoms of lung carcinoma, (30 minutes).<br>4. Teacher will assess the students by presentation (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 21.7: Pneumothorax |
| 1.Teacher will explain concept of Pneumothorax,to students and prepare case study and provide chest x-ray or CT scan of the disease. (30 minutes).<br>2.Students will discuss the case study using discussion questions as a guide to identify etiopathogenesis and clinical course. of Pneumothorax . (60 minutes).<br>3.Studets will analyse the x-ray or CT scan (60 minutes)<br>4. Teacher will Interact with students and organize a quiz to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
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| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern.<br>Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct a Class Presentation (25 Marks). Maximum 15 marks for the content of presentation and maximum 10 marks for the way of presentation to be given.<br>Conduct OSCE assessments of students in the following areas (25 Marks).<br>History taking- 5 Marks<br>Clinical Examination - 5 Marks<br>Diagnosis - 5 Marks<br>Differential Diagnosis - 5 Marks<br>Addressing clinical questions related to case - 5 Marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |
| **Module 22 : Amrāz A'za' Ẓāhira امراض اعضاء ظاہرہ** | |
| Module Learning Objectives<br>(At the end of the module, the students should be able to)<br>1. Describe Asbab and Alamat of Amrāz A'za' Ẓāhira<br>2. Conduct discussion on Mahiyat of Amrāz A'za' Ẓāhira<br>3. Identify the Diagnostic features of Amrāz A'za' Ẓāhira | |
| **Unit 1 Amrāz Jild & Sha'r امراض جلد و شعر** | |

22.1.1 Baraṣ, Bahaq, Kalaf, Namash & Barash, Khīlān, Ḥazāz, Taqashshur Jild, Dā'us Sa'lab & Dā'ul Ḥayya, Intisār Sha'r, Shayb برص،بہق، کلف، نمش وبرش، خیلان، حزاز، تقشر جلد، داءالثعلب وداءالحیہ، انتشارشعر، شیب

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Define Baraṣ, and explain its asbab, mahiyat, tariqa e tashkhees and alamat | 1 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Illustrate Bahaq, and its types, asbab, mahiyat, tariqa e tashkhees and alamat | 1 | Practical22.1 | CS | Shows-how | DIS,LS |
| CO1,CO2, CO3,CO4 | Identify asbab, mahiyat and alamat of Kalaf | 3 | Experiential-Learning22.1 | CE | Does | C_L,LS,SDL,ML |
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of Namash | 1 | Lecture | CAP | Knows-how | L&GD |
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of Barash | 2 | Practical22.2 | CAP | Shows-how | C_L,DIS |
| CO1,CO2, CO3,CO4 | Discuss asbab, mahiyat and alamat of Khīlān | 3 | Experiential-Learning22.2 | CE | Does | C_L,DIS,LS |
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of Ḥazāz. | 1 | Lecture | CE | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of TaqashshurJild | 2 | Practical22.3 | CAP | Shows-how | C_L,BS |

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| CO1,CO2, CO3,CO4 | Identify asbab, mahiyat and alamat of Dā'usSa'lab & Dā'ulḤayya | 3 | Experiential-Learning22.3 | CE | Does | LS,PAL |
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of Intisār Sha'r | 1 | Lecture | CAP | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Illustrate asbab, mahiyat and alamat of Shayb | 2 | Practical22.4 | PSY-GUD | Shows-how | LS,DIS |

**Unit 2 Amrāz Jild & Atraf امراض جلد واطراف**

22.2.1 Namūsat, Qummal, Qūbā, Kasrat 'Araq, Sharā, Namla, Nār Fārsī, Jarab, Ḥikka, Juzām، Dā'ulFīl, Dawālī نمو ست، قمل، قوبا، کثرت عرق، شری، نملہ، نارفارسی، جرب، حکہ، جذام، داءالفیل دوالی

**References:** 1,3,4,6,7,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Discuss asbab, mahiyat and alamat of Namūsat | 2 | Experiential-Learning22.4 | CE | Does | IBL |
| CO1,CO2, CO3,CO4 | Illustrate asbab, mahiyat and alamat of Qummal | 1 | Practical22.5 | CE | Shows-how | DIS,LS |
| CO1,CO2, CO3,CO4 | Identify asbab, mahiyat and alamat of Qūbā | 3 | Experiential-Learning22.5 | CAN | Does | IBL,C_L |
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat of Kasrat 'Araq. | 1 | Lecture | CC | Knows-how | L&PPT |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of Sharā | 2 | Practical22.6 | CE | Shows-how | DIS,LS |
| CO1,CO2, CO3,CO4 | Discuss asbab,, aqsam mahiyat,tariqa tashkhees of Namla | 3 | Experiential-Learning22.6 | CE | Does | LS,SDL,ML |
| CO1,CO2, CO3,CO4 | Describe the asbab and mahiyat of NārFārsī, | 1 | Lecture | CAP | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Discribe asbab, aqsam, and mahiyat of Jarab | 2 | Practical22.7 | CE | Shows-how | DIS,LS |
| CO1,CO2, CO3,CO4 | Identify asbab, mahiyat and alamat of Ḥikka | 3 | Experiential-Learning22.7 | CAN | Does | LS,PAL |
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat, aqsam and alamat of Juzām | 1 | Lecture | CAP | Knows-how | L&GD |
| CO1,CO2, CO3,CO4 | Illustrate asbab, mahiyat and alamat of Dā'ulFīl | 2 | Practical22.8 | CAN | Shows-how | LS,L,DIS |
| CO1,CO2, CO3,CO4 | Discuss asbab, mahiyat, aqsam and alamat of Dawālī | 2 | Experiential-Learning22.8 | CS | Does | DIS,LS,C_L,ML |

**Unit 3 Amrāz Mafasil امراض مفاصل**

22.3.1 Ḥadaba & Riyāḥul Afrisa, Waja'uz Ẓahr, Waja'ul Khāṣira, Waja'ul Mafāṣil, Waja'ul Warik, Waja'ul 'Aqib, Niqris, 'Irqun Nasā وجع ،حدبہ وریاح الافرسہ، وجع الظہر، وجع الخاصرہ، وجع المفاصل، وجع الورک، وجع العقب، نقرس، عرق النسا

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat, aqsam and alamat of Ḥadaba & RiyāḥulAfrisa | 1 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Describe asbab, mahiyat and alamat of Waja'uzẒahr | 2 | Practical22.9 | CE | Shows-how | C_L,BS |
| CO1,CO2, CO3,CO4 | Identify asbab and alamat of Waja'ulKhāṣira | 2 | Experiential-Learning22.9 | CAN | Does | LS,ML,IBL |
| CO1,CO2, CO3,CO4 | Describe asbab, aqsam, mahiyat, alamat of Waja'ulMafāṣil | 1 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Illustrate asbab, aqsam and alamat of Waja'ul Warik. | 2 | Practical22.10 | CS | Shows-how | LS,DIS |
| CO1,CO2, CO3,CO4 | Discuss asbab and alamat of Waja'ul 'Aqib | 2 | Experiential-Learning22.10 | CAN | Does | DIS,ML,LS |
| CO1,CO2, CO3,CO4 | Describe Asbab, aqsam, mahiyat and alamat of Niqris. | 1 | Lecture | CC | Knows-how | L&GD |
| CO1,CO2, CO3,CO4 | Describe asbab, aqsam, mahiyat, alamat of Irqun Nasā | 2 | Practical22.11 | CE | Shows-how | C_L,BS |
| **Practical Training Activity** | | | | | | |
| Practical Training 22.1 Bahaq | | | | | | |

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| 1. Teacher will explain the of concept of Bahaq, and split the students in small group and allot the asbab, mahiyat, tariqa e tashkhees and alamat. for discussion.(15 minutes).<br>2. Students will review the literature and discussamong themselves (30 minutes).<br>3. Teacher will interact or conduct viva with students to assess the knowledge (15 minutes).<br>Total Duration: 1 hour |
| Practical Training 22.2 Barash |
| 1. Teacher will divide the students in small groups and explain the topic of Barash (30 minutes)<br>2. The student group will brainstorm about the asbab, mahiyat and alamat of Barash, and each group will record their idea on white board or flipchart.(30 minutes)<br>3. Each group of student share their ideas with the class .(30 minutes)<br>4. Teacher will assess and evaluate the students knowledge by viva or by making charts of the topic (30 minutes)<br>Total Duration: 2 hours |
| Practical Training 22.3 TaqashshurJild |
| 1. Teacher will divide the students in small groups and explain the asbab, mahiyat and alamat(30 minutes)<br>2. The student group will brainstorm about the asbab, mahiyat and alamat of TaqashshurJild, and each group will record their idea on white board or flipchart. (30 minutes)<br>3. Each group of student share their ideas with the class .(30 minutes)<br>4. Teacher will assess and evaluate the students ability by conducting a viva or presenatation of the topic (30 minutes)<br>Total Duration: 2 hours |
| Practical Training 22.4 Shayb |
| 1. Teacher will Split students into small groups, and explain the of concept of Shayb. (30 minutes).<br>2. Instruct the students to review the literature , and to discuss among themselves. (60 minutes). |

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| 3. Teacher will assess and evaluate the students ability by conducting the practical viva or debate of the topic (30 minutes)<br>Total Duration: 2 hours |
| Practical Training 22.5 Qummal |
| 1. Teacher will explain the of concept of Qummal, and split the students in small group and allot the topics of asbab, mahiyat and alamat for discussion.(30 minutes).<br>2.Students will review the literature and discuss, and teacher will interact with students or conduct viva, to assess the knowledge (30 minutes).<br>Total Duration: 1 hour |
| Practical Training 22.6 Sharā |
| 1. Teacher will explain the of concept of Sharā to students. (30 minutes).<br>2. Split students into small groups, and give them topics for discussion on asbab, mahiyat and alamat.(30 minutes).<br>3. Instruct the students to review the literature and to discuss among them. (30 minutes).<br>4. Teacher will assess and evaluate the students ability by conducting the practical viva or class pesentation of the topic (30 minutes)<br>Total Duration: 2 hours |
| Practical Training 22.7 Jarab |
| 1. Teacher will explain the of concept of Jarab to students. (30 minutes).<br>2. Split students into small groups, and give them topics for discussion on asbab, aqsam, and mahiyat.(30 minutes).<br>3. Instruct the students to review the literature , and to discuss among them. (30 minutes).<br>4. Teacher will assess and evaluate the students ability by conducting the practical viva or debate of the topic (30 minutes)<br>Total Duration: 2 hours |
| Practical Training 22.8 Dā'ulFīl |

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| 1. Teacher will explain the concept of Dā'ulFīl,to students (30 minutes).<br>2. Split students into small groups, and give them topics for discussion on asbab, mahiyat and alamat (30 minutes)<br>3. Instruct the students to review the literature , and to discuss among them. (30 minutes).<br>4. Instruct the students to give presentation of the topic or conduct viva to review and assess the task they completed. (30 minutes).<br>Total Duration: 2 hours |
| Practical Training 22.9 Waja'uzẒahr |
| 1. Teacher will divide the students in small groups and explain the topic (30 minutes)<br>2. The student group will brainstorm about the asbab, mahiyat and alamat of Waja'uzẒahr, and each group will record their idea on white board or flipchart.(30 minutes)<br>3. Each group of student share their ideas with the class .(30 minutes)<br>4. Teacher will assess and evaluate the students ability by conducting a debate or practical viva of the topic.(30 minutes)<br>Total Duration: 2 hours |
| Practical Training 22.10 Waja'ul Warik |
| 1.Teacher will instruct the students to review the literature on Waja'ul Warik, (30 minutes).<br>2.Students will review,and discuss among themselves, summarize it, and make a PPT on the topic .(60 minutes).<br>3.Teacher will assess the students by interaction or class presentation. (30 minutes).<br>Total Duration : 2 hours |
| Practical Training 22.11 Irqun Nasā |
| 1. Teacher will divide the students in small groups and explain the topic of Irqun Nasā(30 minutes)<br>2. The student group will brainstorm about the asbab, aqsam, mahiyat, alamat of Irqun Nasā and each group will record their idea on white board or flipchart.(30 minutes) |

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| 3. Each group of student share their ideas with the class .(30 minutes)<br>4. Teacher will assess and evaluate the students knowledge by conducting viva orTheory open book test of the topic (30 minutes)<br>Total Duration: 2 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 22.1: Kalaf |
| 1. Teacher will ask the students to cover the topic under self-directed learning through the following steps;<br>2. literature review, educational video watching (60 minutes)<br>3. Making a summary (30 minutes)<br>4. Discussion with colligues. (60 minutes)<br>5. Teacher will conduct a presentation or debate to review and assess the task they completed (30 minutes).<br>Total Duration : 3 hours |
| Experiential-Learning Learning 22.2: Khīlān |
| 1. Teacher will explain concept of Khīlān, to students (30 minutes).<br>2. Students will prepare the question related to asbab, mahiyat and alamat of Khīlān (60 minutes)<br>3. Student will review the litrature of the topiic, and discuss among themselves.(60 minutes)<br>4. Teacher will Interact with students or conduct debate to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 22.3: Dā'usSa'lab & Dā'ulḤayya |
| Teacher will instruct the students to complete the task through Project based learning.in following steps;<br>1. Students will review the topic from offline and online sources and make summary of key points (60 minutes) |

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| 2. Students will present the asbab, mahiyat and alamat of Dā'usSa'lab & Dā'ulḤayya, in innovative and comprehensive way (60 minutes)<br>3. Students will discuss with peers (30 minutes)<br>4. Teacher will assess and evaluate the students knowledge by conducting a viva or presentation of the topic (30 minutes)<br>Total Duration : 3 hours |
| Experiential-Learning Learning 22.4: Namūsat |
| 1. The teacher will explain the asbab, mahiyat and alamat of Namūsat, (30minutes)<br>2. Teacher will instruct the student to generate their own questions (30 minutes)<br>3. Student will search the topic, discuss with collegue, and draw conclusion based on their findings. (30 minutes)<br>4. Teacher will arrange the class presentation or viva to review and assess the task they completed (30 minutes).<br>Total Duration: 2 hours |
| Experiential-Learning Learning 22.5: Qūbā |
| 1. The teacher will explain the asbab, mahiyat and alamat of Qūbā,, (30minutes)<br>2. Teacher will instruct the students to generate their own questions (30 minutes)<br>3. Student will search the topic and draw conclusion based on their findings (60 minutes)<br>4. student will exchange the findings among the collegue (30 minutes)<br>5. Teacher will conduct the viva or debate or by making of posters to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 22.6: Namla |
| 1. Teacher will ask the students to cover the topic under self-directed learning through the following steps;<br>2. literature review, educational video watching (60 minutes)<br>3. Making a summary (30 minutes) |

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| 4. Discussion with collegue.(60 minutes)<br>5. Teacher will conduct the practical viva or presentation to review and assess the task they completed (30 minutes).<br>Total Duration : 3 hours |
| Experiential-Learning Learning 22.7: Ḥikka |
| Teacher will instruct the students to complete the task through PrBL.in following steps;<br>1. Students will review the topic from offline and online sources and make summary of key points (60 minutes)<br>2. Students will present the asbab, mahiyat and alamat of Ḥikka, in innovative and comprehensive way (60 minutes)<br>3. Student will discuss with peers.(30 minutes)<br>4. Teacher will assess and evaluate the students knowledge by conducting a practical viva or presentation of the topic (30 minutes)<br>Total Duration :3 hours |
| Experiential-Learning Learning 22.8: Dawālī |
| Teacher will instruct the students to complete the task through following steps;<br>1. Review of the topic from offline and online sources and make summary of key points (30 minutes)<br>2.student will discuuss the topic with peers (30 minutes)<br>3. Students will present the characteristic features of the topic in innovative and comprehensive way (30 minutes)<br>4. Teacher will Interact with students or take viva to review and assess the task they completed (30 minutes).<br>Total Duration : 2 hours |
| Experiential-Learning Learning 22.9: Waja'ulKhāṣira |
| 1.The teacher will explain the asbab and alamat of Waja'ulKhāṣira, (30minutes)<br>2. Student will search the topic, draw conclusion and discuss to generate their own questions. (60 minutes)<br>3.Teacher will arrange the class presentation or theory open book test to review and assess the task they completed (30 minutes). |

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| Total Duration: 2 hours |
| Experiential-Learning Learning 22.10: Waja‘ul ‘Aqib |
| Teacher will instruct the students to complete the task .in following steps;<br>1. Review of the topic from offline and online sources and make summary of key points (60 minutes)<br>2. Students will discuss the topic among themselves.(30 minutes)<br>3. Teacher will assess the ability of students by conducting viva or debate. (30 minutes)<br>Total Duration : 2 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
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| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct a Quiz Assessment on any topic of the module (25 Marks). considering the following aspects.<br>accuracy and completeness of answer - 10 marks<br>ability to recall relevant information and facts - 10 marks<br>application of knowledge to solve problems -5 marks<br>Conduct a Short Answer Questions assessment (25 Marks) considering the following aspects;<br>Ability to provide relevant illustrations- 10 marks<br>Recognition of different concepts and ideas -10 marks<br>Clear and logical structure of answer -5 marks | 4 |

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| Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

**Semester No : 6**

**Module 23 : Diseases of Skin, Bones & Joints**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe etiology, pathogenesis, pathological changes and clinical features diseases of of Skin, Bones & Joints
2. Conduct discussion on differential diagnosis of Diseases of Skin, Bones & Joints
3. Identify the appropriate diagnostic investigations required for various diseases of Skin, Bones & Joints
4. Identify the diagnostic features of Amrāz A'za' Ẓāhira in Unani and contemperary medicine.

**Unit 1 Diseases of Skin**

23.1.1 Melanocytic Nevus, Melanoma, Vitiligo, Premalignant & Malignant epidermal Tumours, Urticaria, Eczematous Dermatitis, Psoriasis, Lichen planus, Seborrheic Dermatitis, Pemphigus, Scabies, Verrucae (Warts), Impetigo, Dermatophytosis

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4, CO6 | Analyze etiopathogenesis, diagnostic criteria, and clinical features of Melanocytic Nevus. | 2 | Experiential-Learning23.1 | CAN | Does | RLE,C_L,DIS |

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| CO1,CO2, CO3,CO4, CO6 | Demonstrate etiopathogenesis, diagnostic criteria,and clinical features of Melanoma | 2 | Practical23.1 | PSY-GUD | Shows-how | C_L,BS |
| CO1,CO2, CO3,CO4, CO6 | Describe Vitiligo its type and etiopathogenesis | 1 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6 | Discuss diagnostic criteria,and clinical features of Vitiligo | 2 | Experiential-Learning23.2 | CS | Does | DIS,ML,LS |
| CO1,CO2, CO3,CO4, CO6 | Describe etiopathogenesis, diagnostic criteria,and clinical features of Premalignant & Malignant epidermal Tumours | 1 | Lecture | CE | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6 | Illustrate etiopathogenesis, diagnostic criteria,and clinical features of Urticaria | 3 | Practical23.2 | CAN | Shows-how | FC,ML,DIS,LS |
| CO1,CO2, CO3,CO4, CO6 | Discuss etiopathogenesis, diagnostic criteria,and clinical features of Eczematous Dermatitis | 2 | Experiential-Learning23.3 | CE | Does | ML,DIS,PL,LS |
| CO1,CO2, CO3,CO4, CO6 | Illustrate etiopathogenesis, diagnostic criteria,and clinical features of Psoriasis | 1 | Lecture | CAP | Knows-how | L&PPT |

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| CO1,CO2, CO3,CO4, CO6 | Demonstrate etiopathogenesis, diagnostic criteria,and clinical features of Lichen planus | 2 | Practical23.3 | PSY-GUD | Shows-how | LS,DIS |
| CO1,CO2, CO3,CO4, CO6 | Identify etiopathogenesis, diagnostic criteria,and clinical features of Seborrheic Dermatitis | 3 | Experiential-Learning23.4 | CE | Does | C_L,RLE |
| CO1,CO2, CO3,CO4, CO6 | Describe etiopathogenesis, diagnostic criteria,and clinical features of Pemphigus. | 1 | Lecture | CK | Knows-how | L&GD |
| CO1,CO2, CO3,CO4, CO6 | Describe etiopathogenesis, diagnostic criteria,and clinical features of Scabies | 3 | Practical23.4 | CAN | Shows-how | C_L,SIM |
| CO1,CO2, CO3,CO4, CO6 | Identify etiopathogenesis, diagnostic criteria,and clinical features of Verrucae (Warts) | 3 | Experiential-Learning23.5 | CS | Does | DIS,RLE,C_L |
| CO1,CO2, CO3,CO4, CO6 | Describe etiopathogenesis, diagnostic criteria,and clinical features of Impetigo | 1 | Lecture | CAP | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6 | Illustrate etiopathogenesis, types diagnostic criteria,and clinical features of Dermatophytosis | 2 | Practical23.5 | PSY-GUD | Shows-how | SIM,C_L |

**Unit 2 Diseases of Bones & Joints**

23.2.1 Osteoporosis, Osteomalacia, Osteomyelitis, Bone Tumors, Osteoarthritis, Rheumatoid Arthritis, Gouty Arthritis

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4, CO6 | Identify etiopathogenesis, types diagnostic criteria,and clinical features of Osteoporosis | 3 | Experiential-Learning23.6 | PSY-MEC | Does | SDL,DIS,X-Ray,ML |
| CO1,CO2, CO3,CO4, CO6 | Describe etiopathogenesis, morphological features, diagnostic criteria,and clinical features of Osteomalacia | 1 | Lecture | CAP | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6 | Illustrate etiopathogenesis, types, morphological features , diagnostic criteria,and clinical features of Osteomyelitis | 3 | Practical23.6 | CE | Shows-how | X-Ray,IBL,C_L |
| CO1,CO2, CO3,CO4, CO6 | Discuss etiopathogenesis, types, morphological features, diagnostic criteria,and clinical features of Bone Tumors | 3 | Experiential-Learning23.7 | CS | Does | BS,LS,X-Ray |
| CO1,CO2, CO3,CO4, CO6 | Describe etiopathogenesis, types, and clinical features of Osteoarthritis. | 1 | Lecture | CS | Knows-how | L&PPT |

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| CO1,CO2, CO3,CO4, CO6 | Identify morphological features and diagnostic criteria of Osteoarthritis | 3 | Experiential-Learning23.8 | CE | Does | X-Ray,DIS,LS |
| CO1,CO2, CO3,CO4, CO6 | Illustrate Rheumatoid Arthritis,its etiopathogenesis and clinical features | 1 | Lecture | CAP | Knows-how | L&GD |
| CO1,CO2, CO3,CO4, CO6 | Describe morphological features, diagnostic criteria,of Rheumatoid Arthritis | 3 | Practical23.7 | CE | Shows-how | LS,DIS,X-Ray |
| CO1,CO2, CO3,CO4, CO6 | Describe Gouty Arthritis its types, etiopathogenesis and clinical course | 1 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6 | Identify morphological features, diagnostic criteria of Gouty Arthritis | 3 | Experiential-Learning23.9 | CAN | Does | C_L,LS,IBL |
| **Unit 3 Interpretation of Unani pathology of AmrāzA'za' Ẓāhira (امراض اعضاء ظاہرہ) with conventional medical science**<br>23.3.1 Interpretation of Unani pathology of Amrāz A'za' Ẓāhira (امراض اعضاء ظاہرہ) with conventional medical science<br>**References:** 1,11 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |

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| CO1,CO2, CO3,CO4, CO6 | Describe the common clinical features of AmrāzA'za' Ẓāhira mentioned in Unani and conventional medicine | 1 | Lecture | CS | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6 | Illustrate the pathological correlation of AmrāzA'za' Ẓāhira in Unani and conventional medicine | 2 | Practical23.8 | PSY-GUD | Shows-how | DIS,LS |
| CO1,CO2, CO3,CO4, CO6 | Diagnose the patients of AmrāzA'za' Ẓāhira according to Unani and conventional medical approach and their applications | 2 | Experiential-Learning23.10 | CAN | Does | PL,LS |

**Practical Training Activity**

Practical Training 23.1 Melanoma

1.Teacher will divide the students in small groups and explain the topic of Melanoma,(30 minutes)

2. The student group will brainstorm about the etiopathogenesis, diagnostic criteria,and clinical features of Melanoma, and each group will record their idea on white board or flipchart.(30 minutes)

3. Each group of student share their ideas with the class .(30 minutes)

4. Teacher will assess and evaluate the students knowledge by conducting a debate or Theory open book test of the topic (30 minutes)

Total Duration: 2 hours

Practical Training 23.2 Urticaria

1. Teacher will provide pre class material such as videos,study materials of Urticaria to the students.(30 minutes)

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| 2. Teacher will divide students into groups and ask them to review the literature,videos regarding etiopathogenesis, diagnostic criteria,and clinical features of Urticaria, and discuss among them. (60 minutes)<br>3. In the classroom students will ask the questions and share their findings.(60 minutes)<br>4. Teacher will assess and evaluate the students ability by conducting a presentation or viva of the topic (30 minutes)<br>Total Duration: 3 hours |
| Practical Training 23.3 Lichen planus |
| 1. Teacher will explain the concept of Lichen planus,to students and split them into small groups, (30 minutes).<br>2. Instruct the students to review the literature and to discuss among them. (60 minutes).<br>3. Teacher will conduct the viva of the topic or presentation to review and assess the task they completed. (30 minutes).<br>Total Duration: 2 hours |
| Practical Training 23.4 Scabies |
| 1. Teacher will explain the topic and Create or obtain simulation models or charts of the Scabies. (30 minutes)<br>2. Teacher will develop simulation scenario using models or charts that illustrate the Scabies,and ask the students to identify etiopathogenesis, diagnostic criteria,and clinical features (60 minutes)<br>3. Students will discuss the disease with collegues.(60 minutes)<br>4. Teacher will assess and evaluate the students ability by conducting a presentation or debate of the topic (30 minutes)<br>Total Duration: 3 hours |
| Practical Training 23.5 Dermatophytosis |
| 1. Teacher will Create or obtain simulation models or charts of the Dermatophytosis..(30 minutes)<br>2. Teacher will develop simulation scenario for each types of Dermatophytosis..(30 minutes) |

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| 3. Students will observe the simulation model and scenario, analyse and discuss the etiopathogenesis, types diagnostic criteria,and clinical features of the disease..(30 minutes)<br>4. Teacher will assess and evaluate the students ability by conducting a viva or presentation of the topic (30 minutes)<br>Total Duration: 2 hours |
| Practical Training 23.6 Osteomyelitis |
| 1. Teacher will introduce the topic of Osteomyelitis, and provide background information and case study of the disease. (30minutes)<br>2. Student have to generate Inquiry based questions related to the case study(30 minutes)<br>3.Teacher will provide the students with images of Osteomyelitis, such as x-ray or CT scan and ask them to identify the characteristic morphological feature of the disease.(30 minutes)<br>4. Teacher will facilitate a group discussion on the case study and inquiry based learning questions, encouraging students to share their findings related to etiopathogenesis, types, morphological features , diagnostic criteria,and clinical features of Osteomyelitis,. (60 minutes)<br>5. Teacher will conduct the debate or viva to evaluate and assess their knowledge and their ability to analyse the radiological images. (30 minutes).<br>Total Duration: 3 hours |
| Practical Training 23.7 Rheumatoid Arthritis |
| 1. Teacher will explain concept of Rheumatoid Arthritis, to students and prepare a case study of a patient of the disease and provide student x-ray or CT scan of the disease. (30 minutes).<br>2. Teacher will ask the students to prepare the discussion question related to case study of Rheumatoid Arthritis. (60 minutes)<br>3. Students will discuss the case study using discussion questions as a guide and analyse the scan to identify diagnostic criteria, morphological features, of Rheumatoid Arthritis, (60 minutes).<br>4. Teacher will interact or conduct the presntation of students to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |

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| Practical Training 23.8 AmrāzA'za' Ẓāhira |
| 1. Teacher will explain the pathological correlation of AmrāzA'za' Ẓāhira in Unani and conventional medicine of to students. (30 minutes).<br>2. Split students into small groups, and give them topics for discussion regarding unani and conventional medicine perspectives of pathological correlation of AmrāzA'za' Ẓāhira (30 minutes).<br>3. Instruct the students to review the literature , and to discuss among them. (30 minutes).<br>4. Teacher will assess and evaluate the students ability by conducting the presentation or debate of the topic (30 minutes)<br>Total Duration: 2 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 23.1: Melanocytic Nevus |
| 1. Teacher will divide the students into small groups and provide each group with a case study of a patient with Melanocytic Nevus.(30 minutes)<br>2. Teacher will ask each group to analyse the case study to Identify etiopathogenesis, diagnostic criteria,and clinical features of Melanocytic Nevus. (30 minutes)<br>3.Students will analyse and discuss the case among themselves and observe the real life experience.(30 minutes)<br>4.Teacher will conduct the presntation or debate of students to review and assess the task they completed (30 minutes).<br>Total Duration: 2 hours |
| Experiential-Learning Learning 23.2: Vitiligo |
| 1. Teacher will explain concept of Vitiligo, to students (30 minutes).<br>2. Students will prepare the question related to diagnostic criteria,and clinical features of Vitiligo. (30 minutes)<br>3. Student will review the litrature of the topiic, and discuss among themselves.(30 minutes)<br>4. Teacher will Interact with students and conduct viva to review and assess the task they completed (30 minutes).<br>Total Duration: 2 hours |

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| Experiential-Learning Learning 23.3: Eczematous Dermatitis |
| Teacher will instruct the students to complete the task through following steps;<br>1.Students will review the topic from offline and online sources and make summary of key points (30 minutes)<br>2. Students will present theetiopathogenesis, diagnostic criteria,and clinical features of Eczematous Dermatitis, in innovative and comprehensive way (30 minutes)<br>3. Students will discuss with peers (30 minutes)<br>4. Teacher will assess and evaluate the students knowledge by conducting a presentation or debate of the topic (30 minutes)<br>Total Duration: 2 hours |
| Experiential-Learning Learning 23.4: Seborrheic Dermatitis |
| 1. Teacher will divide the students into small groups and provide each group with a case study of a patient with Seborrheic Dermatitis(30 minutes)<br>2. Teacher will ask each group to analyse the case study to Identify etiopathogenesis, diagnostic criteria,and clinical features of Seborrheic Dermatitis (60 minutes)<br>3. Students will analyse and discuss the case among themselves and observe the real life experience.(60 minutes)<br>4. Teacher will conduct the presntation or theory open book test of students to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 23.5: Verrucae (Warts) |
| 1. Teacher will divide the students into small groups and provide each group with a case study of a patient with verrucae (warts).(30 minutes)<br>2. Each group of students will analyse the case study to Identify etiopathogenesis, diagnostic criteria,and clinical features of Verrucae (60 minutes)<br>3. Students will analyse and discuss the case among themselves and observe the real life experience.(60 minutes)<br>4. Teacher will conduct the viva or presntation of students to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |

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| Experiential-Learning Learning 23.6: Osteoporosis |
| 1. Teacher will ask the students to cover the topic under self-directed learning through the following steps;<br>2. literature review, educational video watching , x-ray identification.(60 minutes)<br>3. Making a summary (30 minutes)<br>4. Discussion with teachers (60 minutes)<br>5.Teacher will conduct the class presentation or viva to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 23.7: Bone Tumors |
| 1. Teacher will explain concept of Bone Tumors to students and provide a case study and x-ray or CT scan of the disease. (30 minutes).<br>2. Students will develop and prepare the brainstorming question related to case study such as etiopathogenesis, types, morphological features, diagnostic criteria,and clinical features. (60 minutes)<br>3. Students will discuss the case study using brainstorming questions as a guide and analyse scan to identify etiopathogenesis, types, morphological features, diagnostic criteria,and clinical features of the disease. (60 minutes).<br>4. Teacher will interact with students or conduct the presentation to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 23.8: Osteoarthritis |
| 1. Teacher will explain concept of Osteoarthritis, to students and prepare case study of the disease and provide student x-ray or CT scan of the disease. (30 minutes).<br>2. Students will prepare the discussion question related to Osteoarthritis. (60 minutes)<br>3. Students will discuss the case study using discussion questions as a guide and analyse the scan to identify diagnostic criteria and morphological changes. (60 minutes). |

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| 4. Teacher will Interact with students or conduct debate to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 23.9: Gouty Arthritis |
| 1. The teacher will explain the morphological features , diagnostic criteria of Gouty Arthritis. (30minutes)<br>2. Teacher help student to generate their own questions (30 minutes)<br>3. Student will search the topic and draw conclusion based on their findings (60 minutes)<br>4. student will exchange the findings of morphological features, and diagnostic criteria among the collegue (30 minutes)<br>5. Teacher will conduct the Quiz or debate to review and assess the task they completed (30 minutes).<br>Total Duration: 3 hours |
| Experiential-Learning Learning 23.10: AmrāzA'za' Ẓāhira |
| Teacher will instruct the students to complete the task through PrBL.in following steps;<br>1. Students will review the litrature on AmrāzA'za' Ẓāhira according to Unani and conventional medical approach (30 minutes)<br>2. Students will develop a case study of patient of AmrāzA'za' Ẓāhira and diagnose the patient using both unani and conentional medical approaches, and their application.(30 minutes)<br>3. Students will discuss the topic with peers (30 minutes)<br>4. Teacher will assess and evaluate the students knowledge by conducting a presentation or debate of the topic (30 minutes)<br>Total Duration: 2 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
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| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern.<br>Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct a Creative Writing test. Ask the students to write on any topic of the module in an innovative and creative way (25 Marks), considering the following aspects;<br>Effective explanation of topic - 10 marks<br>Understanding of current research and trends in the field- 10 marks<br>Accuracy and completeness of information -5 marks<br>Conduct Viva Exam. (25 Marks) considering the following aspects;<br>Knowledge and understanding - 5 marks<br>Critical thinking and reasoning- 5 marks<br>Clarity and expression - 5 marks<br>Application of knowledge - 5 marks<br>Handling questions - 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |
| **Module 24 : Interpretation of Unani Pathology with Conventional Medical Science** | |
| Module Learning Objectives<br>(At the end of the module, the students should be able to)<br>1. Conduct discussion on interpretation of Unani pathology of AmrāzA'za' Nafsāniyya with Conventional Medical Science | |

2. Describe Mahiyat of AmrāzA'za' Ḥaywāniyya with Conventional Medical Science

3. Identify the diagnostic features of Amrāz Ghayr Mudawwina with Conventional Medical Science

**Unit 1 Interpretation of Unani pathology of Amrāz A'za' Nafsāniyya (امراض اعضاء نفسانیہ) with conventional medical science**

24.1.1 Interpretation of Unani pathology of Amrāz A'za' Nafsāniyya (امراض اعضاء نفسانیہ) with conventional medical science

**References:** 1,11

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4, CO6,CO8 | Describe the common clinical features of AmrāzA'za' Nafsāniyya mentioned in Unani and conventional medicine | 3 | Lecture | CS | Knows-how | L&GD |
| CO1,CO2, CO3,CO4, CO6,CO8 | Discribe the etiopathogenesis and common clinical features of Ṣudā', Shaqīqa, Sarsām, Subāt, Sahar, Nisyān, Mālankhūliyā mentioned in Unani and conventional medicine | 5 | Practical24.1 | CAN | Shows-how | C_L,BS |
| CO1,CO2, CO3,CO4, CO6,CO8 | Discuss the alamat and tariqa tashkhees of Ṣudā', Shaqīqa, Sarsām, Subāt, Sahar, Nisyān, Mālankhūliyā.according to Unani and conventional medical approach and their applications | 5 | Practical24.2 | CS | Shows-how | FC,LS,ML |
| CO1,CO2, CO3,CO4, CO6,CO8 | Discuss the etiopathogenesis and common clinical features of Sadr & Duwār, Ṣar', Sakta, Istirkhā' & Fālij, Tashannuj &Tamaddud, Laqwa, Ra'sha, Khadr, Ikhtilāj in Unani and conventional medicine | 5 | Experiential-Learning24.1 | CS | Does | ML,LS,SDL |

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| CO1,CO2, CO3,CO4, CO6,CO8 | Discuss the pathological correlation of Sadr & Duwār, Ṣar‘, Sakta, Istirkhā’ & Fālij, Tashannuj &Tamaddud, Laqwa, Ra‘sha, Khadr, Ikhtilāj in Unani and conventional medicine | 5 | Experiential-Learning24.2 | CAN | Does | DIS,C_L,LS |
| **Unit 2 Interpretation of Unani pathology of Amrāz A'za' Ḥaywāniyya (امراض اعضاء حیوانیہ) with conventional medical science**<br>24.2.1 Interpretation of Unani pathology of Amrāz A’za’ Ḥaywāniyya (امراض اعضاء حیوانیہ) with conventional medical science<br>**References:** 1,11 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO1,CO2, CO3,CO4, CO6,CO8 | Describe the common clinical features of AmrāzA’za’ Ḥaywāniyya mentioned in Unani and conventional medicine. | 1 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6,CO8 | Discuss the common clinical features of Sū’iMizāj Qalb, Khafaqān, Ghashī WaramUzunayi’l Qalb, WaramGhishā’ Qalb, Zaghṭul Qalb, Imtilā’ Ghilāf Qalb, Taqashshurul Qalb, Qadhful Qalb, Iḥtiwā’urRuṭūba ‘ala’l Qalb, ‘IllatDukhāniyya, Jazbul Qalb mentioned in Unani and conventional medicine | 2 | Lecture | CS | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6,CO8 | Discuss the pathological correlation of Sū’iMizāj Qalb, Khafaqān, Ghashī WaramUzunayi’l Qalb, WaramGhishā’ Qalb, Zaghṭul Qalb, Imtilā’ Ghilāf Qalb, Taqashshurul Qalb, Qadhful Qalb, Iḥtiwā’urRuṭūba ‘ala’l Qalb, ‘IllatDukhāniyya, Jazbul Qalb in Unani and conventional medicine. | 4 | Experiential-Learning24.3 | CS | Does | LS,SDL,ML |
| CO1,CO2, CO3,CO4, CO6,CO8 | Describe the etiopathogenesis of Sū’iMizāj Qalb, Khafaqān, Ghashī WaramUzunayi’l Qalb, WaramGhishā’ Qalb, Zaghṭul Qalb, Imtilā’ Ghilāf Qalb, Taqashshurul Qalb, | 4 | Practical24.3 | CAN | Shows-how | LS,ML,FC |

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| | Qadhful Qalb, Iḥtiwā'urRuṭūba 'ala'l Qalb, 'IllatDukhāniyya, Jazbul Qalb in Unani and conventional medicine | | | | | |
| CO1,CO2, CO3,CO4, CO6,CO8 | Diagnose the patients of Sū'iMizāj Qalb, Khafaqān, Ghashī WaramUzunayi'l Qalb, WaramGhishā' Qalb, Zagḥtul Qalb, Imtilā' Ghilāf Qalb,. Taqashshurul Qalb, Qadhful Qalb, Iḥtiwā'urRuṭūba 'ala'l Qalb, 'IllatDukhāniyya, Jazbul Qalb according to Unani and conventional medical approach and their applications | 4 | Experiential-Learning24.4 | PSY-MEC | Does | LS,C_L,IBL |
| CO1,CO2, CO3,CO4, CO6,CO8 | Discuss the common clinical features of ZīqunNafas, Buhr &Rabw, Su'āl, ZāturRi'a, Sill, Nafsud Dam &NasfulMidda, ZatulJanb, Barsām mentioned in Unani and conventional medicine | 1 | Lecture | CS | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6,CO8 | Discuss the etiopathogenesis and pathological correlation of ZīqunNafas, Buhr &Rabw, Su'āl, ZāturRi'a, Sill, Nafsud Dam &NasfulMidda, ZatulJanb, Barsām in Unani and conventional medicine | 1 | Lecture | CAP | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6,CO8 | Diagnose the patients of ZīqunNafas, Buhr &Rabw, Su'āl, ZāturRi'a, Sill, Nafsud Dam & NasfulMidda, ZatulJanb, Barsām.according to Unani and conventional medical approach and their applications | 4 | Experiential-Learning24.5 | PSY-MEC | Does | C_L,IBL,LS |
| **Unit 3 Interpretation/development of Unani pathology for Amrāz Ghayr Mudawwina (امراض غیرمدونہ)**<br>24.3.1 Interpretation/development of Unani pathology for Amrāz Ghayr Mudawwina (امراض غیرمدونہ)<br>**References:** 1,11 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |

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| CO1,CO2, CO3,CO4, CO6,CO8 | Describe the common clinical features of Amrāz Ghayr Mudawwina mentioned in Unani and conventional medicine. | 1 | Lecture | CE | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6,CO8 | Discuss the mahiyat and alamat of SARS according the Unani and conventional system of medicine | 2 | Practical24.4 | CE | Shows-how | LS,C_L,DIS |
| CO1,CO2, CO3,CO4, CO6,CO8 | Discuss the pathological correlation of Hypertention in Unani and conventional medicine | 4 | Experiential-Learning24.6 | CS | Does | C_L,LS,DIS |
| CO1,CO2, CO3,CO4, CO6,CO8 | Diagnose the patients of Hypertension according to Unani and conventional medical approach and their applications | 4 | Practical24.5 | CAN | Shows-how | C_L,BS |
| CO1,CO2, CO3,CO4, CO6,CO8 | Discuss the mahiyat and alamat of Hypothyroidism according the Unani and conventional system of medicine | 1 | Lecture | CS | Knows-how | L&PPT |

**Practical Training Activity**

Practical Training 24.1 Etiopathogenesis and Clinical Features of Amraze R`as in unani and conventional medicine

1. Teacher will divide the students in small groups and explain the topic.,(60 minutes)

2. The student group will brainstorm about the etiopathogenesis,and clinical features of Ṣudā‘, Shaqīqa, Sarsām, Subāt, Sahar, Nisyān, Mālankhūliyā, and each group will record their idea on white board or flipchart.(90 minutes)

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| 3.Each group of student share their ideas with the class .(90 minutes)<br>4. Teacher will assess and evaluate the students knowledge by conducting a Theory open book test of the topic (60 minutes)<br>Total Duration: 5 hours |
| Practical Training 24.2 Alamat and tariqa Tashkhees of amraze R`as in Unani and conventional medicine |
| 1. Teacher will provide pre class material such as videos,study materials of the topics to the students.(60 minutes)<br>2.Teacher will divide students into groups and ask them to review the literature,videos regarding alamat and tariqa tashkhees of Ṣudā‘, Shaqīqa, Sarsām, Subāt, Sahar, Nisyān, Mālankhūliyā.according to Unani and conventional medical approach and their applications.. (90 minutes)<br>3.In the classroom students will ask the questions and share their findings.(90 minutes)<br>4. Teacher will assess and evaluate the students ability by conducting a presentation or viva of the topic (60 minutes)<br>Total Duration: 5 hours |
| Practical Training 24.3 Etiopathogenesis of amraze haiwaniya in unani and conventional medicine |
| 1. Teacher will provide pre class study material regarding etiopathogenesis of Sū’iMizāj Qalb, Khafaqān, Ghashī WaramUzunayi’l Qalb, WaramGhishā’ Qalb, Zagḥtul Qalb, Imtilā’ Ghilāf Qalb, Taqashshurul Qalb, Qadhful Qalb, Iḥtiwā’urRuṭūba ‘ala’l Qalb, ‘IllatDukhāniyya, Jazbul Qalb to the students according Unani and conventional medicine.(30 minutes)<br>2. Teacher will divide students into groups and ask them to review the literature, and discuss unani and conventional approach of the topics. (90 minutes)<br>3. In the classroom students will ask the questions and share their findings.(90 minutes)<br>4. Teacher will assess and evaluate the students ability by conducting a Quiz or viva of the topic (30 minutes)<br>Total Duration: 4 hours |
| Practical Training 24.4 SARS |
| 1. Teacher will explain concept of SARS and provide material and discussion questions related to case study of the disease. (30 minutes). |

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| 2. Students will review the litrature and discuss the case study using discussion questions as a guide and identify mahiyat and alamat of SARS according the Unani and conventional system of medicine. (60 minutes).<br>3. Teacher will conduct the debate or presntation of students to review and assess the task they completed (30 minutes).<br>Total Duration: 2 hours |
| Practical Training 24.5 Diagnostic approach of Hypertension |
| 1. Teacher will divide the students in small groups and explain the topic of hypertension and method of diagnosis according to unani and conventional approach.(30 minutes)<br>2. The student group will brainstorm about the Diagnostic methods of Hypertension according to Unani and conventional medical approach and each group will record their idea on white board or flipchart.(90 minutes)<br>3. Each group of student share their ideas with each other. (60 minutes)<br>4. Teacher will assess and evaluate the students knowledge by conducting a debate or practical viva of the topic (60 minutes)<br>Total Duration: 4 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 24.1: Etiopathogenesis and common clinical features of Amrāz Ra's (Af'al Harkat & 'Asb) |
| 1. Teacher will ask the students to cover the topic under self-directed learning through the following steps;<br>2. literature review, With the aid of numerous offline Unani literature and online tools, e-learning platforms, and Massive Open Online Courses (MOOCs) aligned with the syllabus, (120 minutes)<br>3. Students will discuss the topics among them and make a summary regarding etiopathogenesis and common clinical features of Sadr & Duwār, Ṣar', Sakta, Istirkhā' & Fālij, Tashannuj &Tamaddud, Laqwa, Ra'sha, Khadr, Ikhtilāj in Unani and conventional medicine. (120 minutes)<br>4. Teacher will conduct the presentationa or Interaction to review and assess the task they completed (60 minutes).<br>Total Duration: 5 hours |

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| Experiential-Learning Learning 24.2: Pathological correlation of Amrāz Ra's (Af'al Harkat & 'Asb) in Unani and conventional medicine |
| 1. Teacher will divide students in small group and provide each group with relevent resources such as artcle or book chapters on Sadr & Duwār, Ṣar', Sakta, Istirkhā' & Fālij, Tashannuj &Tamaddud, Laqwa, Ra'sha, Khadr, Ikhtilāj.(60 minutes)<br>2. Teacher will assign each group a specific role such as group.1 Unani approach on pathology, group.2 conventional approach on pathology (60 minutes)<br>3. Students will go through resources, discuss and share ,their thoughts with other group.(90 minutes)<br>4. student will interact and explain what they have learn . (60 minutes)<br>5. Teacher will conduct the viva or presentation to review and assess the task they completed (30 minutes).<br>Total Duration: 5 hours |
| Experiential-Learning Learning 24.3: Pathological correlation of amraze Haiwaniya in unani and conventional medicine |
| 1. Teacher will ask the students to cover the topic under self-directed learning through the following steps;<br>2.literature review, With the aid of numerous offline Unani literature and online tools, e-learning platforms, and Massive Open Online Courses (MOOCs) aligned with the syllabus, (90 minutes)<br>3. Students will discuss the topics among them and make a summary regarding unani and conventional pathological correlation of the diseases. (90 minutes)<br>4. Teacher will conduct the presentationa or viva to review and assess the task they completed (60 minutes).<br>Total Duration: 4 hours |
| Experiential-Learning Learning 24.4: Diagnostic approach of amraze haiwaniya in unani and conventional medicine |
| 1. The teacher will explain the Unani and conventional medical approach regarding the diagnosis of theSū'iMizāj Qalb, Khafaqān, Ghashī WaramUzunayi'l Qalb, WaramGhishā' Qalb, Zagḥtul Qalb, Imtilā' Ghilāf Qalb,. Taqashshurul Qalb, Qadhful Qalb, Iḥtiwā'urRuṭūba 'ala'l Qalb, 'IllatDukhāniyya, Jazbul Qalb (30minutes)<br>2.Student will search the topic and draw conclusion based on their findings and generate their own questions.(90 minutes)<br>3. student will exchange the findings among the collegue (90 minutes) |

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| 4. Teacher will conduct the Quiz or presentation to review and assess the task they completed (30 minutes).<br>Total Duration: 4 hours |
| Experiential-Learning Learning 24.5: Diagnostic approach of amraze Ria in unani and conventional medicine |
| 1. The teacher will explain the Unani and conventional medical approach regarding the diagnosis of the ZīqunNafas, Buhr &Rabw, Su'āl, ZāturRi'a, Sill, Nafsud Dam & NasfulMidda, ZatulJanb, Barsām (30minutes)<br>2. Student will search the topic and draw conclusion based on their findings and generate their own questions.(90 minutes)<br>3 student will exchange the findings among the colleague (90 minutes)<br>4. Teacher will conduct the debate or Quiz to review and assess the task they completed (30 minutes).<br>Total Duration: 4 hours |
| Experiential-Learning Learning 24.6: pathological correlation of Hypertention |
| Teacher will divide students in small group and assign each group a specific role such as group.1 Unani approach on pathology of hypertention, group.2 conventional approach on pathology of hypertention<br>1. Students will discuss the assign topic, and share their thoughts to other group.(90 minutes)<br>2. student will interact and explain what they have learn . (90 minutes)<br>3. Teacher will conduct the viva to review and assess the task they completed (60 minutes).<br>Total Duration: 4 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
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| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern.<br>Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct a Problem Solving assessment, Students apply their theoretical understanding to find solutions (25 Marks) as follows;<br>Ability to identify key issues and challenges- 5 marks<br>Problems solving ability - 10 marks<br>Effective use of evidence to support the solution - 10 marks<br>Conduct ABQ test (25 Marks) considering the following aspects;<br>Relevance of concept - 5 marks<br>Extent and application of innovation - 10 marks<br>Justification and evidence - 5 marks<br>Presentation and communication - 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |

**Paper No : 4(Ilmul Amraz Nizami (Systemic Pathology) – II)**

**Semester No : 3**

**Module 25 : Amrāz Dahan, Mi'da & Am'ā' امراض دہن،معدہ وامعاء**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe Asbab and Alamat of Amrāz Dahan, Mi'da & Am'ā'.

2. Conduct discussion on Mahiyat of Amrāz Dahan, Mi'da & Am'ā'.

3. Identify the diagnostic features of Amrāz Dahan, Mi'da & Am'ā'.

**Unit 1 Amrāz Dahan & Marī امراض دہن ومری**

25.1.1 Waja'ul Asnān, Siqalul Lisān, Qulā', Bakhrul Fam, Waram Marī, 'Usrul Bal' وجع الاسنان، ثقل اللسان، قلاع، بخر الفم، ورم مری، عسر البلع

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab and Alamat of different types of Waja'ul Asnān. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Discus Mahiyat, Asbab and Alamat of Siqalul Lisān. | 1 | Lecture | CC | Knows-how | L&GD |
| CO1,CO2, CO3,CO4 | Discuss Mahiyat, Asbab and Alamat of Qulā' & Bakhrul Fam. | 2 | Practical25.1 | CAP | Shows-how | LS,DIS,C_L |
| CO1,CO2, CO3,CO4 | Describe the Mahiyat, Asbab and Alamat of Waram Marī & 'Usrul Bal'. | 2 | Practical25.2 | CAP | Shows-how | TBL |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Identify Waja‘ul Asnān, Siqalul Lisān, Qulā‘ and Bakhrul Fam according to their diagnostic features. | 3 | Experiential-Learning25.1 | PSY-GUD | Does | SDL |
| CO1,CO2, CO3,CO4 | Diagnose cases of Waram Marī and ‘Usrul Bal‘. | 3 | Experiential-Learning25.2 | PSY-GUD | Does | CD,CBL |

**Unit 2 Amrāz Mi‘da امراض معدہ**

25.2.1 Sū’i Mizāj Mi‘da, Waja‘ul Mi‘da, Zu‘f Hazm, Hayza, Zu‘f Ishtihā’, Jū‘ul Kalb, Jū‘ul Baqar, ‘Aṭash Mufriṭ, Waram Mi‘da, Nafkh Mi‘da, Qay’ & Ghasayān, Qay’ud Dam, Fuwāq, Ḥurqat Mi‘da سوءمزاج معدہ، وجع المعدہ، ضعف ہضم، ہیضہ، ضعف اشتہاء، جوع الکلب، جوع البقر، عطش مفرط، ورم معدہ، نفخ معدہ، قئے ونغثیان، قئے الدم، فواق، حرقت معدہ

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab and Alamat of Sū’i Mizāj Mi‘da. | 1 | Lecture | CC | Knows-how | FC |
| CO1,CO2, CO3,CO4 | Discuss Mahiyat, Asbab and Alamat of Waja‘ul Mi‘da. | 2 | Practical25.3 | CAP | Shows-how | DIS,C_L,LS |
| CO1,CO2, CO3,CO4 | Diagnose Zu‘f Hazm according to its Mahiyat and different Asbab. | 2 | Experiential-Learning25.3 | PSY-GUD | Does | CBL,CD |
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab and Alamat of Hayza. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Illustrate Mahiyat, Asbab and Alamat of Zu‘f Ishtihā’. | 2 | Practical25.4 | CAP | Shows-how | DIS,LS |

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| CO1,CO2, CO3 | Identify the causes of Jū‘ul Kalb and Jū‘ul Baqar based on Alamat. | 2 | Experiential-Learning25.4 | PSY-MEC | Does | LS,CBL |
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab and Alamat of ‘Aṭash Mufṛit. | 1 | Lecture | CC | Knows-how | L&GD |
| CO1,CO2, CO3,CO4 | Discuss Mahiyat, Asbab and Alamat of Waram Mi‘da. | 2 | Practical25.5 | CAP | Shows-how | DIS,LS |
| CO1,CO2, CO3,CO4 | Diagnose the etiological types of Nafkh Mi‘da. | 3 | Experiential-Learning25.5 | PSY-GUD | Does | LS,CBL |
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab and Alamat of Qay’ & Ghasayān, Qay’ud Dam. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Discuss Mahiyat, Asbab and Alamat of Fuwāq. | 2 | Practical25.6 | CAP | Shows-how | TBL |
| CO1,CO2, CO3,CO4 | Identify the cases of Ḥurqat Mi‘da based on Alamat. | 3 | Experiential-Learning25.6 | PSY-GUD | Does | LS,CD |

**Unit 3 Amrāz Am‘ā’ امراض امعاء**

25.3.1 Zarab & Khilfa, Zalq al-Am‘ā, Zūsaṇtāriyā, Zaḥīr, Maghṣ, Qūlanj, Ḥuṣr (Qabz), Dīdān Am‘ā, Bawāsīr, Waram Maq‘ad ذرب وخلفہ،زلق الامعاء،ذوسنطاریا،زحیر،مغص،قولنج حصر (قبض)،دیدان امعاء،بواسیر،ورم مقعد

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab and Alamat of Zarab & Khilfa. | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Demonstrate causes and clinical features of Zalq al-Amʻā in case presentations. | 3 | Practical25.7 | PSY-GUD | Shows-how | CBL,LS |
| CO1,CO2, CO3,CO4 | Conduct a presentation on Mahiyat, Asbab and Alamat of Zūsaṇtāriyā with differential diagnosis. | 4 | Experiential-Learning25.7 | CAP | Does | LS,PL |
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab and Alamat of Zaḥīr. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Differentiate between etiological types of Qūlanj based on Alamat. | 2 | Experiential-Learning25.8 | PSY-MEC | Does | LS,CD |
| CO1,CO2, CO3,CO4 | Conduct a discussion on Mahiyat, Asbab and Alamat of Dīdān Amʻā. | 3 | Practical25.8 | CAP | Shows-how | TBL,C_L,PL |
| CO1,CO2, CO3,CO4 | Identify the causes, clinical and diagnostic features of Bawāsīr and Waram Maqʻad in patients. | 4 | Experiential-Learning25.9 | PSY-MEC | Does | CBL,LS |
| CO1,CO2, CO3,CO4 | Discuss Mahiyat, Asbab and Alamat of Maghṣ. | 2 | Practical25.9 | CC | Shows-how | LS,PER |
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab and Alamat of Ḥuṣr (Qabz). | 1 | Lecture | CC | Knows-how | FC |
| **Practical Training Activity** | | | | | | |

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| Practical Training 25.1 Qula' & Bakhrul Fam |
| 1. The teacher will begin by explaining the key concepts and dimensions of Qula' & Bakhrul Fam to the students for 30 minutes.<br>2. Next, the teacher will divide the students into small groups to encourage collaboration. Following this, the teacher will instruct the groups to review the relevant literature for 30 minutes.<br>3. After the literature review, the teacher will facilitate a 60-minute group discussion to enhance understanding of the topic. Throughout the sessions, the teacher will interact with each group to assess comprehension and provide support.<br>Total duration: 2 hours |
| Practical Training 25.2 Waram Marī & 'Usrul Bal' |
| 1. The teacher will make a team of students assigning different topics of Mahiyat, Asbab and Alamat of Waram Marī & 'Usrul Bal' to different students and ask them to prepare with joint effort (60 minutes).<br>2. Team of students will discuss among themselves what they've learned to update their knowledge and understanding under the supervision of the teacher. The teacher must encourage them to raise queries and attempt to answer (60 minutes).<br>Total duration: 2 hours |
| Practical Training 25.3 Waja'ul Mi'da |
| 1. The teacher will begin by explaining the key concepts and dimensions of Waja'ul Mi'da to the students for 30 minutes.<br>2. Next, the teacher will divide the students into small groups to encourage collaboration. Following this, the teacher will instruct the groups to review the relevant literature for 30 minutes.<br>3. After the literature review, the teacher will facilitate a 60-minute group discussion to enhance understanding of the topic. Throughout the sessions, the teacher will interact with each group to assess comprehension and provide support.<br>Total duration: 2 hours |
| Practical Training 25.4 Zu'f Ishtihā' |

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| 1. The teacher will begin with a 30-minute explanation of various concepts and dimensions of Zu‘f Ishtihā’.<br>2. After that, the teacher will split the students into small groups, guiding them on how to effectively collaborate. Students will then take 30 minutes to review the literature.<br>3. It will be followed by 60 minutes of group discussions to enhance their understanding. Throughout the process, the teacher will actively interact with each group to assess comprehension and provide targeted support.<br>Total duration: 2 hours |
| Practical Training 25.5 Waram Mi‘da |
| 1. The teacher will first explain various concepts and dimensions of Waram Mi‘da to the students for 30 minutes.<br>2. Following this, the teacher will split the students into small groups and guide them through the review of relevant literature for 30 minutes.<br>3. The teacher will then facilitate a 60-minute discussion among the groups to enhance their understanding of the topic, engaging with them to assess and reinforce their comprehension.<br>Total duration: 2 hours |
| Practical Training 25.6 Fuwāq |
| 1. The teacher will make a team of students, assigning different topics of Mahiyat, Asbab, and Alamat of Fuwāq to different students and ask them to prepare with joint effort (1 hour).<br>2. Team of students will discuss among themselves what they've learned to update their knowledge and understanding under the supervision of the teacher. The teacher will encourage them to raise queries and attempt to answer (1 hour).<br>Total duration: 2 hours |
| Practical Training 25.7 Zalq al-Am‘ā |
| The teacher will instruct the students to present cases of Zalq al-Am‘ā in the following steps. |

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| 1. In the first hour, the teacher will guide students in taking a detailed patient history and conducting a thorough examination, encouraging discussion of findings. (60 minutes)<br>2. In the second hour, the teacher will direct students to review relevant literature from textbooks and research articles, focusing on key studies related to the case. (60 minutes)<br>3. In the final hour, the teacher will facilitate a session where students present the case, explaining causes with justification and evidence based on their findings. The teacher will encourage peer feedback and discussion. (60 minutes)<br>Total duration: 3 hours |
| Practical Training 25.8 Dīdān Am‘ā |
| 1. The teacher will make a team of students, assigning different topics of Mahiyat, Asbab, and Alamat of Dīdān Am‘ā to different students and ask them to prepare with joint effort (2 hours).<br>2. The team of students will discuss among themselves what they've learned to update their knowledge and understanding. The teacher must encourage them to raise queries and attempt to answer (1 hour).<br>Total duration: 3 hours |
| Practical Training 25.9 Maghṣ |
| The teacher will instruct the students to make PPT on Mahiyat, Asbab, and Alamat of Maghṣ in the following steps.<br>1. Literature Review: The teacher will guide a one-hour session for students to explore relevant literature.<br>2. PPT Creation: In a 30-minute workshop, the teacher will assist in developing PowerPoint presentations, focusing on using visuals and graphics.<br>3. Presentation and Discussion: Students will present their PPTs to the teacher and PG scholars, with the teacher encouraging discussion from peers during the interaction session (30 minutes).<br>Total Duration: 2 hours |
| **Experiential Learning Activity** |

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| Experiential-Learning Learning 25.1: Waja‘ul Asnān, Siqalul Lisān, Qulā‘ and Bakhrul Fam |
| 1. The teacher will instruct the students to learn about the concept of Waja‘ul Asnān, Siqalul Lisān, Qulā‘ and Bakhrul Fam with the aid of numerous offline Unani literature, online tools, and e-learning platforms (1 hour).<br>2. Advise them to see such cases in the hospital (1 hour).<br>3. They have to compile the summary of their study and observations (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 25.2: Waram Marī and ‘Usrul Bal‘ |
| The teacher will instruct the students to present cases of Waram Marī and ‘Usrul Bal‘ in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 25.3: Zu‘f Hazm |
| The teacher will instruct the students to present cases of Zu‘f Hazm in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 2 hours |
| Experiential-Learning Learning 25.4: Jūʻul Kalb and Jūʻul Baqar |
| The teacher will instruct the students to present cases of Jūʻul Kalb and Jūʻul Baqar in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour). |

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| 2. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 2 hours |
| Experiential-Learning Learning 25.5: Nafkh Mi‘da |
| The teacher will instruct the students to present cases of Nafkh Mi‘da in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in the PG activity session, explaining its causes with justification and evidence, based on history and examination findings, with the conclusive remark of the teacher (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 25.6: Ḥurqat Mi‘da |
| The teacher will instruct the students to present cases of Ḥurqat Mi‘da in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 25.7: Zūsaṇtāriyā |
| The teacher will instruct the students to cover this topic through Peer Learning in the following steps.<br>1. Ask students to first study the topic from classical literature (1 hour).<br>2. Review the contemporary concept of related diseases (1 hour).<br>3. Correlate and apply the classical concept and discuss with peers (1 hour).<br>4. Interact and try to answer any query raised during the discussion (1 hour). |

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| Total 4 hours | |
| Experiential-Learning Learning 25.8: Qūlanj | |
| The teacher will instruct the students to present a case of Qūlanj in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 2 hours | |
| Experiential-Learning Learning 25.9: Bawāsīr and Waram Maq‘ad | |
| The teacher will instruct the students to present cases of Bawāsīr and Waram Maq‘ad in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (2 hours).<br>3. Presentation of the case in PG activity session explaining the causes behind it with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 4 hours | |
| **Modular Assessment** | |
| **Assessment** | **Hour** |
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct Open Book Test (25 Marks) considering following aspects.<br>Understanding the concept - 5 marks | 4 |

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| Application of knowledge - 10 marks<br>Accuracy of answer - 10 marks<br>Conduct Case Based Assessment (25 Marks) considering following aspects.<br>Understanding of case - 5 marks<br>Accuracy of diagnosis - 10 marks<br>Case presentation skill - 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

**Module 26 : Diseases of Gastrointestinal Tract**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe etiology, pathogenesis, pathological changes and clinical features of diseases of gastrointestinal tract.
2. Conduct discussion on differential diagnosis of diseases of gastrointestinal tract.
3. Identify the appropriate diagnostic investigations required for various diseases of gastrointestinal tract.

**Unit 1 Diseases of Mouth & Oesophagus**

26.1.1 Aphthous Ulcer, Leucoplakia, Oral Cancers, Xerostomia, Sialadenitis, Achalasia, Oesophageal Varices, Reflux Oesophagitis, Oesophageal carcinoma

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
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| CO1,CO2, CO3 | Describe pathology of Aphthous ulcers. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Discuss the pathological diagnosis of Leucoplakia. | 2 | Practical26.1 | CAP | Shows-how | L&PPT ,PER |
| CO1,CO2, CO3 | Diagnose the cases of oral cancers. | 2 | Experiential-Learning26.1 | CAN | Does | PL,LRI |
| CO1,CO2, CO3 | Describe the pathology of xerostomia. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Describe the pathology of Sialadenitis. | 1 | Lecture | CC | Knows-how | L |
| CO1,CO2, CO3 | Discuss the pathology of achalasia. | 2 | Practical26.2 | CAP | Shows-how | LS,DIS |
| CO1,CO2, CO3 | Identify the diagnostic features of oesophageal varices in such cases. | 2 | Experiential-Learning26.2 | PSY-MEC | Does | CD,D |
| CO1,CO2, CO3 | Demonstrate the case of reflux oesophagitis with respect to pathology and diagnosis. | 2 | Practical26.3 | CAN | Shows-how | LS,PER |
| CO1,CO2, CO3 | Diagnose oesophageal carcinoma based on pathological features. | 2 | Experiential-Learning26.3 | PSY-GUD | Does | FV |
| **Unit 2 Diseases of Stomach**<br>26.2.1 Gastritis, Peptic Ulcer Disease, Gastric Tumours | | | | | | |

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| **References:** 11,12 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO1,CO2, CO3 | Analyze the pathogenesis and morphology of acute gastritis. | 3 | Experiential-Learning26.4 | PSY-MEC | Does | LS,CD |
| CO1,CO2, CO3 | Discuss the etiopathogenesis, morphology, clinical features and complications of chronic gastritis. | 3 | Experiential-Learning26.5 | PSY-MEC | Does | CD,LS |
| CO1,CO2, CO3 | Identify the cases of different types of gastritis. | 2 | Experiential-Learning26.6 | PSY-MEC | Does | CBL,LS,CD |
| CO1,CO2, CO3 | Analyze the pathogenesis and morphology of peptic ulcer disease. | 3 | Practical26.4 | CC | Shows-how | PER |
| CO1,CO2, CO3 | Discuss the diagnostic features of peptic ulcer disease. | 3 | Practical26.5 | CC | Shows-how | C_L,DIS,LS |
| CO1,CO2, CO3 | Illustrate the pathogenesis and morphology of gastric tumours. | 3 | Lecture | CC | Knows-how | L&PPT |
| **Unit 3 Diseases of Intestine**<br>26.3.1 Ischemic Bowel Disease, Malabsorption and Diarrhoea, Irritable Bowel Syndrome, Inflammatory Bowel Disease, Intestinal Tuberculosis, Enteric Fever, Dysentery, Sigmoid Diverticular Disease, Appendicitis, Haemorrhoids, Carcinoma of Colon<br>**References:** 11,12 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |

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| CO1,CO2, CO3 | Describe pathogenesis, morphology and clinical diagnosis of ischemic bowel disease. | 1 | Lecture | CC | Knows-how | L&GD |
| CO1,CO2, CO3 | Identify pathology and diagnosis of malabsorption and diarrhoea. | 3 | Experiential-Learning26.7 | CAP | Does | LS,CBL,CD |
| CO1,CO2, CO3 | Discuss the pathogenesis and clinical features of irritable bowel syndrome. | 2 | Practical26.6 | CC | Shows-how | L_VC,FC |
| CO1,CO2, CO3 | Describe the pathogenesis and morphology of inflammatory bowels disease. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Differentiate between cases of Crohn diseases and ulcerative colitis. | 2 | Practical26.7 | CAN | Shows-how | L&PPT ,PER,LS |
| CO1,CO2, CO3 | Illustrate the pathology of intestinal tuberculosis. | 1 | Lecture | CC | Knows-how | L_VC |
| CO1,CO2, CO3 | Diagnose the cases of enteric fever based on pathological and clinical diagnostic parameters. | 3 | Experiential-Learning26.8 | PSY-MEC | Does | LS,CD |
| CO1,CO2, CO3 | Discuss the differentiating features of amoebic and bacillary dysentery in terms of pathology. | 2 | Practical26.8 | CAN | Shows-how | C_L,TBL |
| CO1,CO2, CO3 | Describe etiopathogenesis morphology and clinical features of sigmoid diverticular disease. | 1 | Lecture | CC | Knows-how | L&GD |
| CO1,CO2, CO3 | Identify the cases of appendicitis by pathological and clinical features. | 3 | Experiential-Learning26.9 | PSY-MEC | Does | CBL,LS |

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| CO1,CO2, CO3 | Diagnose patients of haemorrhoids. | 3 | Experiential-Learning26.10 | PSY-MEC | Does | LS,CD,CBL |
| CO1,CO2, CO3 | Discuss the pathogenesis morphology and clinical features of carcinoma of colon. | 2 | Practical26.9 | CAP | Shows-how | DIS,LS,C_L |

**Practical Training Activity**

Practical Training 26.1 Leucoplakia

The teacher will instruct the students to make PPT on the pathological diagnosis of Leucoplakia in the following steps.

1. Review of literature on the topic with the teacher's guidance (1 hour).

2. Preparation of PPT with the help of visuals and graphics under the supervision of the teacher (30 minutes)

3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session (30 minutes).

Total duration: 2 hours

Practical Training 26.2 Achalasia

1. The teacher will begin by explaining the key concepts and dimensions of achalasia to the students for 30 minutes.

2. Next, the teacher will divide the students into small groups to encourage collaboration. Following this, the teacher will instruct the groups to review the relevant literature for 30 minutes.

3. After the literature review, the teacher will facilitate a 60-minute group discussion to enhance understanding of the topic. Throughout the sessions, the teacher will interact with each group to assess comprehension and provide support.

Total duration: 2 hours

Practical Training 26.3 Reflux oesophagitis

The teacher will instruct the students to make PPT on reflux oesophagitis in the following steps.

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| 1. Review of literature on the topic with the teacher's guidance (1 hour).<br>2. Preparation of PPT with the help of visuals and graphics under the supervision of the teacher (30 minutes)<br>3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session (30 minutes).<br>Total duration: 2 hours |
| Practical Training 26.4 Peptic ulcer disease 1 |
| The teacher will instruct the students to make PPT on the pathogenesis and morphology of peptic ulcer disease in the following steps.<br>1. Review of literature on the topic with the teacher's guidance (1 hour).<br>2. Preparation of PPT with the help of visuals and graphics under the supervision of the teacher (1 hour)<br>3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session (1 hour).<br>Total duration: 3 hours |
| Practical Training 26.5 Peptic ulcer disease 2 |
| 1. The teacher will begin by explaining the key concepts and dimensions of peptic ulcer disease to the students for 30 minutes.<br>2. Next, the teacher will divide the students into small groups to encourage collaboration. Following this, the teacher will instruct the groups to review the relevant literature for 90 minutes.<br>3. After the literature review, the teacher will facilitate a 60-minute group discussion to enhance understanding of the topic. Throughout the sessions, the teacher will interact with each group to assess comprehension and provide support.<br>Total duration: 3 hours |
| Practical Training 26.6 Irritable bowel syndrome |
| 1. Before class, students do their homework by watching videos or reading materials provided by the teacher (1 hour).<br>2. In the class, instead of a regular lecture, students dive into discussions under the supervision of the teacher and ask questions about irritable bowel syndrome. The teacher will answer their queries if not resolved during the discussion. (1 hour). |

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| Total duration: 2 hours |
| Practical Training 26.7 Inflammatory bowels disease |
| The teacher will instruct the students to make PPT on differential diagnosis of Crohn disease and ulcerative colitis in the following steps.<br>1. Review of literature on the topic with the teacher's guidance (1 hour).<br>2. Preparation of PPT with the help of visuals and graphics under the supervision of the teacher (30 minutes)<br>3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session (30 minutes).<br>Total duration: 2 hours |
| Practical Training 26.8 Dysentery |
| 1. The teacher will begin by explaining the key concepts and dimensions of amoebic and bacillary dysentery to the students for 30 minutes.<br>2. Next, the teacher will divide the students into small groups to encourage collaboration. Following this, the teacher will instruct the groups to review the relevant literature for 30 minutes.<br>3. After the literature review, the teacher will facilitate a 60-minute group discussion to enhance understanding of the topic. Throughout the sessions, the teacher will interact with each group to assess comprehension and provide support.<br>Total duration: 2 hours |
| Practical Training 26.9 Carcinoma of colon |
| 1. The teacher will begin by explaining the key concepts and dimensions of the pathology of carcinoma of the colon to the students for 30 minutes.<br>2. Next, the teacher will divide the students into small groups to encourage collaboration. Following this, the teacher will instruct the groups to review the relevant literature for 30 minutes.<br>3. After the literature review, the teacher will facilitate a 60-minute group discussion to enhance understanding of the topic. Throughout the sessions, the teacher will interact with each group to assess comprehension and provide support.<br>Total duration: 2 hours |

| Experiential Learning Activity |
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| Experiential-Learning Learning 26.1: Oral cancers |
| The teacher will instruct the students to diagnose the cases of oral cancers with the help of lab reports in the following steps;<br>1. Students will read and understand the data from various test reports of the given case (1 hour).<br>2. They will correlate with the clinical condition of cases and arrive at a provisional diagnosis of oral cancers. They will discuss with peers and teachers where needed (1 hour).<br>Total duration: 2 hours |
| Experiential-Learning Learning 26.2: Oesophageal varices |
| The teacher will instruct the students to present cases of oesophageal varices in the following steps.<br>1. Taking history and examination of the patient in detail (30 minutes).<br>2. Review of related literature from books and research articles (30 minutes).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 2 hours |
| Experiential-Learning Learning 26.3: Oesophageal carcinoma |
| Students will visit higher healthcare facilities or labs, directly observe such cases or their reports, and understand the diagnosis of oesophageal carcinoma.<br>Total duration: 2 hours |
| Experiential-Learning Learning 26.4: Acute gastritis |
| The teacher will instruct the students to present cases of acute gastritis in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour). |

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| 3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 26.5: Chronic gastritis |
| The teacher will instruct the students to present cases of chronic gastritis in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 26.6: Types of gastritis |
| The teacher will instruct the students to present various cases of gastritis in the following steps.<br>1. Taking history and examination of the patient in detail (30 minutes).<br>2. Review of related literature from books and research articles (30 minutes).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 2 hours |
| Experiential-Learning Learning 26.7: Malabsorption and diarrhoea |
| The teacher will instruct the students to present cases of malabsorption and diarrhoea in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |

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| Experiential-Learning Learning 26.8: Enteric fever |
| The teacher will instruct the students to present cases of Enteric fever in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 26.9: Appendicitis |
| The teacher will instruct the students to present cases of Appendicitis in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 26.10: Haemorrhoids |
| The teacher will instruct the students to present cases of haemorrhoids in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours. |
| **Modular Assessment** |

| **Assessment** | **Hour** |
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| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern.<br>Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct assessment by MCQs (20 Marks) considering the following aspects;<br>4 Knowledge based questions - 8 marks<br>3 Application based questions - 6 marks<br>3 Analysis based questions - 6 marks<br>Assess the students' ability by Case presentation (30 Marks) considering the following aspects.<br>Understanding of case - 10 marks<br>Accuracy of diagnosis - 10 marks<br>Case presentation skill - 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |

**Semester No : 4**

**Module 27 : Amrāz Kabid, Ṭiḥāl, Kulya & Masāna امراض کبد، طحال، کلیہ ومثانہ**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe Asbab and Alamat of Amraz Kabid, Tihal, Kulya & Masana.

2. Discuss Mahiyat of Amraz Kabid, Tihal, Kulya & Masana.

3. Identify the diagnostic features of Amraz Kabid, Tihal, Kulya & Masana.

**Unit 1 Amrāz Kabid امراض کبد**

27.1.1 Sū'i Mizāj Kabid, Zu'f Kabid, Sudad Kabid, Waram Kabid, Dubayla Kabid, Qiyām Kabidī, Sū'ul Qinya, Istisqā, Yarqān سوءمزاج کبد، ضعف کبد، سدد کبد، ورم کبد، دبیلہ کبد، قیام کبدی، سوءالقنیہ، استسقاء، یرقان

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Analyze Mahiyat, Asbab and Alamat of Sū'i Mizāj Kabid. | 3 | Practical27.1 | CAN | Shows-how | JC,LS |
| CO1,CO2, CO3,CO4 | Discuss Mahiyat, Asbab and Alamat of Zu'f Kabid. | 2 | Practical27.2 | PSY-ADT | Shows-how | LS,DIS,PER |
| CO1,CO2, CO3,CO4 | Describe Asbab and Alamat of Sudad Kabid. | 2 | Lecture | CC | Knows-how | L&GD |
| CO1,CO2, CO3,CO4 | Identify the Asbab of different types of Waram Kabid with the help of Alamat. | 3 | Experiential-Learning27.1 | PSY-MEC | Does | CBL,PER,LS |
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab & Alamat of Dubayla Kabid. | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Analyze Mahiyat, types, and Alamat of Qiyām Kabidī with differential diagnosis. | 3 | Practical27.3 | PSY-GUD | Shows-how | CD,LRI |
| CO1,CO2, CO3,CO4 | Differentiate the cases of Sū'ul Qinya and Istisqā. | 2 | Experiential-Learning27.2 | PSY-MEC | Does | DIS,CBL,D-BED |

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| CO1,CO2, CO3,CO4 | Diagnose various Asbab of Yarqan by their Alamat. | 3 | Experiential-Learning27.3 | PSY-MEC | Does | LRI,CBL |

**Unit 2 Amrāz Ṭiḥāl & Kulya امراض طحال وکلیہ**

27.2.1 Waram Ṭiḥāl, Sū'i Mizāj Kulya, Huzāl Kulya, Zu'f Kulya, Waram al-Kulya, Zayābīṭus ورم طحال، سوءمزاج کلیہ، ہزال کلیہ، ضعف کلیہ، ورم الکلیہ، ذیابیطس

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab and Alamat of Waram Ṭiḥāl. | 3 | Lecture | CC | Knows-how | L&GD |
| CO1,CO2, CO3,CO4 | Identify the cases of various Sū'i Mizāj Kulya by their Alamat. | 3 | Experiential-Learning27.4 | PSY-MEC | Does | D-BED,CD |
| CO1,CO2, CO3,CO4 | Discuss the Mahiyat, Asbab and Alamat of Huzāl Kulya. | 3 | Practical27.4 | CAP | Shows-how | C_L,PAL,PL |
| CO1,CO2, CO3,CO4 | Identify Zu'f Kulya according to its diagnostic features. | 3 | Experiential-Learning27.5 | PSY-MEC | Does | D-BED,CD,CBL |
| CO1,CO2, CO3,CO4 | Analyze Mahiyat, Asbab and Alamat of Waram al-Kulya. | 3 | Practical27.5 | CAN | Shows-how | PER,LS |
| CO1,CO2, CO3,CO4 | Diagnose the patients of Zayābīṭus with the help of their Alamat. | 3 | Experiential-Learning27.6 | PSY-GUD | Does | CBL,D-BED,CD |

**Unit 3 Amrāz Kulya & Masāna امراض کلیہ ومثانہ**

27.3.1 Ḥaṣāt Kulya & Masāna, Waram Masāna, Ḥurqatul Bawl, Iḥtibās Bawl, Taqtīrul Bawl, Salasul Bawl, Bawlud Dam حصاۃ کلیہ ومثانہ،ورم مثانہ،حرقت البول،احتباس بول،تقطیر البول،سلس البول،بول الدم

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Diagnose the patients of Ḥaṣāt Kulya & Masāna with the help of their Alamat. | 3 | Experiential-Learning27.7 | PSY-MEC | Does | PAL,X-Ray,LRI |
| CO1,CO2, CO3,CO4 | Demonstrate Asbab and Alamat of Waram Masana. | 3 | Practical27.6 | CAP | Shows-how | DIS,PER |
| CO1,CO2, CO3,CO4 | Identify the Asbab of Hurqatul Bawl in patients with the help of Alamat. | 3 | Experiential-Learning27.8 | PSY-MEC | Does | CD,CBL |
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab, and Alamat of Ihtibas Bawl. | 3 | Lecture | CC | Knows-how | L&GD |
| CO1,CO2, CO3,CO4 | Discuss Mahiyat, Asbab and Alamat of Taqtirul Bawl and Salasul Bawl. | 3 | Practical27.7 | CAN | Shows-how | LS,PL |
| CO1,CO2, CO3,CO4 | Diagnose the etiological types of Bawlud Dam. | 3 | Experiential-Learning27.9 | PSY-MEC | Does | CBL,CD |

**Practical Training Activity**

Practical Training 27.1 Sū'i Mizāj Kabid

The teacher will facilitate the journal club presentations through the following structured process:

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| 1. The teacher will instruct students to conduct a thorough review of relevant literature and research articles from reputable journals (60 minutes).<br>2. The teacher will guide students in selecting one key article for a critical review, emphasizing the identification of important points to include in their PowerPoint presentation (60 minutes).<br>3. The teacher will oversee the presentations in the Journal Club, encouraging active participation and facilitating a discussion following each presentation (45 minutes).<br>4. The teacher will provide constructive feedback and evaluations, offering suggestions for improvement and further inquiry (15 minutes).<br>Total duration: 3 hours. |
| Practical Training 27.2 Zu'f Kabid |
| The teacher will instruct the students to make PPT on Zu'f Kabid in the following steps.<br>1. Review of literature on the topic with the teacher's guidance (30 minutes).<br>2. Preparation of PPT with the help of visuals and graphics under the supervision of the teacher (30 minutes)<br>3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session (1 hour).<br>Total duration: 2 hours |
| Practical Training 27.3 Qiyām Kabidī |
| The teacher will instruct the students to present cases of Qiyām Kabidī in the following steps.<br>1. Facilitating them to take history and examination of the patient with examining lab reports in detail (1 hour).<br>2. Guiding them for review of related literature from books and research articles (1 hour).<br>Presentation of the case by students in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Practical Training 27.4 Huzāl Kulya |

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| The teacher will instruct the students to cover this topic through Peer Learning in the following steps.<br>1. Ask students to first study the topic from classical literature, providing authentic resources (1 hour).<br>2. Review the contemporary concept of related diseases from reliable sources(30 minutes).<br>3. Correlate and apply the classical concept and discuss with peers and teachers (30 minutes).<br>4. Interact and try to answer any queries raised during the discussion facilitated by the teacher (1 hour).<br>Student work together through discussions, and problem-solving activities, exchange ideas, clarify doubts, and enhance their understanding on Huzāl Kulya.<br>Total Duration: 3 hours |
| Practical Training 27.5 Waram al-Kulya |
| The teacher will instruct the students to make PPT on Waram al-Kulya in the following steps.<br>1. Review of literature on the topic with the teacher's guidance (1 hour).<br>2. Preparation of PPT with the help of visuals and graphics under the supervision of the teacher (1 hour)<br>3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session (1 hour).<br>Total duration: 3 hours |
| Practical Training 27.6 Waram Masana |
| The teacher will instruct the students to make PPT on Waram Masana in following steps.<br>1. Review of literature on the topic under the supervision of the teacher (1 hour).<br>2. Preparation of PPT with the help of visuals and graphics facilitated by the teacher (1 hour)<br>3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session (1 hour).<br>Total duration: 3 hours |
| Practical Training 27.7 Taqtirul Bawl and Salasul Bawl |
| The teacher will instruct the students to cover this topic through Peer Learning in the following steps. |

1. Ask students to first study the topic from classical literature under the supervision of the teacher (1 hour).

2. Review the contemporary concept of related diseases with the teacher's guidance (30 minutes).

3. Correlate and apply the classical concept and discuss with peers & teachers (30 minutes).

4. Interact and try to answer any queries raised during the discussion facilitated by the teacher(1 hour).

Student work together through discussions, problem-solving activities, exchanging ideas, clarifying doubts, and enhancing their understanding of Taqtirul Bawl and Salasul Bawl.

Total duration: 3 hours

**Experiential Learning Activity**

Experiential-Learning Learning 27.1: Waram Kabid

The teacher will instruct the students to present cases of Waram Kabid in the following steps.

1. Taking history and examination of the patient with lab reports in detail (1 hour).

2. Review of related literature from books and research articles (1 hour).

3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).

Total duration: 3 hours

Experiential-Learning Learning 27.2: Sū'ul Qinya and Istisqā

1. Students will take up the cases of Sū'ul Qinya and Istisqā in the hospital, interact with patients at the bedside, and go through examinations, lab reports to gain practical insights (1 hour).

2. One student will demonstrate the case to others and address the diagnostic queries of other students (1 hour).

The teacher will interact and give the inputs wherever required.

Total duration: 2 hours

Experiential-Learning Learning 27.3: Yarqan

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| The teacher will instruct the students to diagnose the cases of Yarqan with the help of lab reports in the following steps;<br>1. Students will read and understand the data from various test reports of the given case (1.5 hours).<br>2. They will correlate with the clinical condition of cases and arrive at a provisional diagnosis of oral cancers. They will discuss with peers and teachers where needed (1.5 hours).<br>Total duration: 3 hours |
| Experiential-Learning Learning 27.4: Sū'i Mizāj Kulya |
| The teacher will instruct the students to present cases of Sū'i Mizāj Kulya in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 27.5: Zu'f Kulya |
| The teacher will instruct the students to present cases of Zu'f Kulya in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 27.6: Zayābīṭus |
| The teacher will instruct the students to present cases of Zayābīṭus in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour). |

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| 3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 27.7: Ḥaṣāt Kulya & Masāna |
| The teacher will instruct the students to diagnose the cases of oral cancers with the help of lab reports in the following steps;<br>1. Students will read and understand the data from various test reports including USG & X-ray of the given case (1.5 hours).<br>2. They will correlate with the clinical condition of cases and arrive at a provisional diagnosis of oral cancers. They will discuss with peers and teachers where needed (1.5 hours).<br>Total duration: 3 hours |
| Experiential-Learning Learning 27.8: Hurqatul Bawl |
| The teacher will instruct the students to present cases of Hurqatul Bawl in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 27.9: Bawlud Dam |
| The teacher will instruct the students to present cases of Bawlud Dam in the following steps.<br>1. Taking history and examination of the patient in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |

| Modular Assessment | |
|---|---|
| **Assessment** | **Hour** |
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct Viva Exam. (25 Marks) considering following aspects;<br>Knowldege and understanding - 5 marks<br>Critical thinking and reasoning- 5 marks<br>Clarity and expression - 5 marks<br>Application of knowledge - 5 marks<br>Handling questions - 5 marks<br>Conduct OSCE assessments of students in the following areas (25 Marks).<br>History taking (5 Marks), Clinical Examination (5 Marks), Diagnosis (5 Marks), Differential Diagnosis (5 Marks), Addressing clinical questions related to case (5 Marks)<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |
| **Module 28 : Diseases of Hepatobiliary System, Pancreas and Urinary Tract** | |
| Module Learning Objectives<br>(At the end of the module, the students should be able to)<br>1. Describe etiology, pathogenesis, pathological changes and clinical features of hepatobiliary system, pancreas and urinary tract. | |

2. Conduct discussion on differential diagnosis of diseases of hepatobiliary system, pancreas and urinary tract.

3. Identify the appropriate diagnostic investigations required for various diseases of hepatobiliary system, pancreas and urinary tract.

**Unit 1 Diseases of liver**

28.1.1 Jaundice, Hepatitis, Liver Abscess, Fatty Liver Disease, Hepatic Failure, Cirrhosis of Liver, Portal hypertension, Carcinoma of Liver, Splenomegaly

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Differentiate between etiological types of Jaundice based on Symptoms. | 3 | Experiential-Learning28.1 | PSY-MEC | Does | CD,CBL |
| CO1,CO2, CO3,CO4 | Describe etiopathogenesis, signs and symptoms of Hepatitis. | 2 | Lecture | CC | Knows-how | LS,L&PPT |
| CO1,CO2, CO3,CO4 | Conduct a discussion on etiopathogenesis, signs & symptoms of liver abscess. | 2 | Practical28.1 | CAN | Shows-how | TBL |
| CO1,CO2, CO3,CO4 | Diagnose the cases of fatty liver disease based on diagnostic parameters. | 2 | Experiential-Learning28.2 | CAN | Does | DIS,JC,LS |
| CO1,CO2, CO3,CO4 | Discuss pathology and clinical features of hepatic failure. | 2 | Practical28.2 | PSY-GUD | Shows-how | C_L,PL,LRI |
| CO1,CO2, CO3,CO4 | Identify cirrhosis of liver based on pathology and clinical features. | 2 | Experiential-Learning28.3 | PSY-MEC | Does | CBL,D-BED |
| CO1,CO2, CO3,CO4 | Discuss the pathology of portal hypertension. | 2 | Practical28.3 | PSY-GUD | Shows-how | Mnt,SDL |

| | | | | | | |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe pathogenesis, morphology and clinical features of carcinoma of liver. | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Diagnose cases of splenomegaly. | 3 | Experiential-Learning28.4 | PSY-GUD | Does | CBL,D-BED |
| **Unit 2 Diseases of Gall bladder & Pancreas**<br>28.2.1 Cholelithiasis, Cholecystitis, Carcinoma of Gall Bladder, Pancreatitis, Diabetes Mellitus, Carcinoma of Pancreas<br>**References:** 11,12 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO1,CO2, CO3,CO4 | Diagnose the cases of cholelithiasis according to its diagnostic parameters. | 3 | Experiential-Learning28.5 | PSY-MEC | Does | D-BED,CBL |
| CO1,CO2, CO3 | Discuss etiopathogenesis, signs & symptoms of cholecystitis. | 2 | Practical28.4 | CAP | Shows-how | PER,LS |
| CO1,CO2, CO3 | Conduct a discussion on etiopathogenesis, signs & symptoms of carcinoma of gall bladder. | 2 | Practical28.5 | PSY-GUD | Shows-how | JC,LS |
| CO1,CO2, CO3 | Discuss the pathogenesis, morphology and clinical features of pancreatitis. | 3 | Practical28.6 | CAN | Shows-how | TBL,C_L |
| CO1,CO2, CO3 | Diagnose the patients of Diabetes Mellitus based on pathology, clinical features and investigations. | 4 | Experiential-Learning28.6 | PSY-GUD | Does | SDL,LS |
| CO1,CO2, CO3 | Describe pathogenesis, morphology and clinical features of carcinoma of pancreas. | 3 | Lecture | CC | Knows-how | BS |

**Unit 3 Diseases of Urinary Tract**

28.3.1 Renal Failure, Glomerulonephritis, Nephritic Syndrome, Nephrotic Syndrome, Pyelonephritis, Polycystic Kidney Disease, Renal Cell Carcinoma, Urolithiasis, Cystitis

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Identify the cases of renal failure | 3 | Experiential-Learning28.7 | PSY-MEC | Does | LRI,CBL |
| CO1,CO2, CO3 | Describe etiopathogenesis, clinical features of different types of glomerulonephritis. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Describe the etiopathogenesis and clinical features of nephritic syndrome. | 1 | Lecture | CC | Knows-how | FC |
| CO1,CO2, CO3 | Illustrate etiopathogenesis and clinical features of nephrotic syndrome with differential diagnosis. | 2 | Practical28.7 | CAP | Shows-how | PER,LS |
| CO1,CO2, CO3 | Discuss etiopathogenesis and clinical features of pyelonephritis | 2 | Practical28.8 | CAP | Shows-how | C_L,PT,PL |
| CO1,CO2, CO3 | Describe etiopathogenesis and clinical features of polycystic kidney disease. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Demonstrate causes and clinical features of Renal cell carcinoma in case presentation. | 3 | Practical28.9 | PSY-MEC | Shows-how | JC,LS |

| | | | | | | |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Conduct a discussion on causes and clinical features of Urolithiasis. | 3 | Experiential-Learning28.8 | PSY-ADT | Does | CBL,D |
| CO1,CO2, CO3 | Identify cystitis according to its diagnostic features. | 3 | Experiential-Learning28.9 | PSY-MEC | Does | D-BED,CD |

**Practical Training Activity**

Practical Training 28.1 Liver abcess

1. The teacher will make a team of students, assigning different topics of etiopathogenesis, signs & symptoms of liver abscess to different students, and guide them to prepare with joint effort (1 hour).
2. The team of students will discuss among themselves what they've learned to update their knowledge and understanding under the teacher's supervision. The teacher must encourage them to raise queries and attempt to answer (1 hour).

Total duration: 2 hours

Practical Training 28.2 Hepatic failure

The teacher will explain to the students how to diagnose the cases of hepatic failure with the help of lab reports in the following steps;

1. Students will read and understand the data from various test reports of the given cases under the teacher's supervision (1 hour).
2. The teacher will guide them to correlate with the clinical condition of cases and arrive at a provisional diagnosis of hepatic failure. They will discuss among themselves for a better understanding of cases for all (1 hour).

Total duration: 2 hours

Practical Training 28.3 Portal hypertension

1. The teacher will instruct the students to study the pathology of portal hypertension, guiding them to the online and offline resources (1 hour).
2. Facilitate them to see such cases in the hospital (30 minutes).

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| 3. Students have to compile the summary of their study and observations under the teacher's supervision (30 minutes).<br>Total duration: 2 hours |
| Practical Training 28.4 Cholecystitis |
| The teacher will instruct the students to make PPT on Cholecystitis in the following steps.<br>1. Review of literature on the topic facilitated by the teacher (1 hour).<br>2. Preparation of PPT with the help of visuals and graphics under the teacher's supervision (30 minutes)<br>3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session. The teacher will conclude the session with his suggestions and remarks (30 minutes).<br>Total duration: 2 hours |
| Practical Training 28.5 Carcinoma of gall bladder |
| The teacher will instruct the students to present the topic in the journal club in the following steps;<br>1. Review of literature related to the assigned topic and search for related research articles from reputed Journals facilitated by the teacher (30 minutes)<br>2. Critical review of one chosen article and making the summary of important points to present as PPT with the teacher's guidance (1 hour).<br>3. Presentation in the Journal Club and Discussion under the teacher's supervision (15 minutes).<br>4. Teachers will interact with students for evaluation and necessary suggestions (15 minutes).<br>Total duration: 2 hours |
| Practical Training 28.6 Pancreatitis |
| 1. The teacher will make a team of students, assigning different topics of etiopathogenesis, signs & symptoms of pancreatitis to different students, and ask them to prepare with joint effort, guiding them with available resources (2 hours).<br>2. The team of students will discuss among themselves what they've learned to update their knowledge and understanding under the supervision of the teacher. The teacher must encourage them to raise queries and attempt to answer (1 hour). |

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| Total duration: 3 hours |
| Practical Training 28.7 Nephrotic syndrome |
| In the following steps, the teacher will instruct the students to make PPT on nephrotic syndrome.<br>1. Review of literature on the topic facilitated by the teacher (1 hour).<br>2. Preparation of PPT with the help of visuals and graphics under the supervision of the teacher (30 minutes)<br>3. Students have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session (30 minutes).<br>Total duration: 2 hours |
| Practical Training 28.8 Pyelonephritis |
| The teacher will instruct the students to cover this topic through Peer Learning in the following steps.<br>1. Ask students to first study the topic from classical literature, guiding them with the required resources (30 minutes).<br>2. Students will review the contemporary concept of related diseases under the teacher's supervision (30 minutes).<br>3. They will correlate and apply the classical concept and discuss with peers and teachers (30 minutes).<br>4. The teacher will interact and try to answer any queries raised during the discussion (30 minutes).<br>Student work together through discussions, and problem-solving activities, exchange ideas, clarify doubts, and enhance their understanding of pyelonephritis.<br>Total duration: 2 hours |
| Practical Training 28.9 Renal cell carcinoma |
| The teacher will instruct the students to present the topic in the journal club in the following steps;<br>1. Review of literature related to the assigned topic and search for related research articles from reputed Journals facilitated by the teacher (1 hour)<br>2. Critical review of one chosen article and summarizing important points to present as ppt with the teacher's guidance (1 hour).<br>3. Presentation in the Journal Club and Discussion under the teacher's supervision (45 minutes).<br>4. Teachers will interact with students for evaluation and necessary suggestions (15 minutes). |

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| Total duration: 3 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 28.1: Jaundice |
| The teacher will instruct the students to present cases of Jaundice in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 28.2: Fatty liver |
| The teacher will instruct the students to present the topic in the journal club in the following steps;<br>1. Review of literature related to the assigned topic and search for related research articles from reputed Journals (30 minutes)<br>2. Critical review of one chosen article and making the summary of important points to present as ppt (30 minutes).<br>3. Presentation in the Journal Club and Discussion (45 minutes).<br>4. Teachers will interact with students for evaluation and necessary suggestions (15 minutes).<br>Total duration: 2 hours |
| Experiential-Learning Learning 28.3: Cirrhosis of liver |
| The teacher will instruct the students to present cases of cirrhosis of the liver in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (30 minutes).<br>2. Review of related literature from books and research articles (30 minutes).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour). |

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| Total duration: 2 hours |
| Experiential-Learning Learning 28.4: Splenomegaly |
| 1. Students will observe the cases of splenomegaly in the hospital, examine the patients at the bedside, and evaluate the lab reports to gain practical insights (2 hours).<br>2. One student will demonstrate the case to others at the bedside and address the diagnostic queries of other students (1 hour). The teacher will interact and give input wherever required.<br>Total duration: 3 hours |
| Experiential-Learning Learning 28.5: Cholelithiasis |
| The teacher will instruct the students to present cases of cholelithiasis in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 28.6: Diabetes Mellitus |
| 1. The teacher will instruct the students to study pathology, clinical features, and investigations of Diabetes Mellitus from online and offline resources (1 hour).<br>2. Advise them to see such cases in the hospital (2 hours).<br>3. They have to compile the summary of their study and observations (1 hour).<br>Total duration: 4 hours |
| Experiential-Learning Learning 28.7: Renal failure |
| The teacher will instruct the students to diagnose the cases of renal failure with the help of lab reports in the following steps; |

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| 1. Students will read and understand the data from various test reports of the given case (1.5 hours).<br>2. They will correlate with the clinical condition of cases and arrive at a provisional diagnosis of renal failure. They will discuss with peers and teachers where needed (1.5 hours).<br>Total duration: 3 hours |
| Experiential-Learning Learning 28.8: Urolithiasis |
| The teacher will instruct the students to present cases of urolithiasis in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 28.9: Cystitis |
| The teacher will instruct the students to present cases of cystitis in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
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| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern.<br>Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct Quiz competition (25 Marks) considering following aspects;<br>Simple level quizzes - 10 marks<br>Moderate level quizzes - 10 marks<br>Difficult level quizzes - 5 marks<br>Assess the students by their Seminar Presentations (25 Marks) considering following aspects;<br>Content quality - 10 marks<br>Presentation method - 10 marks<br>Communication skill - 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |

**Semester No : 5**

**Module 29 : Amrāz A'za' Tānāsul امراض اعضاء تناسل**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe Asbab and Alamat of Amraz of Aza Tanasul.

2. Conduct discussion on Mahiyat of Amraz Aza Tanansul.

3. Identify the Diagnostic features of Amraz Aza Tanasul.

**Unit 1 Amrāz A'za' Tānāsul Mardānā امراض اعضاء تناسل مردانہ**

29.1.1 Zu'f Bāh, Sur`ate Inzal, Jarayān, Waram Unsayayn ضعف باہ، سرعت انزال، جریان، ورم انثیین

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4, CO8 | Identify cases of Zu'f Bāh and its Asbab. | 3 | Experiential-Learning29.1 | CAP | Does | PL,PAL,LS |
| CO1,CO2, CO3,CO4, CO8 | Identify Asbab of Zu'f Bāh. | 4 | Practical29.1 | CAN | Shows-how | PER,LS |
| CO1,CO2, CO3,CO4, CO8 | Diagnose the case of Sur`ate Inzal. | 3 | Experiential-Learning29.2 | AFT-VAL | Does | CBL,BL,LS |
| CO1,CO2, CO3,CO4, CO8 | Identify patients of Jarayān. | 4 | Experiential-Learning29.3 | AFT-VAL | Does | CBL,CD |
| CO1,CO2, CO3,CO4, CO8 | Discuss the Mahiyat of Jarayān. | 3 | Practical29.2 | CAP | Shows-how | C_L,PL,LS |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab and Alamat of Waram Unsayayn. | 4 | Lecture | CC | Knows-how | L&PPT |

**Unit 2 Amrāz A'za' Tānāsul Zanānā امراض اعضاء تناسل زنانہ**

29.2.1 'Uqr, Kasrate Tams, Sayalānur Raḥim, Iḥtibāse Ṭams, Warame Raḥim, Saraṭāne Raḥim, Ikhtināqur Raḥim عقر، کثرت طمث، سیلان الرحم، احتباس طمث، ورم رحم، سرطان رحم، اختناق الرحم

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4, CO8 | Describe Mahiyat,Asbab and Alamat of 'Uqr. | 2 | Lecture | CC | Knows-how | L&PPT ,LS |
| CO1,CO2, CO3,CO4 | Discuss Mahiyat, Asbab and Alamat of Kasrat Tams. | 3 | Experiential-Learning29.4 | CAP | Does | PSM,PBL |
| CO1,CO2, CO3,CO4 | Diagnose Sayalānur Raḥim according to its Mahiyat and different asbab. | 4 | Experiential-Learning29.5 | PSY-GUD | Does | CBL,CD |
| CO1,CO2, CO3,CO4 | Identify Asbab in cases of Iḥtibās Tams. | 4 | Experiential-Learning29.6 | PSY-MEC | Does | TBL,C_L |
| CO1,CO2, CO3,CO4 | Identify the cause of Waram Rahim based on Alamat. | 4 | Practical29.3 | PSY-GUD | Shows-how | LS,CD |
| CO1,CO2, CO3,CO4 | Discuss Mahiyat, Asbab and Alamat of Saraṭān Rahim. | 4 | Practical29.4 | CAN | Shows-how | LS,DIS,PER |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe Mahiyat, Asbab and Alamat of Ikhtinaq ur Rahim | 2 | Lecture | CC | Knows-how | FC |

**Unit 3 Amrāz Sadi امراض ثدی**

29.3.1 Qillate Laban, Warame Sadi قلت لبن، ورم ثدی

**References:** 1,3,4,6,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe Asbab of Qillate Laban | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Diagnose the cases of Qillate Laban. | 3 | Experiential-Learning29.7 | PSY-MEC | Does | CD,LS |
| CO1,CO2, CO3,CO4 | Discuss Asbab & Alamat of Waram Sadi in case presentation. | 5 | Practical29.5 | CAP | Shows-how | LS,PER |
| CO1,CO2, CO3,CO4 | Identify the cases of Warme Sadi. | 2 | Experiential-Learning29.8 | AFT-VAL | Does | CBL |

**Practical Training Activity**

Practical Training 29.1 Zu'f Bāh -2

The teacher will instruct the students to make PPT on Zu'f Bāh in following steps.

1. Review of literature on the topic facilitated by the teacher (2 hours).

2. Preparation of PPT with the help of smart art and themes unser the teacher's supervision (1 hour)

3. Students have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session (1 hour).

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| Total duration: 4 hours |
| Practical Training 29.2 Jarayān |
| The teacher will instruct the students to cover this topic through Peer Learning in the following steps.<br>1. Guiding the students to first study the topic from classical literature (1 hour).<br>2. Helping to review the contemporary concept of related diseases from authentic sources (30 minutes).<br>3. Explaining how to correlate and apply the classical concept and discuss with peers (30 minutes).<br>4. Interacting with students to answer any queries raised during the discussion (1 hour).<br>5. Student work together through discussions, and problem-solving activities, exchange ideas, clarify doubts, and enhance their understanding on Jarayān.<br>Total duration: 3 hours |
| Practical Training 29.3 Waram Rahim |
| The teacher will instruct the students to present cases of Waram Rahim in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail under the teacher's supervision (1 hour).<br>2. Review of related literature from books and research articles facilitated by the teacher (2 hours).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings. The teacher will conclude the session with his suggestions and remarks (1 hour).<br>Total duration: 4 hours |
| Practical Training 29.4 Saraṭān Rahim |
| The teacher will instruct the students to make PPT on Saraṭān Rahim in the following steps.<br>1. Review of literature on the topic under the teacher's supervision (2 hours).<br>2. Preparation of PPT with the help of visuals and graphics facilitated by the teacher (1 hour) |

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| 3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session. The teacher will conclude the session with his suggestions and remarks (1 hour).<br>Total duration: 4 hours |
| Practical Training 29.5 Waram Sadi -1 |
| The teacher will instruct the students to make PPT on Waram Sadi in the following steps.<br>1. Review of literature on the topic facilitated by the teacher (3 hours).<br>2. Preparation of PPT with the help of visuals and graphics under the teacher's supervision (1 hour)<br>3. Presentation to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session. The teacher will conclude the session with his suggestions and remarks (1 hour).<br>Total duration: 5 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 29.1: Zu‘f Bāh -1 |
| The teacher will instruct the students to cover this topic through Peer Learning in the following steps.<br>1. Ask students to first study the topic from classical literature (1 hour).<br>2. Review the contemporary concept of related diseases (30 minutes).<br>3. Correlate and apply the classical concept and discuss with peers (30 minutes).<br>4. Interact and try to answer any query raised during the discussion (1 hour).<br>Student work together through discussions, and problem-solving activities, exchange ideas, clarify doubts, and enhance their understanding on Zu‘f Bāh.<br>Total duration: 3 hours |
| Experiential-Learning Learning 29.2: Sur`ate Inzal |

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| 1. Teacher will instruct the student to analyse patient's symptoms, and medical history to arrive at diagnosis of Sur`ate Inzal taking care of his privacy and ethical aspects (1 hour).<br>2. Student will review the topic from availble Unani literature (1 hour).<br>3. Student will summarize the diagnosis with justification. Teacher will assess and give the suggestion if needed (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 29.3: Jarayān |
| Student will analyse patient's symptoms, and medical history to arrive at diagnosis of Jarayān in the following steps;<br>1. Taking clinical history of the cases visting the hospital taking care of ethics and privacy concerns (2 hours).<br>2. Review of literature for understanding the cause based on clinical history (2 hours).<br>Total duration: 4 hours |
| Experiential-Learning Learning 29.4: Kasrat Tams |
| The teacher will assign an open-ended problem/ question related to Mahiyat, Asbab, and Alamat of Kasrat Tams to students.<br>1. Students learn about Kasrat Tams from available books to solve the problem (2 hours).<br>2. Students will complie the answer, and the teacher will assess it based on a checklist, considering the suitability of the answer, the justification/reasoning, and the time taken for answering (1 hour)<br>Total duration: 3 hours |
| Experiential-Learning Learning 29.5: Sayalānur Raḥim |
| The teacher will instruct the students to present cases of Sayalānur Raḥim in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (2 hours).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour). |

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| Total duration: 4 hours |
| Experiential-Learning Learning 29.6: Iḥtibās Tams |
| 1. The teacher will make a team of students, assigning different topics of Asbab of Iḥtibās Tams to different students and ask them to prepare with joint effort (2 hours).<br>2. The team of students will discuss among themselves what they've learned to update their knowledge and understanding. The teacher must encourage them to raise queries and attempt to answer (2 hours).<br>Total duration: 4 hours |
| Experiential-Learning Learning 29.7: Qillate Laban |
| The teacher will instruct the students to present cases of Qillate Laban in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. The case will be presented in the PG activity session, explaining its causes with justification and evidence based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 29.8: Waram Sadi -2 |
| The teacher will instruct the students to present cases of Waram Sadi in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings taking care of ethical aspects (1 hour).<br>Total duration: 2 hours |
| **Modular Assessment** |

| Assessment | Hour |
|---|---|
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern.<br>Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct Written test by LAQ (25 Marks) considering following aspects;<br>Content quality - 10 marks<br>Language and structure - 10 marks<br>Analytical skill - 5 marks<br>Conduct assessment by theory case study (25 Marks) considering following aspects;<br>Understanding of theoretical concept - 10 marks<br>Analysis of case study - 5 marks<br>Application of concept - 5 marks<br>Writing and presentation - 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |

**Module 30 : Diseases of Reproductive Organs**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe etiology, pathogenesis, pathological changes and clinical features of diseases of reproductive organs.
2. Conduct discussion on differential diagnosis of diseases of reproductive organs.

3. Identify the appropriate diagnostic investigations required for various diseases of reproductive organs.

**Unit 1 Diseases of Male Reproductive Organs**

30.1.1 Epididymitis & Orchitis, Prostatitis, Benign Prostatic Hyperplasia, Adenocarcinoma of Prostate

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Describe etiopathogenesis and clinical features of Epididymitis & Orchitis. | 3 | Lecture | CC | Knows-how | L&GD |
| CO1,CO2, CO3,CO4 | Analyze the pathology of prostatitis. | 3 | Practical30.1 | CAP | Shows-how | DIS,LS,PER |
| CO1,CO2, CO3 | Demonstrate etiopathogenesis and morphology of benign prostatic hyperplasia. | 4 | Experiential-Learning30.1 | CAP | Does | TBL,C_L |
| CO1,CO2, CO3 | Diagnose the case of benign prostatic hyperplasia based on clinical features and investigations. | 5 | Experiential-Learning30.2 | PSY-MEC | Does | CD,LRI |
| CO1,CO2, CO3 | Differentiate between etiological types of adenocarcinoma of prostate. | 4 | Practical30.2 | PSY-MEC | Shows-how | CD,CBL |

**Unit 2 Diseases of Female Reproductive Organs**

30.2.1 Vaginitis, Cervicitis, Cervical Cancer, Endometriosis, Adenomyosis, Carcinoma of Endometrium, Polycystic Ovarian Syndrome, Ovarian tumours

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Describe pathology of vaginitis. | 1 | Lecture | CC | Knows-how | L |
| CO1,CO2, CO3 | Describe pathology of cervicitis. | 1 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Delineate etiopathogenesis, morphology and clinical features of cervical cancer. | 4 | Practical30.3 | CAN | Shows-how | L&PPT ,LS |
| CO1,CO2, CO3 | Describe pathogenesis, morphology and clinical features of endometriosis. | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3 | Identify cases of adenomyosis according to its diagnostic features. | 4 | Experiential-Learning30.3 | PSY-MEC | Does | CBL,CD,LS |
| CO1,CO2, CO3 | Discuss etiopathogenesis and diagnostic features of carcinoma of the endometrium. | 3 | Practical30.4 | CAP | Shows-how | LS,PER |
| CO1,CO2, CO3 | Illustrate pathology of polycystic ovarian syndrome. | 3 | Experiential-Learning30.4 | CAN | Does | C_L,TBL,PL |
| CO1,CO2, CO3 | Demonstrate pathogenesis, morphology and diagnosis of ovarian tumours. | 4 | Experiential-Learning30.5 | CAP | Does | PAL,PL,LS,C_L |

**Unit 3 Diseases of Breast**

30.3.1 Mastitis & Breast Abscess, Benign Lesions of Breast, Carcinoma of Breast

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Discuss etiopathogenesis and symptoms of mastitis and breast abscess. | 3 | Practical30.5 | CAN | Shows-how | DIS,LS,PER |
| CO1,CO2, CO3 | Identify the etiopathogenesis of benign lesions of breast. | 3 | Practical30.6 | CAP | Shows-how | LS,C_L,PAL,PL |
| CO1,CO2, CO3 | Illustrate the morphology and diagnosis of benign lesion of breast. | 4 | Experiential-Learning30.6 | PSY-MEC | Does | LRI,CD |
| CO1,CO2, CO3 | Describe classification and pathogenesis of carcinoma of breast. | 3 | Lecture | CC | Knows-how | FC |
| CO1,CO2, CO3 | Investigate cases of carcinoma of breast for confirmation of diagnosis. | 2 | Experiential-Learning30.7 | PSY-GUD | Does | LRI,CD |

**Practical Training Activity**

Practical Training 30.1 Prostatitis

The teacher will instruct the students to make PPT on prostatitis in following steps.

1. Review of literature on the topic with teacher's guidance (1 hour).

2. Preparation of PPT with the help of visuals and graphics under supervision of teacher (1 hour)

3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session followed by conclusive remark by the teacher (1 hour).

Total duration: 3 hours

Practical Training 30.2 Adenocarcinoma of prostate

The teacher will instruct the students to present cases of adenocarcinoma of prostate in the following steps.

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| 1. Taking history and examination of the patient with lab reports in detail under teacher's guidance (1.5 hours).<br>2. Review of related literature from books and research articles faclitated by the teacher (1.5 hours).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings followed by conclusive remark by the teacher (1 hour).<br>Total duration: 4 hours |
| Practical Training 30.3 Cervical cancer |
| The teacher will instruct the students to make PPT on cervical cancer in the following steps.<br>1. Review of literature on the topic facilitated by the teacher (2 hours).<br>2. Preparation of PPT with the help of visuals and graphics unser the teacher's supervision (1 hour)<br>3. Students have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session followed by conclusive remark by the teacher (1 hour).<br>Total duration: 4 hours |
| Practical Training 30.4 Carcinoma of endometrium |
| The teacher will instruct the students to make PPT on carcinoma of endometrium in following steps.<br>1. Review of literature on the topic facilitated by the teacher (1 hour).<br>2. Preparation of PPT with the help of visuals and graphics under guidance of teacher (1 hour)<br>3. Presentation by students in front of teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session followed by conclusive remark by the teacher (1 hour).<br>Total duration: 3 hours |
| Practical Training 30.5 Mastitis and breast abscess |
| The teacher will instruct the students to make PPT on mastitis and breast abscess in following steps. |

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| 1. Guiding them to review the literature on the topic (1 hour).<br>2. Facilitating for preparation of PPT with the help of visuals and graphics (1 hour)<br>3. Asking the students have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session.<br>Theacher will end the session with conclusive remarks (1 hour).<br>Total duration: 3 hours |
| Practical Training 30.6 Benign lesion of breast 1 |
| The teacher will instruct the students to cover this topic through Peer Learning in the following steps.<br>1. Guiding the students to first study the topic from classical literature (1 hour).<br>2. Helping them to review the contemporary concept of related diseases (30 minutes).<br>3. Explaining them how to correlate and apply the classical concept and discuss with peers (30 minutes).<br>4. Interacting and answering any query raised during the discussion (1 hour).<br>Student work together through discussions, and problem-solving activities, exchange ideas, clarify doubts, and enhance their understanding on benign lesion of breast.<br>Total duration: 3 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 30.1: Benign prostatic hyperplasia 1 |
| 1. The teacher will make a team of students assigning different topics of etiopathogenesis and morphology of benign prostatic hyperplasia to different students and ask them to prepare with joint effort (2 hours).<br>2. Team of students will discuss among themselves what they've learned to update their knowledge and understanding. The teacher must encourage them to raise queries and attempt to answer (2 hour).<br>Total duration: 4 hours |

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| Experiential-Learning Learning 30.2: Benign prostatic hyperplasia 2 |
| The teacher will instruct the students to diagnose the cases of benign prostatic hyperplasia with the help of lab reports in the following steps;<br>1. Students will read and understand the data from various test reports of the given case (2 hour).<br>2. They will correlate with the clinical condition of cases and arrive at a provisional diagnosis of oral cancers. They will discuss with peers and teachers where needed (3 hour).<br>Total duration: 5 hours |
| Experiential-Learning Learning 30.3: Adenomyosis |
| The teacher will instruct the students to present cases of adenomyosis in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1.5 hours).<br>2. Review of related literature from books and research articles (1.5 hours).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 4 hours |
| Experiential-Learning Learning 30.4: Polycystic ovarian syndrome |
| 1. The teacher will make a team of students assigning different topics of pathology of polycystic ovarian syndrome to different students and ask them to prepare with joint effort (2 hours).<br>2. The team of students will discuss among themselves what they've learned to update their knowledge and understanding. The teacher must encourage them to raise queries and attempt to answer (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 30.5: Ovarian tumours |
| 1. Ask students to first study the topic from classical literature (1 hour). |

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| 2. Review the contemporary concept of related diseases (1 hour).<br>3. Correlate and apply the classical concept and discuss with peers (1 hour).<br>4. Interact and try to answer any query raised during the discussion (1 hour).<br>Student work together through discussions, and problem-solving activities, exchange ideas, clarify doubts, and enhance their understanding on ovarian tumours.<br>Total duration: 4 hours |
| Experiential-Learning Learning 30.6: Benign lesion of breast 2 |
| 1. Students will read and understand the data from various test reports of the given case (2 hours).<br>2. They will correlate with the clinical condition of cases and arrive at a provisional diagnosis of benign lesion of breast. They will discuss with peers and teachers where needed (2 hours).<br>Total duration: 4 hours |
| Experiential-Learning Learning 30.7: Carcinoma of breast |
| 1. Students will read and understand the data from various test reports of the given case (1 hour).<br>2. They will correlate with the clinical condition of cases and arrive at a provisional diagnosis of carcinoma of breast. They will discuss with peers and teachers where needed (1 hour).<br>Total duration: 2 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
|---|---|
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C. | 4 |

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|---|---|
| Conduct Critical Reading Paper test of students (25 Marks) considering following aspects;<br>Understanding the concpet - 5 marks<br>Critical Analysis - 5 marks<br>Application of knowledge - 5 marks<br>Evidence based argument - 5 marks<br>Presentation of Findings - 5marks<br>Conduct ABQ test (25 Marks) considering following aspects;<br>Relevance of concept - 5 marks<br>Extent and of application and innovation - 10 marks<br>Justification and evidence - 5 marks<br>Presentation and communication - 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

**Semester No : 6**

**Module 31 : Amrāz Mutafarriqa (امراض متفرقہ)&Interpretation of Unani Pathology**

Module Learning Objectives

(At the end of the module, the students should be able to)

1. Describe Asbab and Alamat of Amrāz Mutafarriqa.

2. Conduct discussion on interpretation of Unani pathology of Amrāz A'za' Ṭabī'iyya & Amrāz Mutafarriqa.

3. Identify the diagnostic features of Amrāz Mutafarriqa.

**Unit 1 Ḥummayāt & Amrāz Sahna حمیات وامراض سخنہ**

31.1.1 Ḥummayāt, Ḥummā Yawm, Ḥummā Khilṭī, Ḥummā Diqqiyya, Buhrān, Huzāl, Siman Mufriṭ حمیات، حمی یوم، حمی غلطی، حمی دقیہ، بحران، ہزال، سمن مفرط

**References:** 1,3,4,5,6,7,8,9,10

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4, CO6 | Describe pathogenesis of Ḥummayāt. | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6 | Diagnose cases of different etiological types of Ḥummā Yawm. | 3 | Experiential-Learning31.1 | PSY-ADT | Does | CBL,CD |
| CO1,CO2, CO3,CO4, CO6 | Discuss the differential diagnosis of Ḥummā Khilṭī caused by different Akhlat. | 5 | Practical31.1 | CAP | Shows-how | PER,LS |
| CO1,CO2, CO3,CO4, CO6 | Identify the pathogenesis and diagnosis of Ḥummā Diqqiyya. | 4 | Practical31.2 | CAP | Shows-how | PL,C_L,PAL |
| CO1,CO2, CO3,CO4, CO6 | Describe the concept of Buhrān in Unani medicine. | 4 | Lecture | CC | Knows-how | L&GD |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4, CO6 | Identify the cases of Siman Mufriṭ along with its etiology. | 5 | Experiential-Learning31.2 | PSY-MEC | Does | CBL,LS,D-BED |
| CO1,CO2, CO3,CO4, CO6 | Diagnose the etiological cause in patients of Huzāl. | 4 | Experiential-Learning31.3 | PSY-MEC | Does | CD,LS,CBL |
| **Unit 2 Interpretation of Unani Pathology of Amrāz A'za' Ṭabī'iyya (امراض اعضاء طبیعیہ) with conventional medical science**<br>31.2.1 Interpretation of Unani Pathology of Amrāz A'za' Ṭabī'iyya (امراض اعضاء طبیعیہ) with conventional medical science<br>**References:** 1,11 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |
| CO1,CO2, CO3,CO4, CO6 | Describe the common clinical features of Amrāz Dahan, Mi'da & Am'ā'mentioned in Unani and that of diseases of oral cavity, stomach and intestine in conventional medicine. | 1 | Lecture | CC | Knows-how | FC |
| CO1,CO2, CO3,CO4, CO6 | Discuss the pathological correlation of Amrāz Dahan, Mi'da & Am'ā' in Unani and that of diseases of oral cavity, stomach and intestine in conventional medicine. | 2 | Practical31.3 | CAP | Shows-how | LS,PBL |
| CO1,CO2, CO3,CO4, CO6 | Diagnose the patients of Amrāz Dahan, Mi'da & Am'ā' according to Unani and conventional medical approach and their applications. | 2 | Experiential-Learning31.4 | PSY-GUD | Does | D-BED,CBL,CD |

| | | | | | | |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4, CO6 | Describe the common clinical features of Amrāz Kabid, Ṭiḥāl, Kulya & Masāna mentioned in Unani and conventional medicine. | 1 | Lecture | CC | Knows-how | L |
| CO1,CO2, CO3,CO4, CO6 | Discuss the pathological correlation of Amrāz Kabid, Ṭiḥāl, Kulya & Masāna in Unani and conventional medicine. | 2 | Practical31.4 | CAN | Shows-how | PER,DIS |
| CO1,CO2, CO3,CO4, CO6 | Diagnose the patients of Amrāz Kabid, Ṭiḥāl, Kulya & Masāna according to Unani and conventional medical approach and their applications. | 2 | Experiential-Learning31.5 | PSY-GUD | Does | CBL,CD,D-BED |
| CO1,CO2, CO3,CO4, CO6 | Discuss the pathological correlation of Amrāz A'za' Tānāsul in Unani and conventional medicine. | 2 | Practical31.5 | CAN | Shows-how | PER,DIS |
| CO1,CO2, CO3,CO4, CO6 | Diagnose the patients of Amrāz A'za' Tānāsul according to Unani and conventional medical approach and their applications. | 3 | Experiential-Learning31.6 | PSY-MEC | Does | D-BED,CBL,LS,CD |
| **Unit 3 Interpretation of Unani Pathology of Amrāz Mutafarriqa (امراض متفرقہ)with conventional medical science**<br>31.3.1 Interpretation of Unani Pathology of Amrāz Mutafarriqa (امراض متفرقہ)with conventional medical science<br>**References:** 1,11 | | | | | | |
| **3A** | **3B** | **3C** | **3D** | **3E** | **3F** | **3G** |

| | | | | | | |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4, CO6 | Describe the modern scientific interpretation of Ḥummayāt. | 1 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6 | Demonstrate diagnosed case of Ḥummayāt comparing with contemporary diagnosis. | 3 | Practical31.6 | PSY-GUD | Shows-how | D-BED,CBL,PER |
| CO1,CO2, CO3,CO4, CO6 | Conduct a literature search of Unani books to find the possible correlation of blood and endocrine disorders. | 4 | Experiential-Learning31.7 | PSY-GUD | Does | LS,PBL |
| CO1,CO2, CO3,CO4, CO6 | Discuss the modern scientific interpretation of Amrāz Sahna and nutritional disorders. | 1 | Lecture | CAN | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4, CO6 | Demonstrate the diagnosed case of Amrāz Sahna and nutritional disorders comparing with contemporary diagnosis. | 2 | Practical31.7 | PSY-GUD | Shows-how | LS,PBL |
| CO1,CO2, CO3,CO4, CO6 | Identify Asbab of blood and endocrine disorders based on their Alamat according to Unani medical concept. | 3 | Experiential-Learning31.8 | PSY-MEC | Does | CD,LS,D-BED,CBL |
| **Practical Training Activity** | | | | | | |
| Practical Training 31.1 Differential diagnosis of Ḥummā Khilṭī | | | | | | |

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| The teacher will instruct the students to make PPT on differential diagnosis of Ḥummā Khilṭī in following steps.<br>1. Review of literature on the topic facilitated by the teacher (2 hours).<br>2. Preparation of PPT with the help of visuals and graphics under the teacher's supervision (2 hours)<br>3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session followed by conclusive remark by the teacher (1 hour).<br>Total duration: 5 hours |
| Practical Training 31.2 Ḥummā Diqqiyya |
| The teacher will guide the students to cover this topic through Peer Learning in the following steps.<br>1. Ask students to first study the topic from classical literature under the teacher's supervision (1 hour).<br>2. Review the contemporary concept of related diseases from reliable sources guided by the teacher (1 hour).<br>3. Correlate and apply the classical concept and discuss with peers and teachers (1 hour).<br>4. Interact and try to answer any query raised during the discussion supervised by the teacher(1 hour).<br>Student work together through discussions, and problem-solving activities, exchange ideas, clarify doubts, and enhance their understanding on Ḥummā Diqqiyya.<br>Total duration: 4 hours |
| Practical Training 31.3 Correlation of Amrāz Dahan, Mi'da & Am'ā' -1 |
| Teacher will guide and assign an open-ended problem/ question related to correlation of Amrāz Dahan, Mi'da & Am'ā' in Unani and Modern medicine to students.<br>1. Students will learn about Amrāz Dahan, Mi'da & Am'ā' from available literature to solve the problem under the teacher's supervision (1 hour).<br>2. Students will complie the answer and teacher will assess it based on checklist considering the accuracy of answer, the justification/reasoning and time taken for answering (1 hour)<br>Total duration: 2 hours |
| Practical Training 31.4 Correlation of Amrāz Kabid, Ṭiḥāl, Kulya & Masāna -1 |

The teacher will guide the students to make PPT on pathological correlation of Amrāz Kabid, Ṭiḥāl, Kulya & Masāna in Unani and conventional medicine in following steps.

1. Review of literature on the topic facilitated by the teacher (60 minutes).

2. Preparation of PPT with the help of visuals and graphics under the teacher's supervision (30 minutes)

3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session followed by conclusive remark by the teacher (30 minutes).

Total duration: 2 hours

Practical Training 31.5 Correlation of Amrāz A'za' Tānāsul -1

The teacher will instruct the students to make PPT on athological correlation of Amrāz A'za' Tānāsul in Unani and conventional medicine in following steps.

1. Review of literature on the topic facilitated by the teacher (1 hour).

2. Preparation of PPT with the help of visuals and graphics under the teacher's supervision (30 minutes)

3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session followed by conclusive remark by the teacher (30 minutes).

Total duration: 2 hours

Practical Training 31.6 Correlation of Ḥummayāt

The teacher will instruct the students to present cases of Ḥummayāt in the following steps.

1. Taking history and examination of the patient with lab reports in detail facilitated by the teacher (1 hour).

2. Review of related literature from books and research articles for correlation unser teacher's guidance (1 hour).

3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings followed by conclusive remark by the teacher (1 hour).

Total duration: 3 hours

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| Practical Training 31.7 Correlation of Amrāz Sahna and nutritional disorders |
| Teacher will assign an open-ended problem/ question related to correlation of Amrāz Sahna and nutritional disorders in Unani and Modern medicine to students and guide them.<br>1. Students will learn about Amrāz Sahna and nutritional disorders from available literature to solve the problem unser teacher's supervision(1 hour).<br>2. Students will complie the answer and teacher will assess it based on checklist considering the accuracy of answer, the justification/reasoning and time taken for answering (1 hour)<br>Total duration: 2 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 31.1: Etiological types of Ḥummā Yawm |
| The teacher will instruct the students to present cases of various etiological types of Ḥummā Yawm in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles for correlation (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 31.2: Siman Mufriṭ |
| The students will present cases of Siman Mufriṭ in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (2 hours).<br>2. Review of related literature from books and research articles for correlation (2 hours).<br>3. Presentation of the case in PG activity session explaining its cause with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 5 hours |

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| Experiential-Learning Learning 31.3: Huzāl |
| The student will present cases of Huzāl in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (2 hours).<br>2. Review of related literature from books and research articles for correlation (1 hour).<br>3. Presentation of the case in PG activity session explaining its cause with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 4 hours |
| Experiential-Learning Learning 31.4: Correlation of Amrāz Dahan, Mi'da & Am'ā' -2 |
| The students will present cases of Amrāz Dahan, Mi'da & Am'ā'in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (45 minutes).<br>2. Review of related literature from books and research articles for correlation (45 minutes).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (30 minutes).<br>Total duration: 2 hours |
| Experiential-Learning Learning 31.5: Correlation of Amrāz Kabid, Ṭiḥāl, Kulya & Masāna -2 |
| The teacher will instruct the students to present cases of Amrāz Kabid, Ṭiḥāl, Kulya & Masāna in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (45 minutes).<br>2. Review of related literature from books and research articles for correlation (45 minutes).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (30 minutes).<br>Total duration: 2 hours |
| Experiential-Learning Learning 31.6: Correlation of Amrāz A'za' Tānāsul -2 |
| The students will present cases of Amrāz A'za' Tānāsul in the following steps. |

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| 1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles for correlation (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours |
| Experiential-Learning Learning 31.7: Correlation of blood and endocrine disorders -1 |
| Teacher will assign an open-ended problem/ question related to correlation of blood and endocrine disorders in Unani and Modern medicine to students.<br>1. Students learn about blood and endocrine disorders from available literature to solve the problem (2 hours).<br>2. Students will complie the answer and teacher will assess it based on checklist considering the accuracy of answer, the justification/reasoning and time taken for answering (2 hours)<br>Total duration: 4 hours |
| Experiential-Learning Learning 31.8: Correlation of blood and endocrine disorders -2 |
| 1. The teacher will instruct the students to engage with cases of blood and endocrine disorders in hospital, taking history and doing examinations (1 hour)<br>2. Encourage them to think critically and apply conventional as well as Unani medical knowledge with the help of authentic literature (1 hour).<br>3. Ask them to diagnose according to Unani principles and try to identify the possible Asbab based on Alamat. The teacher will interact with students, assess and comment on their Unani diagnosis based on their clinical approach and theoretical justifications (1 hour).<br>Total duration: 3 hours |
| **Modular Assessment** |

| **Assessment** | **Hour** |
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|---|---|
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern.<br>Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct Debate and assess students (25 Marks) considering following aspects;<br>Reasoning and evidence - 10 marks<br>Response ability - 10 marks<br>Expression and delivery - 5 marks<br>Conduct Essay writing test (25 Marks) considering following aspects;<br>Quality of content - 10 marks<br>Language and writing skill - 10 marks<br>Structure of essay - 5 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | 4 |
| **Module 32 : Diseases of Blood, Endocrine system and Nutrition** | |
| Module Learning Objectives<br>(At the end of the module, the students should be able to)<br>1. Describe etiology, pathogenesis, pathological changes and clinical features of diseases of blood, endocrine system and nutrition.<br>2. Conduct discussion on differential diagnosis of diseases of blood, endocrine system and nutrition.<br>3. Identify the appropriate diagnostic investigations required for various diseases of blood, endocrine system and nutrition. | |
| **Unit 1 Diseases of Blood** | |

32.1.1 Anaemia, Polycythaemia, Bleeding disorders, Lymphoid Neoplasms, Myeloid Neoplasms

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3,CO4 | Discuss the etiology, pathogenesis, morphology and clinical features of various types of anaemia. | 2 | Lecture | CC | Knows-how | L&PPT |
| CO1,CO2, CO3,CO4 | Diagnose the cases of anaemia based on clinical presentation and investigations. | 5 | Experiential-Learning32.1 | PSY-GUD | Does | LRI,D-BED,DIS,Mnt,DL |
| CO1,CO2, CO3 | Describe the etiopathogenesis, morphology and clinical features of polycythaemia and various types of bleeding disorders. | 2 | Lecture | CC | Knows-how | L&GD |
| CO1,CO2, CO3 | Identify the cases of bleeding disorders of different etiology. | 3 | Experiential-Learning32.2 | PSY-MEC | Does | Mnt,PL,LRI |
| CO1,CO2, CO3 | Analyze pathogenesis, morphology and diagnostic features of lymphoid neoplasms. | 4 | Practical32.1 | CAP | Shows-how | PAL,SY,LS,PER |
| CO1,CO2, CO3 | Discuss the pathology of myeloid neoplasms. | 3 | Practical32.2 | CAP | Shows-how | JC,LS |

**Unit 2 Endocrine Disorders**

32.2.1 Hypopituitarism, Hyperpituitarism, Hyperthyroidism, Hypothyroidism, Thyroiditis, Goitre, Hyperparathyroidism, Hypoparathyroidism, Adrenocortical Hyperfunction, Adrenocortical Insufficiency

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Describe etiology, pathogenesis, morphology and clinical features of hypopituitarism and hyperpituitarism. | 4 | Lecture | CC | Knows-how | FC |
| CO1,CO2, CO3 | Diagnose the cases of hyperthyroidism. | 4 | Experiential-Learning32.3 | PSY-MEC | Does | CD,PAL,Mnt,CBL |
| CO1,CO2, CO3 | Identify the etiology in cases of hypothyroidism. | 4 | Experiential-Learning32.4 | PSY-GUD | Does | DIS,LS,CBL,D-BED |
| CO1,CO2, CO3 | Investigate the required confirmatory diagnostic parameters in cases thyroiditis & goitre. | 4 | Experiential-Learning32.5 | PSY-MEC | Does | LRI,CBL,Mnt |
| CO1,CO2, CO3 | Discuss the pathology and clinical features of hyperparathyroidism and hypoparathyroidism. | 3 | Practical32.3 | CAN | Shows-how | LS,PER,DIS |
| CO1,CO2, CO3 | Delineate the pathogenesis, morphology and clinical features of adrenocortical hyperfunction. | 3 | Practical32.4 | CAN | Shows-how | JC,DIS,LS |
| CO1,CO2, CO3 | Discuss the pathogenesis, morphology and clinical features of adrenocortical insufficiency. | 3 | Practical32.5 | CAN | Shows-how | LS,JC,DIS |

**Unit 3 Nutritional Disorders**

32.3.1 Malnutrition, Vitamin Deficiencies, Obesity

**References:** 11,12

| 3A | 3B | 3C | 3D | 3E | 3F | 3G |
|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Describe the pathology of malnutrition and differentiate between morphology of marasmus and kwashiorkor. | 2 | Lecture | CC | Knows-how | L&PPT |

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|---|---|---|---|---|---|---|
| CO1,CO2, CO3 | Discuss the differential diagnosis and pathological features of vitamin deficiencies. | 4 | Practical32.6 | CAP | Shows-how | LS,DIS,PER,W |
| CO1,CO2, CO3 | Identify the pathological and biochemical abnormalities in cases of obesity. | 3 | Experiential-Learning32.6 | PSY-MEC | Does | LS,DIS,CD,CBL |
| CO1,CO2, CO3 | Diagnose the clinical complications due to obesity. | 3 | Experiential-Learning32.7 | PSY-MEC | Does | LS,C_L,D-BED,CBL |

**Practical Training Activity**

Practical Training 32.1 Lymphoid neoplasms

The teacher will guide the students to present the topic in the journal club in the following steps;

1. Review of literature related to the assigned topic and search for related research articles from reputed Journals facilitated by the teacher (1 hour)

2. Critical review of one chosen article and making the summary of important points to present as ppt under the teacher's supervision (2 hours).

3. Presentation in the Journal Club and Discussion supervised by the teacher (45 minutes).

4. Teachers will interact with students for evaluation and necessary suggestions (15 minutes).

Total duration: 4 hours

Practical Training 32.2 Myeloid neoplasms

The teacher will guide the students to present the topic in the journal club in the following steps;

1. Review of literature related to the assigned topic and search for related research articles from reputed Journals facilitated by the teacher (1 hour)

2. Critical review of one chosen article and making the summary of important points to present as ppt under the teacher's supervision (1 hour).

3. Presentation in the Journal Club and Discussion supervised by the teacher (45 minutes).

4. Teachers will interact with students for evaluation and necessary suggestions (15 minutes).

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| Total duration: 3 hours |
| Practical Training 32.3 Hyperparathyroidism and hypoparathyroidism |
| The teacher will facilitate the students to make PPT on hyperparathyroidism and hypoparathyroidism in following steps.<br>1. Review of literature on the topic under the teacher's supervision (1 hour).<br>2. Preparation of PPT with the help of visuals and graphics facilitated by the teacher (1 hour)<br>3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session followed by conclusive remark by the teacher (1 hour).<br>Total duration: 3 hours |
| Practical Training 32.4 Adrenocortical hyperfunction |
| The teacher will guide the students to present the topic in the journal club in the following steps;<br>1. Review of literature related to the assigned topic and search for related research articles from reputed Journals facilitated by the teacher (1 hour)<br>2. Critical review of one chosen article and making the summary of important points to present as ppt under the teacher's supervision (1 hours).<br>3. Presentation in the Journal Club and Discussion supervised by the teacher (45 minutes).<br>4. Teachers will interact with students for evaluation and necessary suggestions (15 minutes).<br>Total duration: 3 hours |
| Practical Training 32.5 Adrenocortical insufficiency |
| The teacher will instruct the students to present the topic in the journal club in the following steps;<br>1. Review of literature related to the assigned topic and search for related research articles from reputed Journals under the teacher's supervision (1 hour)<br>2. Critical review of one chosen article and making the summary of important points to present as ppt facilitated by the teacher (1 hours).<br>3. Presentation in the Journal Club and Discussion supervised by the teacher (45 minutes).<br>4. Teachers will interact with students for evaluation and necessary suggestions (15 minutes). |

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| Total duration: 3 hours |
| Practical Training 32.6 Vitamin deficiencies |
| The teacher will instruct the students to make PPT on differential diagnosis and pathological features of vitamin deficiencies in following steps.<br>1. Review of literature on the topic facilitated by the teacher (2 hours).<br>2. Preparation of PPT with the help of visuals and graphics under the teacher's supervision (1 hour)<br>3. They have to present it to teachers and PG Scholars. Other students to be encouraged to discuss the key points during the interaction session followed by conclusive remark by the teacher (1 hour).<br>Total duration: 4 hours |
| **Experiential Learning Activity** |
| Experiential-Learning Learning 32.1: Anaemia |
| The students will present cases of anaemia in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (2 hour).<br>2. Review of related literature from books and research articles (2 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 5 hours |
| Experiential-Learning Learning 32.2: Bleeding disorders |
| The students will diagnose the cases of bleeding disorders with the help of lab reports in the following steps;<br>1. Students will read and understand the data from various test reports of the given case (1.5 hours).<br>2. They will correlate with the clinical condition of cases and arrive at a provisional diagnosis of bleeding disorders. They will discuss with peers and teachers where needed (1.5 hours). |

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| Total duration: 3 hours |
| Experiential-Learning Learning 32.3: Hyperthyroidism |
| The students will present cases of hyperthyroidism in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1.5 hours).<br>2. Review of related literature from books and research articles (1.5 hours).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 4 hours |
| Experiential-Learning Learning 32.4: Etiology of hypothyroidism |
| The students will present cases of hypothyroidism in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1.5 hours).<br>2. Review of related literature from books and research articles (1.5 hours).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 4 hours |
| Experiential-Learning Learning 32.5: Thyroiditis & Goitre |
| The students will diagnose the cases of thyroiditis & goitre with the help of lab reports in the following steps;<br>1. Students will read and understand the data from various test reports of the given case (2 hours).<br>2. They will correlate with the clinical condition of cases and arrive at a provisional diagnosis of thyroiditis & goitre. They will discuss with peers and teachers where needed (2 hours).<br>Total duration: 4 hours |
| Experiential-Learning Learning 32.6: Obesity -1 |

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| The students will present cases having pathological and biochemical abnormalities due to obesity in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours | |
| Experiential-Learning Learning 32.7: Obesity -2 | |
| The students will present cases having clinical complications due to obesity in the following steps.<br>1. Taking history and examination of the patient with lab reports in detail (1 hour).<br>2. Review of related literature from books and research articles (1 hour).<br>3. Presentation of the case in PG activity session explaining its causes with justification and evidence, based on history and examination findings (1 hour).<br>Total duration: 3 hours | |
| **Modular Assessment** | |
| **Assessment** | **Hour** |
| Instructions: Conduct a structured modular assessment. Assessment will be for 50 marks for this module. Keep structured marking pattern.<br>Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C.<br>Conduct practical case taking (25 Marks) considering following aspects;<br>Understanding of case - 5 marks<br>Accuracy of diagnosis - 10 marks<br>Case presentation skill - 10 marks | 4 |

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| Conduct online quiz assessment (25 Marks) considering following aspects;<br>Accuracy of answers - 15 marks<br>Time management - 10 marks<br>Or<br>Any practical in converted form can be taken for assessment. (25 Marks)<br>and<br>Any experiential learning, such as portfolios/reflections/presentations, can be taken as an assessment. (25 Marks) | |

## Table 4 : Practical Training Activity

**(*Refer table 3 of similar activity number)**

| Practical No* | Practical name | Hours |
|---|---|---|
| 1.1 | External factors affecting Nabḍ | 4 |
| 1.2 | Correlation of Nabḍ with other diagnostic tools | 4 |
| 1.3 | Observation of Ajnas Nabḍ | 4 |
| 1.4 | Standard operative procedures of Pulse | 3 |
| 1.5 | Pulse of systemic diseases | 5 |
| 2.1 | Good laboratory practices-2 | 3 |
| 2.2 | Good laboratory practices-1 | 4 |
| 2.3 | Laboratory Information Systems (LIS) | 4 |
| 2.4 | National accredation board for testing and calibration laboratories(NABL) guidelines | 4 |
| 2.5 | common investigations | 2 |
| 2.6 | Diagnostic tools | 1 |
| 2.7 | Artificial intelligence and machine learning | 2 |
| 3.1 | indications and techniques of Uroscopy | 2 |
| 3.2 | Uroscopy methods | 5 |
| 3.3 | Qiwām and Miqdār of Urine | 4 |
| 3.4 | SOPs for Mu'āyana' Qārūra | 4 |
| 3.5 | Physical examination of Bawl | 5 |
| 4.1 | Clinical Hematology | 5 |
| 4.2 | Clinical Hematology SOPs | 6 |
| 4.3 | SOPs of Peripheral Smear Examination | 5 |

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|---|---|---|
| 4.4 | SOPs of Coagulation Profile, Blood Transfusions, Immunological Assays, mutation tests, etc. | 4 |
| 5.1 | Mu‘āyana’ Barāz | 4 |
| 5.2 | SOPs for Mu‘āyana’ Barāz | 4 |
| 5.3 | Mu‘āyana’ of Nafth | 4 |
| 5.4 | SOPs of Mu‘āyana’ of Nafth | 4 |
| 5.5 | Mu‘āyana’ of Tanaffus | 4 |
| 6.1 | Biochemical and serological Tests | 7 |
| 6.2 | Serological Tests | 7 |
| 6.3 | Serological Test - 2 | 6 |
| 7.1 | Urine Examination | 6 |
| 7.2 | Examination of Stool, Semen and Sputum | 5 |
| 7.3 | Interpretation of Clinical Pathology and Cytopathology | 3 |
| 7.4 | Histopathological Slides | 3 |
| 7.5 | Interpretation of Histopathological reports | 3 |
| 8.1 | Radiology | 7 |
| 8.2 | MRI, PET scan, and Doppler studies | 6 |
| 8.3 | Electrocardiogram (ECG), Electroencephalogram (EEG), Treadmill Test (TMT), and Echocardiography | 7 |
| 9.1 | Classification of Ḥummā ‘Ufūniyya | 5 |
| 9.2 | Ḥummā ‘Ufūniyya Versus Ḥummā Wabā’iyya. | 3 |
| 9.3 | Stages of the pathogenesis of infection | 3 |
| 9.4 | Transmission of infection. | 3 |
| 9.5 | Methods of disinfection and sterilization -1 | 5 |

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| 9.6 | Testing of disinfectants | 1 |
| 10.1 | Growth and Nutrition of Bacteria. | 3 |
| 10.2 | Extrachromosomal genetic elements and mutation. | 3 |
| 10.3 | Culture methods | 3 |
| 10.4 | Biochemical tests | 3 |
| 10.5 | Interpretation of biochemical tests | 2 |
| 10.6 | Microflora of human body | 5 |
| 10.7 | Prebiotics and Probiotics. | 1 |
| 11.1 | Gram-positive bacteria-I (Staphylococcus, Streptococcus, Corynebacterium) | 7 |
| 11.2 | Gram-positive bacteria-II (Bacillus, Mycobacteria, Clostridium) | 7 |
| 11.3 | Chlamydia, Rickettsia, and Spirochetes | 6 |
| 12.1 | Gram negative bacteria-I | 10 |
| 12.2 | Gram negative bacteria-II | 10 |
| 13.1 | Hepatotropic viruses-3 | 7 |
| 13.2 | Oncogenic viruses-2 | 7 |
| 13.3 | Diagnosis of Common Viral Infections | 6 |
| 14.1 | Pneumocystis, Histoplasma, Blastomyces, Coccidioides, Actinomycetes &.Nocardia - 2 | 7 |
| 14.2 | Candida, Cryptococcus, Mucor, Aspergillus -2 | 7 |
| 14.3 | Lab Diagonosis of Mycosis | 6 |
| 15.1 | Identification of protozoan parasites | 5 |
| 15.2 | Identification of helminths | 4 |
| 15.3 | Identification of Arthropods & Vectors | 5 |
| 15.4 | Malaria, Dengue, Chikungunya-2 | 3 |

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| 15.5 | Diagnosis of various ectoparacites | 3 |
| 16.1 | Polymerase Chain Reaction (PCR), Western Blot, ELISA, DNA amplification, and Microarray technology | 10 |
| 16.2 | Automated Gram staining, antimicrobial susceptibility testing, biosensors, haemagglutinin testing, and flow cytometry | 10 |
| 17.1 | Ṣudā‘, | 1 |
| 17.2 | Sarsaam | 1 |
| 17.3 | sehar | 1 |
| 17.4 | Mālankhūliyā | 2 |
| 17.5 | Sadr & Duwār | 1 |
| 17.6 | Istirkhā | 2 |
| 17.7 | Tashannuj, | 1 |
| 17.8 | Laqwa | 1 |
| 17.9 | Khadr, | 1 |
| 17.10 | NuzūlulMā | 2 |
| 17.11 | Dam‘a, | 2 |
| 17.12 | Waqr & Ṣamam, | 2 |
| 17.13 | Nazla & Zukām | 1 |
| 17.14 | Khunāq | 2 |
| 18.1 | Encephalitis | 3 |
| 18.2 | Multiple sclerosis | 3 |
| 18.3 | Parkinson Disease | 3 |
| 18.4 | Neurofibromas | 3 |
| 18.5 | Cataract | 4 |

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| 18.6 | Rhinitis | 4 |
| 19.1 | Khafaqān | 2 |
| 19.2 | Waram Ghishā' Qalb | 2 |
| 19.3 | Taqashshurul Qalb | 3 |
| 19.4 | 'IllatDukhāniyya | 2 |
| 19.5 | ZīqunNafas, Buhr and Rabw | 2 |
| 19.6 | Zātur Ri'a | 3 |
| 19.7 | Sill | 2 |
| 19.8 | Nasful Midda, | 2 |
| 19.9 | Barsām, | 2 |
| 20.1 | Congenital Heart disease | 4 |
| 20.2 | Myocardial Infarction | 4 |
| 20.3 | Cor pulmonale | 3 |
| 20.4 | mitral and aortic stenosis, insufficiency | 5 |
| 20.5 | Arteriosclerosis | 2 |
| 20.6 | Varicose Veins. | 2 |
| 21.1 | Emphysema | 4 |
| 21.2 | Bronchiectasis | 4 |
| 21.3 | Interstitial Lung Disease | 4 |
| 21.4 | Pneumonia | 4 |
| 21.5 | Pleural Effusion | 4 |
| 22.1 | Bahaq | 1 |
| 22.2 | Barash | 2 |

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|---|---|---|
| 22.3 | TaqashshurJild | 2 |
| 22.4 | Shayb | 2 |
| 22.5 | Qummal | 1 |
| 22.6 | Sharā | 2 |
| 22.7 | Jarab | 2 |
| 22.8 | Dā'ulFīl | 2 |
| 22.9 | Waja'uzẒahr | 2 |
| 22.10 | Waja'ul Warik | 2 |
| 22.11 | Irqun Nasā | 2 |
| 23.1 | Melanoma | 2 |
| 23.2 | Urticaria | 3 |
| 23.3 | Lichen planus | 2 |
| 23.4 | Scabies | 3 |
| 23.5 | Dermatophytosis | 2 |
| 23.6 | Osteomyelitis | 3 |
| 23.7 | Rheumatoid Arthritis | 3 |
| 23.8 | AmrāzA'za' Ẓāhira | 2 |
| 24.1 | Etiopathogenesis and Clinical Features of Amraze R`as in unani and conventional medicine | 5 |
| 24.2 | Alamat and tariqa Tashkhees of amraze R`as in Unani and conventional medicine | 5 |
| 24.3 | Etiopathogenesis of amraze haiwaniya in unani and conventional medicine | 4 |
| 24.4 | SARS | 2 |
| 24.5 | Diagnostic approach of Hypertension | 4 |
| 25.1 | Qula' & Bakhrul Fam | 2 |

| | | |
|---|---|---|
| 25.2 | Waram Marī & ‘Usrul Bal‘ | 2 |
| 25.3 | Waja‘ul Mi‘da | 2 |
| 25.4 | Zu‘f Ishtihā’ | 2 |
| 25.5 | Waram Mi‘da | 2 |
| 25.6 | Fuwāq | 2 |
| 25.7 | Zalq al-Am‘ā | 3 |
| 25.8 | Dīdān Am‘ā | 3 |
| 25.9 | Maghṣ | 2 |
| 26.1 | Leucoplakia | 2 |
| 26.2 | Achalasia | 2 |
| 26.3 | Reflux oesophagitis | 2 |
| 26.4 | Peptic ulcer disease 1 | 3 |
| 26.5 | Peptic ulcer disease 2 | 3 |
| 26.6 | Irritable bowel syndrome | 2 |
| 26.7 | Inflammatory bowels disease | 2 |
| 26.8 | Dysentery | 2 |
| 26.9 | Carcinoma of colon | 2 |
| 27.1 | Sū’i Mizāj Kabid | 3 |
| 27.2 | Zu‘f Kabid | 2 |
| 27.3 | Qiyām Kabidī | 3 |
| 27.4 | Huzāl Kulya | 3 |
| 27.5 | Waram al-Kulya | 3 |
| 27.6 | Waram Masana | 3 |

| | | |
|---|---|---|
| 27.7 | Taqtirul Bawl and Salasul Bawl | 3 |
| 28.1 | Liver abcess | 2 |
| 28.2 | Hepatic failure | 2 |
| 28.3 | Portal hypertension | 2 |
| 28.4 | Cholecystitis | 2 |
| 28.5 | Carcinoma of gall bladder | 2 |
| 28.6 | Pancreatitis | 3 |
| 28.7 | Nephrotic syndrome | 2 |
| 28.8 | Pyelonephritis | 2 |
| 28.9 | Renal cell carcinoma | 3 |
| 29.1 | Zu'f Bāh -2 | 4 |
| 29.2 | Jarayān | 3 |
| 29.3 | Waram Rahim | 4 |
| 29.4 | Sarạtān Rahim | 4 |
| 29.5 | Waram Sadi -1 | 5 |
| 30.1 | Prostatitis | 3 |
| 30.2 | Adenocarcinoma of prostate | 4 |
| 30.3 | Cervical cancer | 4 |
| 30.4 | Carcinoma of endometrium | 3 |
| 30.5 | Mastitis and breast abscess | 3 |
| 30.6 | Benign lesion of breast 1 | 3 |
| 31.1 | Differential diagnosis of Ḥummā Khilṭī | 5 |
| 31.2 | Ḥummā Diqqiyya | 4 |

| | | |
|---|---|---|
| 31.3 | Correlation of Amrāz Dahan, Mi‘da & Am‘ā’ -1 | 2 |
| 31.4 | Correlation of Amrāz Kabid, Ṭiḥāl, Kulya & Masāna -1 | 2 |
| 31.5 | Correlation of Amrāz A’za’ Tānāsul -1 | 2 |
| 31.6 | Correlation of Ḥummayāt | 3 |
| 31.7 | Correlation of Amrāz Sahna and nutritional disorders | 2 |
| 32.1 | Lymphoid neoplasms | 4 |
| 32.2 | Myeloid neoplasms | 3 |
| 32.3 | Hyperparathyroidism and hypoparathyroidism | 3 |
| 32.4 | Adrenocortical hyperfunction | 3 |
| 32.5 | Adrenocortical insufficiency | 3 |
| 32.6 | Vitamin deficiencies | 4 |

## Table 5 : Experiential learning Activity

**(*Refer table 3 of similar activity number)**

| Experiential learning No* | Experiential name | Hours |
|---|---|---|
| 1.1 | Diagnostic Significance of Nabḍ | 5 |
| 1.2 | Diagnosis of disease by Nabḍ | 4 |
| 1.3 | Nabḍ Mufrad. | 5 |
| 1.4 | Nabḍ Murakkab | 4 |
| 1.5 | Nabḍ of specific diseases | 4 |
| 1.6 | Interpretation of Nabḍ | 4 |
| 2.1 | Errors in tests | 2 |
| 2.2 | Calibration methods | 3 |
| 2.3 | Interpretation of the graph of Mean/SD/CV | 3 |
| 2.4 | Recent advances | 2 |
| 2.5 | Patient confidentiality | 3 |
| 2.6 | Bio medical waste | 2 |
| 2.7 | Laws and Regulations | 5 |
| 2.8 | Validate diagnostic tools | 2 |
| 2.9 | Unani-based diagnostic scales | 2 |
| 2.10 | standardized protocols | 2 |
| 3.1 | Analysis of Urine formation | 4 |
| 3.2 | Study of Quwā | 4 |
| 3.3 | Zabada al-Bawl | 4 |
| 3.4 | Rasūb of Bawl | 3 |

| | | |
|---|---|---|
| 3.5 | Study the colour of urine | 4 |
| 3.6 | Bawl in modern view- colour, quantity and turbidity of Urine | 3 |
| 3.7 | Bawl in modern view- Odour and precipitate of urine | 4 |
| 4.1 | Interpretation of Lab Reports of Haematology | 5 |
| 4.2 | Correlation of haematological investigations | 3 |
| 4.3 | Interpretation of Peripheral Smear Reports | 5 |
| 4.4 | Correlation of Peripheral Blood Smears | 5 |
| 4.5 | Interpretation of Coagulation Profile, Blood Transfusions, Immunological Assays, mutation tests | 4 |
| 4.6 | Correlation of Coagulation Profile, Blood Transfusions, Immunological Assays, mutation tests | 4 |
| 5.1 | Examination and Interpretation of Barāz | 4 |
| 5.2 | Different parameters of Mu'āyana Barāz | 4 |
| 5.3 | Mu'āyana' of Araq | 3 |
| 5.4 | SOPs of Mu'āyana' of Tanaffus | 4 |
| 5.5 | SOPs of Mu'āyana' of Araq (Sweat) | 4 |
| 5.6 | Interpretation of Tanaffus and Nafth | 4 |
| 5.7 | Interpretation of Mu'āyana' Araq (Examination of Sweat) | 3 |
| 6.1 | Interpretation of Biochemical and Serological Tests | 4 |
| 6.2 | Correlation of Biochemical and Serological Test | 4 |
| 6.3 | Interpretation of Serological Tests | 5 |
| 6.4 | Corrlation of Serological Tests | 5 |
| 6.5 | Interpretation of Serological Tests 2 | 4 |
| 6.6 | Correlation of Serological Tests 2 | 4 |

| | | |
|---|---|---|
| 7.1 | Interpretation of Urine Examination | 5 |
| 7.2 | Corelation of Urine Examination | 5 |
| 7.3 | Interpretation of Examination of Stool, Semen and Sputum | 4 |
| 7.4 | Correlation of Examination of Stool, Semen and Sputum | 3 |
| 7.5 | Clinical pathology & Cytopathology | 4 |
| 7.6 | Histopathological Instruments | 5 |
| 8.1 | Interpretation of X-rays | 4 |
| 8.2 | USG and CT scan | 3 |
| 8.3 | MRI | 4 |
| 8.4 | PET scan and Doppler study | 4 |
| 8.5 | ECG interpretation | 4 |
| 8.6 | Barium tests & special investigation | 4 |
| 8.7 | Correlation of radiology with Unani Medicine | 3 |
| 9.1 | Diagnosis of Ḥummā ‘Ufūniyya | 5 |
| 9.2 | Diagnosis of Ḥummā Wabā’iyya | 2 |
| 9.3 | Unani interpretation of newly emerging viral fevers | 3 |
| 9.4 | Routes of infection | 3 |
| 9.5 | Bacterial Toxins | 3 |
| 9.6 | Mode of transmission of infection | 2 |
| 9.7 | Methods of disinfection and sterilization-2 | 4 |
| 9.8 | Methods of disinfection and sterilization-3 | 4 |
| 10.1 | Phenotype and genotype variation | 3 |
| 10.2 | Genetic engineering. | 4 |

| | | |
|---|---|---|
| 10.3 | Gene therapy | 3 |
| 10.4 | Types of stains | 2 |
| 10.5 | Staining techniques | 3 |
| 10.6 | Identification of Bacteria. | 4 |
| 10.7 | Therapeutic uses of Gut flora | 2 |
| 10.8 | Microbial contamination of water, milk, and air | 5 |
| 11.1 | Gram-positive bacteria III | 9 |
| 11.2 | Gram positive bacteria IV | 9 |
| 11.3 | Miscellaneous bacteria | 8 |
| 12.1 | Gram-negative Bacteria-III | 10 |
| 12.2 | Gram negative Bacteria-IV | 9 |
| 12.3 | Gram-negative Bacteria-V | 7 |
| 13.1 | Categorization of viruses | 4 |
| 13.2 | Hepatotropic viruses-1 | 5 |
| 13.3 | Hepatotropic Viruses-2 | 4 |
| 13.4 | Oncogenic viruses-1 | 5 |
| 13.5 | HIV Prevention Strategies | 2 |
| 13.6 | Monkeypox, Coronavirus, Cervical Cancer, Dengue, Adult T-cell leukaemia (ATL) | 6 |
| 14.1 | Fungal reproduction | 4 |
| 14.2 | Candida, Cryptococcus, Mucor, Aspergillus | 4 |
| 14.3 | Pneumocystis, Histoplasma, Blastomyces, Coccidioides, Actinomycetes &.Nocardia | 8 |
| 14.4 | Superficial, Subcutaneous and Systemic Mycosis | 10 |

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|---|---|---|
| 15.1 | Entamoeba, Giardia, Trichomonas, Plasmodium, Toxoplasma. Leishmania, Trypanosoma | 6 |
| 15.2 | Cestoda and Trematoda | 6 |
| 15.3 | Trichinella spiralis, Strongyloides stercoralis, Ascaris lumbricoides, and P. westermani | 3 |
| 15.4 | Life cycle of Arthropods and vectors | 6 |
| 15.5 | Dengue, Malaria, and Chikungunya | 5 |
| 16.1 | Diagnostic microbiology | 7 |
| 16.2 | Automated Microbiology Methods | 9 |
| 16.3 | Microscopes (light, fluorescence, and electron microscope) | 10 |
| 17.1 | Subat | 1 |
| 17.2 | Subat | 1 |
| 17.3 | Nisyan | 2 |
| 17.4 | Mālankhūliyā | 2 |
| 17.5 | Sakta | 1 |
| 17.6 | Fālij, | 2 |
| 17.7 | Tashannuj. | 2 |
| 17.8 | Tamaddud | 1 |
| 17.9 | Laqwa | 1 |
| 17.10 | Ikhtilāj | 2 |
| 17.11 | Juḥūẓul ‘Ayn, | 2 |
| 17.12 | Waja‘ul Uzun | 1 |
| 17.13 | Ṭarash | 1 |
| 17.14 | Dawī & Ṭanīn, | 1 |

| | | |
|---|---|---|
| 17.15 | Khasham | 1 |
| 17.16 | Ruʻāf, | 2 |
| 17.17 | Ụtās | 1 |
| 17.18 | Buḥḥatus Ṣawt, | 2 |
| 18.1 | Cerebrovascular Disease | 4 |
| 18.2 | Cerebrovascular Disease | 4 |
| 18.3 | Cerebro Meningeal Tumours | 4 |
| 18.4 | Proptosis | 4 |
| 18.5 | Glaucoma | 5 |
| 18.6 | Sinusitis | 5 |
| 19.1 | Ghashī | 4 |
| 19.2 | Zagḥtul Qalb | 4 |
| 19.3 | Qadhful Qalb | 3 |
| 19.4 | Jazbul Qalb | 3 |
| 19.5 | Suʻāl, | 3 |
| 19.6 | ZāturRi'a, | 3 |
| 19.7 | Nafsud Dam | 3 |
| 19.8 | Zatul Janb | 3 |
| 20.1 | Angina Pectoris | 5 |
| 20.2 | Arrhythmias | 3 |
| 20.3 | Rheumatic Heart disease | 5 |
| 20.4 | Cardiomyopathy | 5 |
| 20.5 | Hypertention | 4 |

| | | |
|---|---|---|
| 20.6 | Aneurysms | 4 |
| 21.1 | chronic Bronchitis | 4 |
| 21.2 | Bronchial asthma, | 4 |
| 21.3 | Acute lung injury | 5 |
| 21.4 | Pulmonary Hypertension | 4 |
| 21.5 | Lung abscess | 3 |
| 21.6 | Lung carcinoma | 3 |
| 21.7 | Pneumothorax | 3 |
| 22.1 | Kalaf | 3 |
| 22.2 | Khīlān | 3 |
| 22.3 | Dā'usSa'lab & Dā'ulḤayya | 3 |
| 22.4 | Namūsat | 2 |
| 22.5 | Qūbā | 3 |
| 22.6 | Namla | 3 |
| 22.7 | Ḥikka | 3 |
| 22.8 | Dawālī | 2 |
| 22.9 | Waja'ulKhāṣira | 2 |
| 22.10 | Waja'ul 'Aqib | 2 |
| 23.1 | Melanocytic Nevus | 2 |
| 23.2 | Vitiligo | 2 |
| 23.3 | Eczematous Dermatitis | 2 |
| 23.4 | Seborrheic Dermatitis | 3 |
| 23.5 | Verrucae (Warts) | 3 |

| | | |
|---|---|---|
| 23.6 | Osteoporosis | 3 |
| 23.7 | Bone Tumors | 3 |
| 23.8 | Osteoarthritis | 3 |
| 23.9 | Gouty Arthritis | 3 |
| 23.10 | AmrāzA'za' Ẓāhira | 2 |
| 24.1 | Etiopathogenesis and common clinical features of Amrāz Ra's (Af'al Harkat & 'Asb) | 5 |
| 24.2 | Pathological correlation of Amrāz Ra's (Af'al Harkat & 'Asb) in Unani and conventional medicine | 5 |
| 24.3 | Pathological correlation of amraze Haiwaniya in unani and conventional medicine | 4 |
| 24.4 | Diagnostic approach of amraze haiwaniya in unani and conventional medicine | 4 |
| 24.5 | Diagnostic approach of amraze Ria in unani and conventional medicine | 4 |
| 24.6 | pathological correlation of Hypertention | 4 |
| 25.1 | Waja'ul Asnān, Siqalul Lisān, Qulā' and Bakhrul Fam | 3 |
| 25.2 | Waram Marī and 'Usrul Bal' | 3 |
| 25.3 | Zu'f Hazm | 2 |
| 25.4 | Jū'ul Kalb and Jū'ul Baqar | 2 |
| 25.5 | Nafkh Mi'da | 3 |
| 25.6 | Ḥurqat Mi'da | 3 |
| 25.7 | Zūsaṇtāriyā | 4 |
| 25.8 | Qūlanj | 2 |
| 25.9 | Bawāsīr and Waram Maq'ad | 4 |
| 26.1 | Oral cancers | 2 |
| 26.2 | Oesophageal varices | 2 |

| | | |
|---|---|---|
| 26.3 | Oesophageal carcinoma | 2 |
| 26.4 | Acute gastritis | 3 |
| 26.5 | Chronic gastritis | 3 |
| 26.6 | Types of gastritis | 2 |
| 26.7 | Malabsorption and diarrhoea | 3 |
| 26.8 | Enteric fever | 3 |
| 26.9 | Appendicitis | 3 |
| 26.10 | Haemorrhoids | 3 |
| 27.1 | Waram Kabid | 3 |
| 27.2 | Sū'ul Qinya and Istisqā | 2 |
| 27.3 | Yarqan | 3 |
| 27.4 | Sū'i Mizāj Kulya | 3 |
| 27.5 | Zu'f Kulya | 3 |
| 27.6 | Zayābīṭus | 3 |
| 27.7 | Ḥaṣāt Kulya & Masāna | 3 |
| 27.8 | Hurqatul Bawl | 3 |
| 27.9 | Bawlud Dam | 3 |
| 28.1 | Jaundice | 3 |
| 28.2 | Fatty liver | 2 |
| 28.3 | Cirrhosis of liver | 2 |
| 28.4 | Splenomegaly | 3 |
| 28.5 | Cholelithiasis | 3 |
| 28.6 | Diabetes Mellitus | 4 |

| | | |
|---|---|---|
| 28.7 | Renal failure | 3 |
| 28.8 | Urolithiasis | 3 |
| 28.9 | Cystitis | 3 |
| 29.1 | Zu‘f Bāh -1 | 3 |
| 29.2 | Sur`ate Inzal | 3 |
| 29.3 | Jarayān | 4 |
| 29.4 | Kasrat Tams | 3 |
| 29.5 | Sayalānur Raḥim | 4 |
| 29.6 | Iḥtibās Tams | 4 |
| 29.7 | Qillate Laban | 3 |
| 29.8 | Waram Sadi -2 | 2 |
| 30.1 | Benign prostatic hyperplasia 1 | 4 |
| 30.2 | Benign prostatic hyperplasia 2 | 5 |
| 30.3 | Adenomyosis | 4 |
| 30.4 | Polycystic ovarian syndrome | 3 |
| 30.5 | Ovarian tumours | 4 |
| 30.6 | Benign lesion of breast 2 | 4 |
| 30.7 | Carcinoma of breast | 2 |
| 31.1 | Etiological types of Ḥummā Yawm | 3 |
| 31.2 | Siman Mufriṭ | 5 |
| 31.3 | Huzāl | 4 |
| 31.4 | Correlation of Amrāz Dahan, Mi‘da & Am‘ā’ -2 | 2 |
| 31.5 | Correlation of Amrāz Kabid, Ṭiḥāl, Kulya & Masāna -2 | 2 |

| | | |
|---|---|---|
| 31.6 | Correlation of Amrāz A'za' Tānāsul -2 | 3 |
| 31.7 | Correlation of blood and endocrine disorders -1 | 4 |
| 31.8 | Correlation of blood and endocrine disorders -2 | 3 |
| 32.1 | Anaemia | 5 |
| 32.2 | Bleeding disorders | 3 |
| 32.3 | Hyperthyroidism | 4 |
| 32.4 | Etiology of hypothyroidism | 4 |
| 32.5 | Thyroiditis & Goitre | 4 |
| 32.6 | Obesity -1 | 3 |
| 32.7 | Obesity -2 | 3 |

## Table 6 : Assessment Summary: Assessment is subdivided in A to H points

## 6 A : Number of Papers and Marks Distribution

| Subject Code | Paper | Theory | Practical | Total |
|---|---|---|---|---|
| UNIPG-MA | 4 | 100 x 4 Papers = 400 | 400 | 800 |

## 6 B : Scheme of Assessment ( Formative and Summative Assessment)

**Credit frame work**

UNIPG-MA consists of 32 modules totaling 64 credits, which correspond to 1920 Notional Learning Hours. Each credit comprises 30 Hours of learner engagement, distributed across teaching, practical, and experiential learning in the ratio of 1:2:3. Accordingly, one credit includes 5 hours of teaching, 10 hours of practical training, 13 hours of experiential learning, and 2 hours allocated for modular assessment, which carries 25 marks.

**Formative Assessment :**Module wise Assessment:will be done at the end of each module. Evaluation includes learners active participation to get Credits and Marks. Each Module may contain one or more credits.

**Summative Assessment:**Summative Assessment (University examination) will be carried out at the end of Semester VI.

## 6 C : Calculation Method for Modular Grade Points (MGP)

| Module Number & Name (a) | Credits (b) | Actual No. of Notional Learning Hours (c) | Attended Number of notional Learning hours (d) | Maximum Marks of assessment of modules (e) | Obtained Marks per module (f) | MGP =d*f/c*e*100 |
|---|---|---|---|---|---|---|
| Semester No : 3 | | | | | | |
| Paper No : 1 (Taskheesat (Diagnostic Methods)) | | | | | | |
| M 1 Nabd | 2 | 60 | | 50 | | |
| M 2 Good Laboratory Practices and Automation in Lab & Development of Diagnostic Tool | 2 | 60 | | 50 | | |
| Paper No : 2 (Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology)) | | | | | | |
| M 9 Ta'diya wa Ta'affun | 2 | 60 | | 50 | | |
| M 10 General Bacteriology | 2 | 60 | | 50 | | |
| Paper No : 3 (Ilmul Amraz Nizami (Systemic Pathology) – I) | | | | | | |
| M 17 Amrāz Ra's, 'Ayn, Uzun, Anf, Halq امراض راس، عین،اذن، انف، حلق | 2 | 60 | | 50 | | |
| M 18 Diseases of Nervous System | 2 | 60 | | 50 | | |
| Paper No : 4 (Ilmul Amraz Nizami (Systemic Pathology) – II) | | | | | | |
| M 25 Amrāz Dahan, Mi'da & Am'ā' امراض دہن، معدہ وامعاء | 2 | 60 | | 50 | | |
| M 26 Diseases of Gastrointestinal Tract | 2 | 60 | | 50 | | |
| | 16 | 480 | | 400 | | |
| Semester No : 4 | | | | | | |
| Paper No : 1 (Taskheesat (Diagnostic Methods)) | | | | | | |
| M 3 Bawl | 2 | 60 | | 50 | | |
| M 4 Clinical Haematology, Immunology, Transfusion medicine and Molecular Diagnostics | 2 | 60 | | 50 | | |
| Paper No : 2 (Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology)) | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| M 11 General description of the Gram-positive and Miscellaneous bacteria | 2 | 60 | | 50 | | |
| M 12 General description of the Gram-negative bacteria | 2 | 60 | | 50 | | |
| Paper No : 3 (Ilmul Amraz Nizami (Systemic Pathology) – I) | | | | | | |
| M 19 Amrāz Qalb & ʻUrūq امراض قلب وعروق | 2 | 60 | | 50 | | |
| M 20 Diseases of Heart & Blood Vessels | 2 | 60 | | 50 | | |
| Paper No : 4 (Ilmul Amraz Nizami (Systemic Pathology) – II) | | | | | | |
| M 27 Amrāz Kabid, Ṭiḥāl, Kulya & Masāna امراض کبد، طحال، کلیہ ومثانہ | 2 | 60 | | 50 | | |
| M 28 Diseases of Hepatobiliary System, Pancreas and Urinary Tract | 2 | 60 | | 50 | | |
| | 16 | 480 | | 400 | | |
| Semester No : 5 | | | | | | |
| Paper No : 1 (Taskheesat (Diagnostic Methods)) | | | | | | |
| M 5 Barāz (Stool) & Other Methods of Tashkhīṣ : Tanaffus (respiration), Nafth (sputum), Araq (Sweat) | 2 | 60 | | 50 | | |
| M 6 Clinical Biochemistry and Serology | 2 | 60 | | 50 | | |
| Paper No : 2 (Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology)) | | | | | | |
| M 13 Virology | 2 | 60 | | 50 | | |
| M 14 Mycology | 2 | 60 | | 50 | | |
| Paper No : 3 (Ilmul Amraz Nizami (Systemic Pathology) – I) | | | | | | |
| M 21 Diseases of Lungs | 2 | 60 | | 50 | | |
| M 22 Amrāz Aʼza' Ẓāhira امراض اعضاء ظاہرہ | 2 | 60 | | 50 | | |
| Paper No : 4 (Ilmul Amraz Nizami (Systemic Pathology) – II) | | | | | | |
| M 29 Amrāz Aʼza' Tānāsul امراض اعضاء تناسل | 2 | 60 | | 50 | | |
| M 30 Diseases of Reproductive Organs | 2 | 60 | | 50 | | |
| | 16 | 480 | | 400 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Semester No : 6 | | | | | | |
| Paper No : 1 (Taskheesat (Diagnostic Methods)) | | | | | | |
| M 7 Clinical Pathology, Surgical Pathology and Histopathology | 2 | 60 | | 50 | | |
| M 8 Radiology | 2 | 60 | | 50 | | |
| Paper No : 2 (Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology)) | | | | | | |
| M 15 Parasitology | 2 | 60 | | 50 | | |
| M 16 Diagnostic Microbiology | 2 | 60 | | 50 | | |
| Paper No : 3 (Ilmul Amraz Nizami (Systemic Pathology) – I) | | | | | | |
| M 23 Diseases of Skin, Bones & Joints | 2 | 60 | | 50 | | |
| M 24 Interpretation of Unani Pathology with Conventional Medical Science | 2 | 60 | | 50 | | |
| Paper No : 4 (Ilmul Amraz Nizami (Systemic Pathology) – II) | | | | | | |
| M 31 Amrāz Mutafarriqa (امراض متفرقہ)&Interpretation of Unani Pathology | 2 | 60 | | 50 | | |
| M 32 Diseases of Blood, Endocrine system and Nutrition | 2 | 60 | | 50 | | |
| | 16 | 480 | | 400 | | |
| MGP = ((Number of Notional learning hours attended in a module) X (Marks obtained in the modular assessment ) / (Total number of Notional learning hours in the module) X (Maximum marks of the module)) X 100 | | | | | | |

## 6 D : Semester Evaluation Methods for Semester Grade Point Average (SGPA)

SGPA will be calculated at the end of the semester as an average of all Module MGPs. Average of MGPS of the Semester For becoming eligible for Summative assessment of the semester, student should get minimum of 60% of SGPA

**SGPA = Average of MGP of all modules of all papers = add all MGPs in the semester/ no. of modules in the semester** Evaluation Methods for Modular Assessment

| Semester No : 3 | | |
|---|---|---|
| Paper No : 1 Taskheesat (Diagnostic Methods) | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 1 | M1.Nabd | C 1 |
| 2 | M2.Good Laboratory Practices and Automation in Lab & Development of Diagnostic Tool | C 2 |
| Paper No : 2 Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology) | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 3 | M9.Ta'diya wa Ta‘affun | C 3 |
| 4 | M10.General Bacteriology | C 4 |
| Paper No : 3 Ilmul Amraz Nizami (Systemic Pathology) – I | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 5 | M17.Amrāz Ra’s, ‘Ayn, Uzun, Anf, Halq امراض رأس،عین،اذن،انف،حلق | C 5 |
| 6 | M18.Diseases of Nervous System | C 6 |
| Paper No : 4 Ilmul Amraz Nizami (Systemic Pathology) – II | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |

| | | |
|---|---|---|
| 7 | M25.Amrāz Dahan, Mi'da & Am'ā' امراض دہن، معدہ وامعاء | C 7 |
| 8 | M26.Diseases of Gastrointestinal Tract | C 8 |
| | Semester Grade point Average (SGPA) | (C1+C2+C3+C4+C5+C6+C7+C8) / Number of modules(8) |
| Semester No : 4 | | |
| Paper No : 1 Taskheesat (Diagnostic Methods) | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 1 | M3.Bawl | C 1 |
| 2 | M4.Clinical Haematology, Immunology, Transfusion medicine and Molecular Diagnostics | C 2 |
| Paper No : 2 Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology) | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 3 | M11.General description of the Gram-positive and Miscellaneous bacteria | C 3 |
| 4 | M12.General description of the Gram-negative bacteria | C 4 |
| Paper No : 3 Ilmul Amraz Nizami (Systemic Pathology) – I | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 5 | M19.Amrāz Qalb & 'Urūq امراض قلب وعروق | C 5 |
| 6 | M20.Diseases of Heart & Blood Vessels | C 6 |
| Paper No : 4 Ilmul Amraz Nizami (Systemic Pathology) – II | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |

| | | |
|---|---|---|
| 7 | M27.Amrāz Kabid, Ṭiḥāl, Kulya & Masāna امراض کبد، طحال، کلیہ ومثانہ | C 7 |
| 8 | M28.Diseases of Hepatobiliary System, Pancreas and Urinary Tract | C 8 |
| | Semester Grade point Average (SGPA) | (C1+C2+C3+C4+C5+C6+C7+C8) / Number of modules(8) |
| Semester No : 5 | | |
| Paper No : 1 Taskheesat (Diagnostic Methods) | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 1 | M5.Barāz (Stool) & Other Methods of Tashkhīṣ : Tanaffus (respiration), Nafth (sputum), Araq (Sweat) | C 1 |
| 2 | M6.Clinical Biochemistry and Serology | C 2 |
| Paper No : 2 Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology) | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 3 | M13.Virology | C 3 |
| 4 | M14.Mycology | C 4 |
| Paper No : 3 Ilmul Amraz Nizami (Systemic Pathology) – I | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 5 | M21.Diseases of Lungs | C 5 |
| 6 | M22.Amrāz A'za' Ẓāhira امراض اعضاء ظاہرہ | C 6 |
| Paper No : 4 Ilmul Amraz Nizami (Systemic Pathology) – II | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 7 | M29.Amrāz A'za' Tānāsul امراض اعضاء تناسل | C 7 |

| | | |
|---|---|---|
| 8 | M30.Diseases of Reproductive Organs | C 8 |
| | Semester Grade point Average (SGPA) | (C1+C2+C3+C4+C5+C6+C7+C8) / Number of modules(8) |
| Semester No : 6 | | |
| Paper No : 1 Taskheesat (Diagnostic Methods) | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 1 | M7.Clinical Pathology, Surgical Pathology and Histopathology | C 1 |
| 2 | M8.Radiology | C 2 |
| Paper No : 2 Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology) | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 3 | M15.Parasitology | C 3 |
| 4 | M16.Diagnostic Microbiology | C 4 |
| Paper No : 3 Ilmul Amraz Nizami (Systemic Pathology) – I | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 5 | M23.Diseases of Skin, Bones & Joints | C 5 |
| 6 | M24.Interpretation of Unani Pathology with Conventional Medical Science | C 6 |
| Paper No : 4 Ilmul Amraz Nizami (Systemic Pathology) – II | | |
| **A**<br>**S.No** | **B**<br>**Module number and Name** | **C**<br>**MGP** |
| 7 | M31.Amrāz Mutafarriqa (امراض متفرقہ)&Interpretation of Unani Pathology | C 7 |

| | | |
|---|---|---|
| 8 | M32.Diseases of Blood, Endocrine system and Nutrition | C 8 |
| | Semester Grade point Average (SGPA) | (C1+C2+C3+C4+C5+C6+C7+C8) / Number of modules(8) |

| S. No | Evaluation Methods |
|---|---|
| 1. | Method explained in the Assessment of the module or similar to the objectives of the module. |

## 6 E : Question Paper Pattern

**MD/MS Unani Examination**

**UNIPG-MA**

**Sem VI**

**Time:** 3 Hours ,**Maximum Marks:** 100

INSTRUCTIONS: All questions compulsory

| | | Number of Questions | Marks per question | Total Marks |
|---|---|---|---|---|
| Q 1 | Application-based Questions (ABQ) | 1 | 20 | 20 |
| Q 2 | Short answer questions (SAQ) | 8 | 5 | 40 |
| Q 3 | Analytical based structured Long answer question (LAQ) | 4 | 10 | 40 |
| | | | | 100 |

## 6 F : Distribution for summative assessment (University examination)

| S.No | List of Module/Unit | ABQ | SAQ | LAQ |
|---|---|---|---|---|
| Paper No : 1 (Taskheesat (Diagnostic Methods)) | | | | |
| **(M-1)**Nabd (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Asbāb & Diagnostic Significance of Nabḍ | Yes | Yes | Yes |
| 2 | **(U-2)** Ajnās & Types Nabḍ and SOPs for Mu'āyana' Nabḍ | Yes | Yes | Yes |
| 3 | **(U-3)** Nabḍ of specific diseases and its Interpretation | Yes | Yes | Yes |
| **(M-2)**Good Laboratory Practices and Automation in Lab & Development of Diagnostic Tool (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Good Laboratory Practices-I | Yes | Yes | Yes |
| 2 | **(U-2)** Good Laboratory Practices -II | Yes | Yes | Yes |
| 3 | **(U-3)** Automation in Lab, Development of Diagnostic Tools, and Latest Diagnostic Technology | Yes | Yes | Yes |
| **(M-3)**Bawl (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Diagnostic Significance & Formation of Bawl (Uroscopy) | Yes | Yes | No |
| 2 | **(U-2)** SOPs for Mu'āyana' Qārūra & Dalā'il Bawl | Yes | Yes | Yes |
| 3 | **(U-3)** Interpretation of Mu'āyana' Qārūra | Yes | Yes | Yes |
| **(M-4)**Clinical Haematology, Immunology, Transfusion medicine and Molecular Diagnostics (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Blood Collection & Complete Blood Count | Yes | Yes | No |
| 2 | **(U-2)** Sickling test & Peripheral Blood Smear Examination | Yes | Yes | No |
| 3 | **(U-3)** Immunology, Transfusion medicine and Molecular Diagnostics | Yes | Yes | No |
| **(M-5)**Barāz (Stool) & Other Methods of Tashkhīṣ : Tanaffus (respiration), Nafth (sputum), Araq (Sweat) (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Diagnostic Significance, SOPs and Interpretation of Mu'āyana' Barāz | Yes | Yes | No |

| | | | | |
|---|---|---|---|---|
| 2 | **(U-2)** Diagnostic Significance & SOPs of Mu'āyana' of Tanaffus, Nafth & Araq | Yes | Yes | No |
| 3 | **(U-3)** Interpretation of Mu'āyana' of Tanaffus, Nafth & Araq | Yes | Yes | No |
| **(M-6)**Clinical Biochemistry and Serology (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Clinical Biochemistry and Serology-I | Yes | Yes | No |
| 2 | **(U-2)** Clinical Biochemistry and Serology-II | Yes | Yes | No |
| 3 | **(U-3)** Clinical Biochemistry and Serology-III | Yes | Yes | No |
| **(M-7)**Clinical Pathology, Surgical Pathology and Histopathology (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Urine Tests | Yes | Yes | Yes |
| 2 | **(U-2)** Clinical Pathology & Cytopathology | Yes | Yes | Yes |
| 3 | **(U-3)** Histopathology & Immunochemistry | Yes | Yes | Yes |
| **(M-8)**Radiology (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Radiolog-I | Yes | Yes | No |
| 2 | **(U-2)** Radiology-II | Yes | Yes | No |
| 3 | **(U-3)** Radiology and other Special investigations | Yes | Yes | No |
| **S.No** | **List of Module/Unit** | **ABQ** | **SAQ** | **LAQ** |
| Paper No : 2 (Ilmul Jaraseem Wa Tufailiyat (Microbiology & Parasitology)) | | | | |
| **(M-9)**Ta'diya wa Ta'affun (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Concept of 'Ufūnat, Ḥummā and Wabā' | Yes | Yes | Yes |
| 2 | **(U-2)** Infection, types, transmission, pathogenesis and microbial pathogenicity. | Yes | Yes | No |
| 3 | **(U-3)** Disinfection and sterilization | Yes | Yes | Yes |
| **(M-10)**General Bacteriology (Marks: Range 5-20) | | | | |

| | | | | |
|---|---|---|---|---|
| 1 | **(U-1)** Classification, Morphology, Bacterial Genetics, Growth and Nutrition of Bacteria | Yes | Yes | Yes |
| 2 | **(U-2)** Bacterial Culture, Identification, and staining (Gram andAcid fast) | Yes | Yes | Yes |
| 3 | **(U-3)** Normal microbial flora of the human body,antimicrobial agents and Bacterial resistance,Bacteriology of water, milk and air | Yes | Yes | Yes |
| **(M-11)**General description of the Gram-positive and Miscellaneous bacteria (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Gram-positive bacteria | Yes | Yes | Yes |
| 2 | **(U-2)** Miscellaneous Bacteria: | Yes | Yes | Yes |
| **(M-12)**General description of the Gram-negative bacteria (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Gram-negative bacteria: | Yes | Yes | Yes |
| **(M-13)**Virology (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** General characteristics of viruses | Yes | Yes | Yes |
| 2 | **(U-2)** Viral replication, Identification of viruses. Pathogenesis of viral infections, AIDS | Yes | Yes | Yes |
| **(M-14)**Mycology (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** General introduction and classification, laboratory diagnosis of some fungi of medical importance | Yes | Yes | Yes |
| 2 | **(U-2)** Superficial, subcutaneous and systemic Mycosis | Yes | Yes | Yes |
| **(M-15)**Parasitology (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Introduction of some parasites, helminths & ectoparasites of medical importance | Yes | Yes | Yes |
| 2 | **(U-2)** Protozoa and Helminths | Yes | Yes | Yes |
| **(M-16)**Diagnostic Microbiology (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Approach to Lab Diagnosis.Rapid and Automation methods in Microbiology | Yes | Yes | Yes |

| S.No | List of Module/Unit | ABQ | SAQ | LAQ |
|---|---|---|---|---|
| Paper No : 3 (Ilmul Amraz Nizami (Systemic Pathology) – I) | | | | |
| **(M-17)**Amrāz Ra's, 'Ayn, Uzun, Anf, Halq امراض رأس،عین،اذن،انف،حلق (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Amrāz Ra's (Auja', Awram & Af'al Siyasi) امراض راس(اوجاع،اورام،افعال سیاسی) | No | Yes | Yes |
| 2 | **(U-2)** Amrāz Ra's (Af'al Harkat & 'Asb) امراض راس(افعال حرکت وعصب) | Yes | Yes | Yes |
| 3 | **(U-3)** Amrāz 'Ayn, Uzun, Anf, Halq امراض عین،اذن،انف،حلق | No | Yes | Yes |
| **(M-18)**Diseases of Nervous System (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Infections &Vascular & Demyelinating Diseases | Yes | Yes | Yes |
| 2 | **(U-2)** Degenerative Diseases, Tumours, Disorders of Nerves & Muscles | Yes | Yes | Yes |
| 3 | **(U-3)** Diseases of Eyes, Nose & Paranasal Sinuses | No | Yes | Yes |
| **(M-19)**Amrāz Qalb & 'Urūq امراض قلب وعروق (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Amrāz Qalb -I امراض قلب | Yes | Yes | Yes |
| 2 | **(U-2)** Amrāz Qalb -II امراض قلب | No | Yes | Yes |
| 3 | **(U-3)** Amrāz Ri'a امراض رئہ | Yes | Yes | Yes |
| **(M-20)**Diseases of Heart & Blood Vessels (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Diseases of Heart -I | Yes | Yes | Yes |
| 2 | **(U-2)** Diseases of Heart-II | Yes | Yes | Yes |
| 3 | **(U-3)** Diseases of Pericardium & Blood Vessels | Yes | Yes | Yes |
| **(M-21)**Diseases of Lungs (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Obstructive Lung Diseases | Yes | Yes | Yes |
| 2 | **(U-2)** Restrictive Vascular & Acute Lung Diseases | Yes | Yes | Yes |
| 3 | **(U-3)** Infections & Tumours of Lung & diseases of Pleura | Yes | Yes | Yes |
| **(M-22)**Amrāz A'za' Ẓāhira امراض اعضاء ظاہرہ (Marks: Range 5-20) | | | | |

| | | | | |
|---|---|---|---|---|
| 1 | **(U-1)** Amrāz Jild & Sha'r امراض جلد وشعر | Yes | Yes | Yes |
| 2 | **(U-2)** Amrāz Jild & Atraf امراض جلد واطراف | No | Yes | Yes |
| 3 | **(U-3)** Amrāz Mafasil امراض مفاصل | Yes | Yes | Yes |
| **(M-23)**Diseases of Skin, Bones & Joints (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Diseases of Skin | Yes | Yes | Yes |
| 2 | **(U-2)** Diseases of Bones & Joints | Yes | Yes | Yes |
| 3 | **(U-3)** Interpretation of Unani pathology of AmrāzA'za' Ẓāhira (امراض اعضاء ظاہرہ) with conventional medical science | No | Yes | Yes |
| **(M-24)**Interpretation of Unani Pathology with Conventional Medical Science (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Interpretation of Unani pathology of Amrāz A'za' Nafsāniyya (امراض اعضاء نفسانیہ) with conventional medical science | No | Yes | Yes |
| 2 | **(U-2)** Interpretation of Unani pathology of Amrāz A'za' Ḥaywāniyya (امراض اعضاء حیوانیہ) with conventional medical science | Yes | Yes | Yes |
| 3 | **(U-3)** Interpretation/development of Unani pathology for Amrāz Ghayr Mudawwina (امراض غیر مدونہ) | No | Yes | Yes |
| **S.No** | **List of Module/Unit** | **ABQ** | **SAQ** | **LAQ** |
| Paper No : 4 (Ilmul Amraz Nizami (Systemic Pathology) – II) | | | | |
| **(M-25)**Amrāz Dahan, Mi'da & Am'ā' امراض دہن، معدہ وامعاء (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Amrāz Dahan & Marī امراض دہن ومری | Yes | Yes | Yes |
| 2 | **(U-2)** Amrāz Mi'da امراض معدہ | Yes | Yes | Yes |
| 3 | **(U-3)** Amrāz Am'ā' امراض امعاء | Yes | Yes | Yes |
| **(M-26)**Diseases of Gastrointestinal Tract (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Diseases of Mouth & Oesophagus | Yes | Yes | Yes |
| 2 | **(U-2)** Diseases of Stomach | Yes | Yes | Yes |

| | | | | |
|---|---|---|---|---|
| 3 | **(U-3)** Diseases of Intestine | Yes | Yes | Yes |
| **(M-27)**Amrāz Kabid, Ṭiḥāl, Kulya & Masāna امراض کبد، طحال، کلیہ ومثانہ (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Amrāz Kabid امراض کبد | Yes | Yes | Yes |
| 2 | **(U-2)** Amrāz Ṭiḥāl & Kulya امراض طحال وکلیہ | Yes | Yes | Yes |
| 3 | **(U-3)** Amrāz Kulya & Masāna امراض کلیہ ومثانہ | Yes | Yes | Yes |
| **(M-28)**Diseases of Hepatobiliary System, Pancreas and Urinary Tract (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Diseases of liver | Yes | Yes | Yes |
| 2 | **(U-2)** Diseases of Gall bladder & Pancreas | Yes | Yes | Yes |
| 3 | **(U-3)** Diseases of Urinary Tract | Yes | Yes | Yes |
| **(M-29)**Amrāz A'za' Tānāsul امراض اعضاء تناسل (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Amrāz A'za' Tānāsul Mardānā امراض اعضاء تناسل مردانہ | Yes | Yes | Yes |
| 2 | **(U-2)** Amrāz A'za' Tānāsul Zanānā امراض اعضاء تناسل زنانہ | Yes | Yes | Yes |
| 3 | **(U-3)** Amrāz Sadi امراض ثدی | Yes | Yes | Yes |
| **(M-30)**Diseases of Reproductive Organs (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Diseases of Male Reproductive Organs | Yes | Yes | Yes |
| 2 | **(U-2)** Diseases of Female Reproductive Organs | Yes | Yes | Yes |
| 3 | **(U-3)** Diseases of Breast | Yes | Yes | Yes |
| **(M-31)**Amrāz Mutafarriqa (امراض متفرقہ)&Interpretation of Unani Pathology (Marks: Range 5-20) | | | | |
| 1 | **(U-1)** Ḥummayāt & Amrāz Sahna حمیات وامراض سحنہ | Yes | Yes | Yes |
| 2 | **(U-2)** Interpretation of Unani Pathology of Amrāz A'za' Ṭabī'iyya (امراض اعضاء طبیعیہ)with conventional medical science | Yes | Yes | Yes |
| 3 | **(U-3)** Interpretation of Unani Pathology of Amrāz Mutafarriqa (امراض متفرقہ) with conventional medical science | Yes | Yes | Yes |
| **(M-32)**Diseases of Blood, Endocrine system and Nutrition (Marks: Range 5-20) | | | | |

| | | | | |
|---|---|---|---|---|
| 1 | **(U-1)** Diseases of Blood | Yes | Yes | Yes |
| 2 | **(U-2)** Endocrine Disorders | Yes | Yes | Yes |
| 3 | **(U-3)** Nutritional Disorders | Yes | Yes | Yes |

## 6 G : Instruction for the paper setting & Blue Print for Summative assessment (University Examination)

**Instructions for the paper setting.**

1. University examination shall have 4 papers of 100 marks.

Each 100 marks question paper shall contain:-

• Application Based Question: 1 No (carries 20 marks)

• Short Answer Questions: 8 Nos (each question carries 05 marks)

• Long Answer Questions: 4 Nos (each question carries 10 marks)

2. Questions should be drawn based on the table 6F.

3. Marks assigned for the module in 6F should be considered as the maximum marks. No question shall be asked beyond the maximum marks.

4. Refer table 6F before setting the questions. Questions should not be framed on the particular unit if indicated “NO”.

5. There will be a single application-based question (ABQ) worth 20 marks. No other questions should be asked from the same module where the ABQ is framed.

6. Except the module on which ABQ is framed, at least one Short Answer Question should be framed from each module.

7. Long Answer Question should be analytical based structured questions assessing the higher cognitive ability.

8. Create Blueprint based on instructions 1 to 7.

## 6 H : Distribution of Practical Exam (University Examination)

| S.No | Heads | Marks |
|---|---|---|
| 1 | Long case /procedure/Major practical:<br>One Complete Case Diagnosis related to any important disease that includes following components;<br>Detailed History (20 Marks)<br>Clinical Examination including Nabḍ/Bawl etc. (20 Marks)<br>Required Lab investigations including haematology/biochemistry/histopathology/microbilogy/serology/molecular biology etc. (40 Marks)<br>Unani & Modern Daignosis (20 Marks)<br>Duration: 60 minutes | 100 |
| 2 | Short case /procedure/Minor practical: Laboratory investigationany from any one of the following;<br>1. Haematology<br>2. Biochemistry<br>3. Histopathology<br>4. Microbiology<br>5. Serology<br>6. Molecular Biology<br>7. Clinical Pathology including Nabḍ/Bawl/Baraz<br>Marks distribution:<br>Lab safety protocol (10 marks)<br>Accuracy of procedure (10 marks)<br>Accuracy of result (10 marks)<br>Interpretation of result (10 marks)<br>Biomaedical waste management (10 marks)<br>Duration: 30 minutes | 50 |
| 3 | Spotting: 5 Spotters one from each of the following<br>1. Lab instruments: Identification & uses (10 marks) | 50 |

| | | |
|---|---|---|
| | 2. Histopathology slides of any diseased condition: Identification & description (10 marks)<br>3. Microbiology slides of any infection: Identification & description (10 marks)<br>4. Interpretation of Lab reports of Haematology/biochemistry/serology: Provisional diagnosis and Unani correlation (10 marks)<br>5. Bawl/Baraz sample or model: Identification of type of Bawl/Baraz & provisional diagnosis (10 marks)<br>Duration 30 minutes | |
| 4 | Assessing teaching ability<br>Teacher will asess the students according to following components;<br>1. Subject Expertise: Their depth of knowledge and ability to make complex concepts understandable (5 marks)<br>2. Lesson Structure: Check how well they organize their session (5 marks)<br>3. Communication Skills: How effectively they convey ideas (5 marks)<br>4. Time Management: Covering topic in alloted time (5 marks)<br>5. Conclusion: Summerizing and concluding effectively (5 marks) | 25 |
| 5 | Assessing presentation skills<br>The teacher will asses the students on following parameters<br>1. Content Quality: Depth, accuracy, and organization of the presentation material. (5 marks)<br>2. Verbal Communication: Clarity, tone, pacing, and confidence in speaking. (5 marks)<br>3. Non-Verbal Communication: Effective use of body language, eye contact, and gestures. (5 marks)<br>4. Visual Aids: Appropriateness and effectiveness of slides, charts, or other tools. (5 marks)<br>5. Audience Engagement: Ability to interact with and captivate the audience. (5 marks) | 25 |
| 6 | Viva (4 examiners: 25 marks/each examiner)# | 100 |
| 7 | Logbook (Activity record) | 25 |

| | | |
|---|---|---|
| 8 | Practical/Clinical Record:<br>There should be a minimum of one practical from each module. | 25 |
| **Total Marks** | | **400** |

# No separate marks for dissertation viva.

## Reference Books/ Resources

| S.No | References |
|---|---|
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| | |
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## Abbreviations

| Domain | | T L Method | | Level | |
|---|---|---|---|---|---|
| CK | Cognitive/Knowledge | L | Lecture | K | Know |
| CC | Cognitive/Comprehension | L&PPT | Lecture with PowerPoint presentation | KH | Knows how |
| CAP | Cognitive/Application | L&GD | Lecture & Group Discussion | SH | Shows how |
| CAN | Cognitive/Analysis | L_VC | Lecture with Video clips | D | Does |
| CS | Cognitive/Synthesis | REC | Recitation | | |
| CE | Cognitive/Evaluation | SY | Symposium | | |
| PSY-SET | Psychomotor/Set | TUT | Tutorial | | |
| PSY-GUD | Psychomotor/Guided response | DIS | Discussions | | |
| PSY-MEC | Psychomotor/Mechanism | BS | Brainstorming | | |
| PSY-ADT | Psychomotor Adaptation | IBL | Inquiry-Based Learning | | |
| PSY-ORG | Psychomotor/Origination | PBL | Problem-Based Learning | | |
| AFT-REC | Affective/ Receiving | CBL | Case-Based Learning | | |
| AFT-RES | Affective/Responding | PrBL | Project-Based Learning | | |
| AFT-VAL | Affective/Valuing | TBL | Team-Based Learning | | |
| AFT-SET | Affective/Organization | TPW | Team Project Work | | |
| AFT-CHR | Affective/ characterization | FC | Flipped Classroom | | |
| | | BL | Blended Learning | | |
| | | EDU | Edutainment | | |
| | | ML | Mobile Learning | | |
| | | ECE | Early Clinical Exposure | | |
| | | SIM | Simulation | | |
| | | RP | Role Plays | | |
| | | SDL | Self-directed learning | | |

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|---|---|---|---|---|---|
| | | PSM | Problem-Solving Method | | |
| | | KL | Kinaesthetic Learning | | |
| | | W | Workshops | | |
| | | GBL | Game-Based Learning | | |
| | | LS | Library Session | | |
| | | PL | Peer Learning | | |
| | | RLE | Real-Life Experience | | |
| | | PER | Presentations | | |
| | | D-M | Demonstration on Model | | |
| | | PT | Practical | | |
| | | X-Ray | X-ray Identification | | |
| | | CD | Case Diagnosis | | |
| | | LRI | Lab Report Interpretation | | |
| | | DA | Drug Analysis | | |
| | | D | Demonstration | | |
| | | D-BED | Demonstration Bedside | | |
| | | DL | Demonstration Lab | | |
| | | DG | Demonstration Garden | | |
| | | FV | Field Visit | | |
| | | JC | Journal Club | | |
| | | Mnt | Mentoring | | |
| | | PAL | Peer Assisted Learning | | |
| | | C_L | Co Learning | | |