Competency-Based Dynamic Curriculum for MD/ MS Unani

(PRESCRIBED BY NCISM)

Semester III-VI

Tibbul Qanoon wa Ilmul Samoom

(Forensic Medicine and Clinical Toxicology)

(SUBJECT CODE : UNIPG-TQS)

(Applicable from 2025-26 batch, from the academic year 2026-27 onwards until further notification by NCISM)

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NATIONAL COMMISSION FOR INDIAN SYSTEM OF MEDICINE

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Preface

Tibbul Qanoon wa Ilmus Samoom (Forensic Medicine and Toxicology) is an specialized field of Medical Sciences that is pivotal in the context of law enforcement, criminal investigations, and legal proceedings. Tibbul Qanoon (Forensic Medicine) focus on how these fields are used in real-world situations to assist legal cases, criminal investigations and in the understanding of standard operating procedures of scene of crime, injuries or death. Toxicology, on the other hand, serves as the scientific gateway into understanding the impact of poisons, toxins, environmental toxic agents, chemicals and venom on the human body, particularly when such substances are involved in crimes like poisoning, overdoses, or illicit drug abuse. The envisioned syllabus sight sees the intersection of Tibbul Qanoon wa Ilmus Samoom. The journey will begin by addressing the origin, developments, historical perspectives, basics, fundamentals, principles, medico legal systems, newly replaced laws, allied and the applied aspect of the subject. Importance is also being given to medical ethics so that the learners will comprehend the crucial role that doctors play in maintaining the integrity of the legal system while upholding the duty, dignity and Medical Etiquettes of those they serve. The learners will also reconnoitre another crucial aspects of Ilmus Samoom of Unani fundamentals i.e., Tiryaq (antidotes) its identification, formulations, preparation and application that counteract the harmful effects of poisons, as Tiryaq play a pivotal role in saving lives, preventing damage, and mitigating the effects of exposure to toxic substances, ranging from chemicals and drugs to biological toxins.

In today's scenario skilled forensic profession is a burgeoning arena and the Postgraduate course in Tibbul Qanoon wa Ilmus Samoom will be an endorsement for those wishing to advance their expertise in this rewarding meadow and in the designing of this syllabus it was taken under significant consideration. The syllabus is being designed so that the students will learn in-depth the subject of Clinical, Pathological, Environmental and Analytical Toxicology. The learner will become proficient to analyse biological samples for the presence of toxic substances, such as drugs, alcohol, or poisons. It provides envisioned opportunity to learn from experienced professionals in real-world settings and enhances their practical knowledge. It provides multidisciplinary approach, fostering collaboration between different sectors of medical sciences. It offers students an opportunity to delve deeper into the complex and multifaceted aspects of the field, beyond what is covered in undergraduate studies. It enhances critical thinking, analytical skills, and the ability to offer unbiased, scientifically supported opinions that are decisive to provide justice. Completing a designed curriculum in Forensic Medicine can significantly improve job prospects, professional competences, skills, capabilities and abilities.

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Competency-Based Dynamic Curriculum for MD/ MS Unani

Tibbul Qanoon wa Ilmul Samoom (UNIPG-TQS)

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 مطبی و ماہیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine)			
M 1 مطبی علم السموم اور جسمانی جروح Matabi Ilmus Samoom aur Jismani Jurooh (Clinical Forensic Medicine & Physical injuries)	2	60	50
M 2 حرارتی، برقی، کیمیاوی اور آتشی اسلحہ جاتی جروح کا طریقہ امتحان Haraarti, Barqi, kimyawi aur aatishi aslahajati jurooh ka tareeqa-e-Imtehan (Examination Techniques of Thermal, Electric, Chemical & Fire Arm injuries)	2	60	50
Paper No : 2 مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology)			
M 9 مطبی علم السموم کے بنیادی اصول Matabi Ilmus Samoom ke bunyadi Usool (Fundamentals of Clinical Toxicology)	3	90	75
M 10 سموم کی تقسیم Samoom ki Taqseem (Classification of Poisons)	1	30	25
Paper No : 3 طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology)			
M 17 طب القانونی علم السموم کے مبادیات Tibbul Qanooni Ilmus Samoom ke Mabadiyat (Basics of Forensic Toxicology)	1	30	25
M 18 بھاری معدنیات کی مسمومیت، شراب اور منشیات Bhari Ma'daniyat ki Masmoomiyat, Sharab aur Munashiyaat (Heavy Metals poisonings, Alcohol and Drugs of Abuse)	3	90	75

Paper No : 4 ماحولیاتی وتجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom (Environmental and Analytical Toxicology)			
M 25 ماحولیاتی علم السموم کے مبادیات اوران کا ظہور Mahauliyati Ilmus Samoom ke Mabadiyat, Mahauliyati Musammimat ke Makhaz aur unka Zahoor (Basics of Environmental Toxicology, Sources & Exposure of Environmental Toxicants	2	60	50
M 26 ماحولیاتی مسمات کے درجات Mahauliyati Musammimat ke Darajaat (Classes of Environmental Toxicants)	2	60	50
Semester No : 4			
Paper No : 1 مطبی ومابیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine)			
M 3 مطبی طب القانون میں بدفعلی، تشدد اور جنسی جرائم کا امتحان Matabi Tibbul Qanoon men Badfe'li, Tashaddud aur Jinsi jara'im ka Imtehan (Abuse and Violence in Clinical Forensic Medicine & Examination of Sexual Crimes)	3	90	75
M 4 مابیتی طب القانون Mahiyati Tibbul Qanoon (Forensic Pathology)	1	30	25
Paper No : 2 مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology)			
M 11 مسمات کا تعارض اوران کے اثرات Musammimat ka Ta'aruz aur Asarat (Exposure and effects of Toxicants))	2	60	50
M 12 تشخیص سمیت Tashkhees e Sammiyat (Diagnosis of poisoning)	2	60	50
Paper No : 3 طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology)			
M 19 حشرات کش، جراثیم کش اور مبیدات قوارض Hasharatkush, Jaraseemkush aur Mabeedate Qawariz (Pesticides, insecticides and rodenticide)	2	60	50
M 20 خانگی سموم Khangi Samoom (Household Poisons)	2	60	50
Paper No : 4 ماحولیاتی وتجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom (Environmental and Analytical Toxicology)			
M 27 ماحولیاتی مسمات کے اثرات اور ممکنہ خطرات کا تعین Mahauliyati Musammimat ke asarat aur Mumkinah khatrat ka Ta'ayyun (Effects of Environmental Toxicants and Environmental Risk Assessment)	2	60	50

M 28 ماحولیاتی مسمومیت کا یونانی علاج Mahauliyati Masmoomiyat ka Unani Ilaj (Unani Management of Environmental) Toxicity)	2	60	50
Semester No : 5			
Paper No : 1 مطبی و ماہیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine)			
M 5 امتحان تشریح بعد الموت کی تکنیک Imtehan Tashreeh Ba'dul maut ki takneek (Post-Mortem Examination Techniques)	2	60	50
M 6 پس مرگ ہونے والی ماہیتی تبدیلیاں Pase Marg hone wali Mahiyati Tabdiliya'n (Pathological Changes in Death)	2	60	50
Paper No : 2 مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology)			
M 13 مسمماتی ہنگامیت کا بندوبست Musammimati Hangamiyat ka Bandobast aur Tafreet Miqdariyat (Management of Toxicological Emergencies and Overdose Scenarios	3	90	75
M 14 یونانی تریاقات Unani Tiryaqaat (Unani Antidotes)	1	30	25
Paper No : 3 طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology)			
M 21 Pharmaceuticals and Over-the-Counter (OTC) Products	2	60	50
M 22 نباتی سمین Nabati Sammeen (Plant Toxins)	2	60	50
Paper No : 4 ماحولیاتی و تجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom (Environmental and Analytical Toxicology)			
M 29 ماحولیاتی علم السموم کا عملی اطلاق، قانونی اور اخلاقی امور اور رجحانات Mahauliyati Ilmus Samoom ka Amali Itlaq, Qanooni aur Akhlaqi Umoor aur Rujhanaat (Practical Applications, Regulatory & Ethical Issues and Emerging trends of Environmental Toxicology	3	90	75
M 30 تجزیاتی علم السموم اور اس کی تجربہ گاہ Tajziyati Ilmus Samoom aur uski Tajurba gah (Analytical Toxicology and its laboratory)	1	30	25
Semester No : 6			
Paper No : 1 مطبی و ماہیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine)			

M 7 ماحولیاتی طب القانون میں جدید اضافات Mahiyati Tibbul Qanoon me Jadeed Izafaat (Recent advances in Forensic Pathology)	2	60	50
M 8 نفسیاتی طب القانون Nafsiyati Tibbul Qanoon (Forensic Psychiatry)	2	60	50
Paper No : 2 مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology)			
M 15 حیاتیاتی سمیت Hayatityati Sammiyat (Bio-toxicity)	2	60	50
M 16 تحقیق برائے مطبی علم السموم Tahqeeq barai Matabi Ilmus Samoom (Research in Clinical Toxicology)	2	60	50
Paper No : 3 طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology)			
M 23 مسمماتی حقائق کا تجزیہ وقوع پذیر رجحانات اور فنیات Musammimati Haqa'iq ka Tajziyah, Waqoo pazeer Rujhanaat aur Fanniyaat (Toxicological Data Analysis, Emerging Trends, Technologies and Pharmacovigilance	2	60	50
M 24 تشریح بعد الموت اور علم السموم Tashreeh Ba'd al Maut aur Ilmus Samoom (Autopsy and Toxicology)	2	60	50
Paper No : 4 ماحولیاتی و تجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom (Environmental and Analytical Toxicology)			
M 31 انکشافات اور تجزیے کے طریقے Inkeshafat wa Tajziye ke Tareeqe (Methods of Detection and Analysis)	2	60	50
M 32 تجزیاتی امتحانات اور ان کی روداد ی تاویل، طب القانونی حیاتیات اور مصلیات Tajziyati Imtehanaat aur unki roodadi Taveel, Tibbul Qanooni Hayatiyaat aur Masliyaat (Analytical Tests and Interpretation of their reports, Forensic Biology and Serology)	2	60	50
	64	1920	1600

Credit frame work

UNIPG-TQS 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 M-2 | 2 Crs	M-9 | 3 Crs M-10 | 1 Crs	M-17 | 1 Crs M-18 | 3 Crs	M-25 | 2 Crs M-26 | 2 Crs	**16**
Semester 4	M-3 | 3 Crs M-4 | 1 Crs	M-11 | 2 Crs M-12 | 2 Crs	M-19 | 2 Crs M-20 | 2 Crs	M-27 | 2 Crs M-28 | 2 Crs	**16**
Semester 5	M-5 | 2 Crs M-6 | 2 Crs	M-13 | 3 Crs M-14 | 1 Crs	M-21 | 2 Crs M-22 | 2 Crs	M-29 | 3 Crs M-30 | 1 Crs	**16**
Semester 6	M-7 | 2 Crs M-8 | 2 Crs	M-15 | 2 Crs M-16 | 2 Crs	M-23 | 2 Crs M-24 | 2 Crs	M-31 | 2 Crs 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-TQS	Tibbul Qanoon wa Ilmul Samoom (Forensic Medicine and Clinical Toxicology)

Table 1 : Course learning outcomes and mapped Program learning outcomes

CONo	A1 Course learning Outcomes (CO) UNIPG-TQS At the end of the course UNIPG-TQS, the students should be able to	B1 Course learning Outcomes mapped with program learning outcomes.
CO1	Appraise Unani approach and contemporary scientific knowledge of the environmental toxic substances and their toxicity.	PO1,PO4,PO5,PO8
CO2	Illustrate toxic conditions, bites or stings; their diagnosis, emergency care, management including poisonous condition of unknown origin.	PO1,PO2,PO6,PO8
CO3	Prepare appropriate antidote for the management of toxicity and associated complications.	PO1,PO6,PO8
CO4	Analyse the safety of Unani drugs and food toxicity, conduct evidence-based research and manage pharmacovigilance.	PO1,PO4,PO6,PO7,PO8
CO5	Demonstrate the ability to impart knowledge in forensic medicine, medical jurisprudence, forensic psychiatry, and allied sciences, while effectively addressing ethical dilemmas in medical practice through case studies and ethical reasoning frameworks.	PO1,PO5,PO8

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

Paper No : 1 مطبی و ماہیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine)						
Semester No : 3						
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-1 مطبی علم السموم اور جسمانی جروح Matabi Ilmus Samoom aur Jismani Jurooh (Clinical Forensic Medicine & Physical injuries) The module is based upon the basic knowledge of Clinical Forensic Medicine, Roles of Forensic Physicians in enforcement of Medical knowledge in Law, Medico-Legal Documentation and Reporting, including the detailed information about the Physical injuries, their types, their determination of ages, nature and role of imaging techniques in their assessment. **• M 1U 1 1.1 مطبی طب القانون کا جائزہ Matabi Tibbul Qanoon ka Jay' izah (Overview of Clinical Forensic Medicine)** 1.1.1. Definition and Scope 1.1.2. Historical Development 1.1.3. Key Roles and Responsibilities	2	10	20	30	60

	• M 1U 2 1.2 نظام قانونی کے ساتھ تعامل Nizame Qanooni ke sath Ta'amul (Interactions with Legal System) 1.2.1. Roles of Forensic Physicians 1.2.2. Medico-Legal Documentation and Reporting • M 1U 3 1.3 تشریفات امتحان طب القانونی Tashreefat Imtihane Tibbul Qanooni (Forensic Medical Examination Protocols) 1.3.1 Systematic Approach to Examination 1.3.2.Documentation of Findings 1.3.3. Chain of Custody in Clinical Settings • M 1U 4 1.4 جسمانی جروحات کا امتحان Jismani Juroohat ka Imtihan (Examination of Physical Injuries) 1.4.1. Types of Injuries 1.4.2. Determining Age and Nature of Injuries 1.4.3. Role of Imaging Techniques (X-rays, CT/MRI scans)					
	M-2 حرارتی، برقی، کیمیاوی اور آتشی اسلحہ جاتی جروح کا طریقہ امتحان Haraarti, Barqi, kimyawi aur aatishi aslahajati jurooh ka tareeqa-e-Imtehan (Examination Techniques of Thermal, Electric, Chemical & Fire Arm injuries) The module deals with the detailed information about the Thermal, Electric, Chemical and Fire Arm injuries, which includes the introduction, classification, management and Medicolegal aspects of these injuries. • M 2U 1 2.1. حرارتی جروح Haraarti Jurooh (Thermal Injuries) 2.1.1. Introduction 2.1.2. Classification 2.1.3. Examination	2	10	20	30	60

	2.1.4. Management 2.1.5. Medicolegal imprtance **• M 2U 2 2.2. برقی جروح Barqi Jurooh (Electric injuries)** 2.2.1. Introduction 2.2.2. Classification 2.2.3. Examination 2.2.4. Management 2.2.5. Medicolegal imprtance **• M 2U 3 2.3 کیمیاوی جروح Kimiyawi Jurooh (Chemical injuries)** 2.3.1. Introduction 2.3.2. Classification 2.3.3. Examination 2.3.4. Management 2.3.5. Medicolegal imprtance **• M 2U 4 2.4 آتشی اسلحہ جاتی جروح Atishi Aslahajati Jurooh (Firearm injuries)** 2.4.1. Introduction 2.4.2. Classification 2.4.3. Examination 2.4.4. Management 2.4.5. Medicolegal imprtance					
		4	20	40	60	120
Semester No : 4						
2A	**2B**	**2C**	**Notional Learning hours**			
	Modules & units		**2D**	**2E**	**2F**	**2G**

Module Number		Number of Credits	Lectures	Practical Training	Experiential Learning including Modular Assessment	Total
	M-3 مطبی طب القانون میں بدفعلی، تشدد اور جنسی جرائم کا امتحان Matabi Tibbul Qanoon men Badfe'li, Tashaddud aur Jinsi jara'im ka Imtehan (Abuse and Violence in Clinical Forensic Medicine & Examination of Sexual Crimes) The module is based on the acquisition of knowledge about the abuse and violence in Clinical Forensic Medicine. Further, the clinical examination of Sexual Crimes will also be part of this module. **• M 3U 1 3.1 طفلی تعسف اور غفلت Tifli Ta'assuf aur Ghaflat (Child Abuse and Neglect)** 3.1.1. Identification and Documentation of Abuse 3.1.2. Medical and Psychological Assessment 3.1.3. Reporting and Legal Considerations **• M 3U 2 3.2 پیری تعسف اور غفلت Peeri Ta'assuf aur Ghaflat (Elder Abuse and Neglect)** 3.2.1.Signs and Symptoms of Elder Abuse 3.2.2 Forensic Evaluation and Reporting 3.2.3 Legal and Protective Measures **• M 3U 3 3.3 خانگی تشدد Khangi Tashaddud (Domestic Violence)** 3.3.1. Clinical Indicators of Domestic Abuse 3.3.2. Assessment and Documentation 3.3.3. Legal Reporting and Support Services	3	15	30	45	90

	• M 3U 4 3.4 جنسی جرائم Jinsi Jara'em (Sexual offences) 3.4.1. Introduction 3.4.2. Classification 3.4.3. Examination 3.4.4. Management 3.4.5. Medicolegal importance • M 3U 5 3.5 اسقاط حمل قانونی Isqate Hamal Ḉanooni (Medical Termination of Pregnancy) 3.5.1. Introduction 3.5.2. Classification 3.5.3. Examination 3.5.4. Procedure 3.5.5. Medicolegal importance					
	M-4 مابیتی طب القانون Mahiyati Tibbul Qanoon (Forensic Pathology) The module includes the acquisition of basic knowledge of Forensic Pathology, including its principles and medicolegal importance. • M 4U 1 4.1 مرضیاتی طب القانون کا جائزہ Marziyati Tibbul Qanoon ka Jayezah (Overview of Pathological Forensic Medicine) 4.1.1. Definition and Scope 4.1.2. Historical Development 4.1.3. Role of Forensic Pathologists • M 4U 2 4.2 طب القانونی مرضیات کے بنیادی اصول Tibbul Qanooni Marziyat ke Bunyadi Usool (Basic Principles of Forensic Pathology) 4.2.1. Integration of Pathology and Forensic Medicine	1	5	10	15	30

	4.2.2. Medico-Legal Importance of Post-Mortem Examinations 4.2.3. Ethical and Legal Considerations					
		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 Imtehan Tashreeh Ba'dul maut ki takneek (Post-Mortem Examination Techniques) The module includes the various Autopsy procedures, including special autopsy methods that may help in the identification of the cause of death. **• M 5U 1 Tashreehul Jussa ka Tareeqa-e kar (Autopsy Procedures)** Autopsy Procedures **• M 5U 2 5.2 Maut ke Ta'ayunati Asbab (Determining Cause of Death)** 5.2.1 Determining Cause of Death **• M 5U 3 5.3 Tashreehul Jussa ka Maksoos Tareeqa (Special Autopsy Methods)** 5.3.1. Special Autopsy Methods	2	10	20	30	60

	M-6 پس مرگ ہونے والی ماہیتی تبدیلیاں Pase Marg hone wali Mahiyati Tabdiliya'n (Pathological Changes in Death) The module includes the information based upon the changes after death, like Livor Mortis, Rigor Mortis, Algar Mortis, putrefaction, etc. and analysis of Trauma and injury. **• M 6U 1 6.1 مابعدالموت ابتدائی تغیرات Ma badal maut ibtidayi Tabdiliyan (Early Post-Mortem Changes)** 6.1.1. Algar Mortis (Cooling of the Body) 6.1.1.1. Definition and mechanism of Algar Mortis 6.1.1.2. Factors affecting the rate of cooling 6.1.1.3. Estimation of time of death based on body temperature 6.1.2. Rigor Mortis (Post-Mortem Rigidity) 6.1.2.1. Physiology of muscle stiffening after death 6.1.2.2. Phases of rigour mortis: onset, peak, and dissipation 6.1.2.3. Variables affecting Rigor Mortis and its forensic significance 6.1.3. Livor Mortis (Post-Mortem Lividity) 6.1.3.1. Definition and development of livor mortis 6.1.3.2. Fixation and shifting of lividity 6.1.3.3. Interpretation of lividity patterns for determining body position and movement after death **• M 6U 2 6.2 تغیرات موخرہ بعدالموت Taghayyurate Muakkherah Badal Maut (Late Post-Mortem Changes)** 6.2.1. Decomposition	2	10	20	30	60

	6.2.1.1. Phases of decomposition (fresh, bloat, active decay, advanced decay, skeletonisation) 6.2.1.2. Role of bacteria and enzymes in decomposition 6.2.1.3. External factors influencing decomposition (temperature, humidity, burial conditions) 6.2.2. Putrefaction 6.2.2.1. Definition and stages of putrefaction 6.2.2.2. Factors accelerating or delaying putrefaction 6.2.2.3. Visual and olfactory signs of putrefaction in different environments 6.2.3. Mummification 6.2.3.1. Conditions that lead to mummification 6.2.3.2. Characteristics of mummified bodies 6.2.3.3. Importance of mummification in forensic identification 6.2.4. Adipocere Formation 6.2.4.1. Definition of adipocere (saponification) formation 6.2.4.2. Conditions favouring adipocere formation 6.2.4.3. Forensic significance of adipocere in determining post-mortem interval 6.2.5. Skeletonization 6.2.5.1. Process of skeletonisation 6.2.5.2. Time factors and environmental influences 6.2.5.3. Forensic challenges in identifying skeletal remains **• M 6U 3 6.3 بعدالموت مخصوص تغیرات Badal Maut Makhsoos Taghayyurat (Special Post-Mortem Changes)**					

	6.3.1. Tache Noire (Post-Mortem Ocular Changes) 6.3.1.1. Development of Tache Noires in the eyes 6.3.1.2. Importance of ocular changes in time of death estimation 6.3.2. Marbling (Venous Patterning) 6.3.2.1. Appearance of marbling due to venous decomposition 6.3.2.2. Timing and forensic significance 6.3.3. Post-Mortem Blisters and Skin Slippage 6.3.3.1. Formation of blisters due to skin separation 6.3.3.2. Conditions leading to skin slippage and its forensic implications					
		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 ماحولیاتی طب القانون میں جدید اضافات Mahiyati Tibbul Qanoon me Jadeed Izafaat **(Recent advances in Forensic Pathology)** The modules include the recent advances of Forensic Pathology, the use of newer techniques like the use of software and Artificial Intelligence (AI) tools for the identification of pathological changes in a dead body.	2	10	20	30	60

	• M 7U 1 7.1 طب القانونی مرضیات میں مستعمل جدید معملی آلات اور تکنیک Tibbul Qanooni Marziyat men musta;mal Jadeed Ma'mali Aalat aur Takneeks (Recent Laboratory Tools and Techniques used in Forensic Pathology) 7.1.1. Introduction 7.1.2. Software used in Forensic Pathological investigation 7.1.3. Role of Artificial Intelligence in Forensic Pathology 7.1.4. DNA Fingerprinting 7.1.5. Gene mapping • M 7U 2 7.2 سالماتی مرضیات قانونی Salemati Marziyate Qanooni (Molecular Forensic Pathology) 7.2.1. Introduction 7.2.2. Scope and prospects 7.2.3. Techniques					
	M-8 نفسیاتی طب القانون Nafsiyati Tibbul Qanoon (Forensic Psychiatry) The module includes the information based on the knowledge of Nafsiyati Tibbul Qanoon. • M 8U 1 8.1 طب القانونی نفسیات کے مبادیات Tibbul Qanooni Nafsiyat ke Mabadiyaat(Basics of Forensic Psychiatry) 8.1.1. Definition and Scope of Forensic Psychiatry 8.1.2. Psychiatric Disorders Responsible for Crime 8.1.3. Schizophrenia and Psychotic Disorders 8.1.4. Personality Disorders: Mood Disorders 8.1.5. Substance Use Disorders 8.1.6. Impulse Control Disorders	2	10	20	30	60

	8.1.7. Management of Psychiatric Offenders • M 8U 2 8.2 طب القانونی سیاق وسباق میں دماغی صحت کی تشخیص Tibbul Qanooni Siyaq wa Sabaq men Demaghi Sehat ki Tashkees (Mental Health Evaluations in Forensic Contexts 8.1.1. Assessing Mental Health in Cases of Violence and Crime 8.1.2. Psychiatric Evaluations for Risk of Harm to Self and Others 8.1.3. Forensic Psychiatric Report Writing and Testimony					
		4	20	40	60	120
		16	80	160	240	480
Paper No : 2 مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology)						
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 مطبی علم السموم کے بنیادی اصول Matabi Ilmus Samoom ke bunyadi Usool (Fundamentals of Clinical Toxicology) The module includes the basic knowledge of clinical toxicology, including its basic principles and comparative analysis of clinical toxicology. **• M 9U 1 9.1 مطبی علم السموم کا جائزہ Matabi Ilmus Samoom ka Jayezah (Overview of Clinical Toxicology)**	3	15	30	45	90

	9.1.1. Definition & Scope 9.1.2. Historical background 9.1.3. Role of poison in human history 9.1.4. Importance in public health 9.1.5. Documentation of Well-Known Poisoning Cases **• M 9U 2 9.2 علم السموم کے بنیادی اصول Ilmus Samoom ke Bunyadi Usool (Basic Principles of Toxicology)** 9.2.1. Dose-response relationship 9.2.2. Toxicokinetic 9.2.3. Toxicodynamic **• M 9U 3 9.3 طب القانونی علم السموم بمقابلہ معالجاتی علم السموم Tibbul Qanooni Ilmus Samoom Bamuqabilah Moalajati Ilmus Samoom (Forensic Toxicology vs. Clinical Toxicology)** 9.3.1. Differences and Similarities 9.3.2. Case Studies **• M 9U 4 9.4 ضوابط اور قانون سازی Zawabit aur Qanoon Sazi (Regulation and Legislation)** 9.4.1. Poisoning and laws 9.4.2. Regulatory agencies and their roles (e.g., Food & Drug Administration (FDA), European Medicines Agency (EMA) 9.4.3. Poison control centres and their functions					
	M-10 سموم کی تقسیم Samoom ki Taqseem (Classification of Poisons) The module includes information about the Unani and Modern classification of poisons, including their comparative studies	1	5	10	15	30

	• M 10U 1 10.1 سموم کی تقسیم Samoom ki Taqseem (Classification of Poisons) 10.1.1. Unani classification 10.1.2. Modern Classification 10.1.3. Comparative studies of poisons: Organics vs. inorganics, Heavy metals and metalloids, & Pesticides, solvents, and industrial chemicals					
		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 مسمومات کا تعارض اور ان کے اثرات Musammimat ka Ta'aruz aur Asarat (Exposure and effects of Toxicants)) The module deals with the exposure and effects of Toxicants on the human body. **• M 11U 1 11.1 مسمومات کا تعارض Musammimaat ka Ta'aruz (Exposure of Toxicants)** 11.1.1. Sources of exposures 11.1.1.1. Domestic 11.1.1.2. Occupational 11.1.1.3. Agricultural/Horticultural 11.1.1.4. Industrial	2	10	20	30	60

	11.1.1.5. Accidental 11.1.2. Routes of Exposure 11.1.2.1. Enteral 11.1.2.2. Parenteral **• M 11U 2 11.2 مسممات کے اثرات Musammimaat ke Asaraat (Effects of Toxicants)** 11.2.1. Types of effects/Actions 11.2.1.1. Local vs Systemic 11.2.1.2. Acute vs. chronic 11.2.1.3. Organ-specific 11.2.1.4. Modifying factors **• M 11U 3 11.3 ادویاتی تسمم Adviyati Tasammum(Drug Toxicity)** 11.3.1. Prescription and over-the-counter drugs 11.3.2. Drug-drug interactions and polypharmacy					
	M-12تشخیص سمیت Tashkhees e Sammiyat (Diagnosis of poisoning) The module is based on the diagnosis of poisoning through clinical assessment and using laboratory tools. **• M 12U 1 12.1 معالجاتی تشخیص Moalajati Tashkhees (Clinical Assessment)** 12.1.1. History taking 12.1.2. Physical examination 12.1.3. Circumstantial evidence 12.1.4. Experiment on animals **• M 12U 2 12.2 معملی تشخیص Ma'mali Tashkhees (Laboratory Assessment)** 12.2.1. Description of Forensic Science Laboratory (FSL) 12.2.3. SOPs for sample collection, preservation & transportation	2	10	20	30	60

	12.2.3. Laboratory analysis of Vomitus, Stomach wash, Blood & Urine					
		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 مسمماتی ہنگامیت کا بندوبست Musammimati Hangamiyat ka Bandobast aur Tafreet Miqdariyat (Management of Toxicological Emergencies and Overdose Scenarios The module is based on the management of Emergencies due to Toxicants and their overdose. **• M 13U 1 13.1 رفع آلودگی Rafa'e Aloodgi (Decontamination)** 13.1.1. Application of Vomiting, Gastric lavage, Purgation, Urination, Perspiration, Cupping, Recent techniques in the Decontamination of: 13.1.1.1. Inhaled Toxicants 13.1.1.2. Injected Toxicants 13.1.1.3. Contact Toxicants 13.1.1.4. Ingested Toxicants **• M 13U 2 13.2 تریاقات مخصوصہ کا استعمال Tiryaqate Makhsoosa Istemal (Use of Specific Antidotes)**	3	15	30	45	90

	13.2.1. Overview 13.2.2. Classification 13.2.3. Indications 13.2.4. Preparation **• M 13U 3 13.3 معاون نگہداشت Mua'win Nigahdasht (Supportive Care)** 13.3.1. Removal from source 13.3.2. Maintenance of vitals 13.3.3. Ventilation 13.3.4. Good nursing care 13.3.5. Symptomatic treatment 13.3.6. Counselling 13.3.7. Others **• M 13U 4 13.4 مطبی مطالعہ موردات Matabi Mutale'a-e-Mauredat (Clinical Case Studies)** 13.4.1. Analysis of real-world poisoning case 13.4.2. Management strategies and outcomes **• M 13U 5 13.5 مسمماتی وبائیت Musammimati Wabayiyat (Toxicological Epidemiology)** 13.5.1. Surveillance of poisoning incidents 13.5.2. Preventive strategies					
	M-14 یونانی تریاقات Unani Tiryaqaat (Unani Antidotes) The module includes the information of Antidotes available in Classical Unani Literature, their methods of preparation and benefits and applications.	1	5	10	15	30

	• M 14U 1 14.1 مفرد یونانی تریاقات Mufrad Unani Tiryaqat (Single Drug Unani Antidotes) 14.1.1. Overview of Mufrad Antidotes:Habbul Ghar, Juntiyana, Mur makki, Narjil Daryayi, jadwar, Beesh, Hilzoon, Sadaf, Farfiyun, Fudnaj, Fundq, Gile makhtoom, Jund Beedastar, Kafoor, Khashkhash, Khurfa, Mushk, Sandal, Zaravand Mudaharaj, Milk Maaul asl Sirka, Shikanjbeen,Shahed etc. • M 14U 2 14.2 مرکب یونانی تریاقات Murakkab Unani Tiryaqat (Compound Unani Antidotes) 14.2.1. Methods of Preparation of the following murakkab Tiryaqat:Tiryaqe arba, Tiryaqe Farooq, Tiryaqe Wabai, Tiryaqe Nazla, Tiryaqe Azam, Tirayqe Al-Tyn, Tirayqe Teen Makhtoom, Tirayqe Teen Romi etc • M 14U 3 14.3 مرکب تریاقات کی تیاری اوران کا استعمال Murakkab Tiryaqat ki Tayyari aur unka Istemal (Preparation and application of Murakkab Tiryaqat 14.3.1. Methods of Preparation and Application of the following Tiryaqat: 14.3.1.1. Tiryaqe Wabai 14.3.1.2. Tiryaqe Arba 14.3.1.3. Tiryaqe Azam 14.3.1.4. Tiryaq Farooq					
		4	20	40	60	120

Semester No : 6

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

					including Modular Assessment	
	M-15 حیاتیاتی سمیت Hayatityati Sammiyat (Bio-toxicity) The module deals with different biotoxic animals, insects, arthropods, of toxicological importance, their toxicity, diagnosis of toxicity, medicinal management and regimens used for the management. **• M 15U 1 15.1 سمیاتی اہمیت کے حامل حشرات و فقرات Sammiyati Ahmiyat ke Hamil Hasharat wa Fuqraat (Reptiles & Arthorpods of Toxicological importance)** 15.1.1. Biology of the following Reptiles & Arthropods: 15.1.1.1. Snakes 15.1.1.2. Scorpion 15.1.1.3. Canthrides 15.1.1.4. Bee 15.1.1.5. Wasp 15.1.1.6. Centrpede **• M 15U 2 15.2 مختلف جانوروں کے زہروں کی حیاتیات Mukhtalif Janwaron ke Zahron ki Hayatiyat (Biology of Venoms of different animals)** 15.2.1. Biology of the following venoms: 15.2.1.1. Snake Venom 15.2.1.2. Scorpion Venom 15.2.1.3. Bee Venom 15.2.1.4. Wasp venom 15.2.1.5. Cantharide venom	2	10	20	30	60

	15.2.1.6. Centipede venom **• M 15U 3 15.3 مختلف زہروں کے سمی اثرات کی تشخیص Mukhtalif Zahron ke Sammi Asarat ki Tashkees (Diagnosis of the toxicological effects of different venoms)** 15.3.1. Diagnosis of the toxicological effects of the following venoms: 15.3.1.1. Snake Venom 15.3.1.2. Scorpion Venom 15.3.1.3. Bee Venom 15.3.1.4. Wasp venom 15.3.1.5. Cantharide venom 15.3.1.6. Centipede venom 15.3.1.7 Dog Bite 15.3.1.8 Monkey Bite 15.3.1.9 Cat Bite 15.3.1.10 Fox Bite 15.3.1.11 Rat Bite **• M 15U 4 15.4 حیاتیاتی تسمم کا معالجاتی بندوبست Hayatiyati Tasammum ka Mualejati Bando Bast (Medical Management of Biotoxicity)** 15.4.1. Use of Mufrad and Murakkab advia in the management of the following biotoxic conditions: 15.4.1.1. Snakebite 15.4.1.2. Scorpion bite 15.4.1.3. Bee stings 15.4.1.4. Wasp sting 15.4.1.5. Cantharide poisoning					

	15.4.1.6. Centipede poisoning 15.4.1.7 Dog Bite 15.4.1.8 Monkey Bite 15.4.1.9 Cat Bite 15.4.1.10 Fox Bite 15.4.1.11 Rat Bite **• M 15U 5 15.5 حیاتیاتی تسمم میں مستعمل علاج بالتدابیر Hayatiyati Tasammum men Musta'mal Ilaj Bit Tadabeer (Therapies used for the management of Biotoxicity)** 15.5.1. Role of the following therapies in the management of Biotoxicity: 15.5.1.1. Fasd 15.5.1.2. Hijamat 15.5.1.3. Irsale Alaq 15.5.1.4. Takmeed 15.5.1.5. Ishal 15.5.1.6. Qai 15.5.1.7. Idrar 15.5.1.8. Kai 15.5.1.9. Dalk **• M 15U 6 15.6 حیاتیاتی تسمم پر کیس اسٹڈیز Case Studies on Biotoxicity** 15.6.1. Various case studies on Biotoxicity					
	M-16 تحقیق برائے مطبی علم السموم Tahqeeq barai Matabi Ilmus Samoom (Research in Clinical Toxicology) The module is based on evidence-based research from Matabi Ilmus Samoom.	2	10	20	30	60

	• M 16U 1 16.1 یونانی تریاقات کی افادیت اور تحفظ پر طبی تحقیق Unani Tiryaqat ki Ifadiyat aur Tahaffuz par Tibbi Tahqeeq (Clinical research on Efficacy and safety of Unani Tiryaqat) 16.1.1. Clinical research on the Efficacy and safety of Unani Tiryaqat • M 16U 2 16.2 ادبیات عالیہ میں تسمم پر کیس اسٹڈیز Adabiyate Aliya men Tasammum par Case Studies (Case studies of poisonings in classical literature.) 16.2.1. Case studies of poisoning in classical literature. • M 16U 3 16.3 مزاج اور تریاقات کا باہمی تعلق Mizaj aur Tiryaqat ka Bahami Ta'alluq (Correlation of Mizaj and antidotes) 16.3.1. Correlation of Mizaj and antidotes • M 16U 4 16.4 مطبی علم السموم میں جدید اضافات Modern advancements in Matabi Ilmus Samoom men Jadeed Izafaat (Clinical Toxicology) 16.4.1. Modern advancements in Clinical Toxicology					
		4	20	40	60	120
		16	80	160	240	480

Paper No : 3 طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology)

Semester No : 3

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-17 طب القانونی علم السموم کے مبادیات Tibbul Qanooni Ilmus Samoom ke Mabadiyat (Basics of Forensic Toxicology) The module includes the basic information about Forensic Toxicology, Unani and Modern Concept and categorisation of Toxic Substances **• M 17U 1 17.1 تعریف اور دائرہ کار Tareef aur Daira-e-kar (Definition and Scope** 17.1.1. Overview 17.1.2. Importance 17.1.3. Historical Development **• M 17U 2 17.2 بنیادی تسمماتی تصورات Bunyadi Tasammumati Tasauwwurat(Basic Toxicological Concepts)** 17.2.1. Unani concept 17.2.2. Modern concept 17.2.3. Categories: Forensic drug testing, Human performance toxicology and Post-mortem toxicology	1	5	10	15	30
	M-18 بھاری معدنیات کی مسمومیت، شراب اور منشیات Bhari Ma'daniyat ki Masmoomiyat, Sharab aur Munashiyaat (Heavy Metals poisonings, Alcohol and Drugs of Abuse) The module includes information about Heavy Metals, their poisonings, including Alcohol and drug abuse, their Mechanism of action, toxic effects, diagnosis, detection methods, management, forensic significance and case studies. **• M 18U 1 18.1 عمومی بھاری معدنیات Umoomi Bhari Ma'daniyaat (Common Heavy Metals)** 18.1.1. Mechanism of action, toxic effects, diagnosis, detection methods, management, forensic significance and case studies of:	3	15	30	45	90

	18.1.1.1. Sammul far (Arsenic) 18.1.1.2. Sesa (Lead) 18.1.1.3. Seemab (Mercury) 18.1.1.4. Faulad (Iron) 18.1.1.5. Nuqra (Silver) 18.1.1.6. Nuhas (Copper) 18.1.1.7. Jast (Zinc) 18.1.1.8. Surma (Antimony)etc. **• M 18U 2 18.2 یونانی مرکبات کی بے ضرری کا تعین Unani Murakkabat ki Be Zarari ka Ta'yyun (Assessment of Safety of Unani formulations)** 18.2.1. Analytical Methods for the Assessment of Safety of Unani Formulations. 18.2.1.1. Kushtajat 18.2.1.2. Sharbat 18.2.1.3. Ma'ajeen 18.2.1.4. Safoofat 18.2.1.5. Kajal 18.2.1.6. Ghaza 18.2.1.7. Marahim etc. **• M 18U 3 18.3 الکوحل Al-cohol (Alcohols)** 18.3.1. Metabolism, effects and forensic case studies of: 18.3.1.1. Ethanol 18.3.1.2. Methanol 18.3.1.3. Isopropanol					

	• M 18U 4 سوءاستفادہادویہ Su'e Istifada Advia (Drugs of Abuse) 18.4.1. Effects, toxicology, forensic importance, Impact, in post-mortem cases of Cocaine, Heroin and Methamphetamine • M 18U 5 18.5 طریقہانکشاف Tareeqa'e Inkishaf (Detection Techniques) 18.5.1. Techniques used for the detection of toxic substances in Urine, blood, breath, and hair follicles.					
		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-19 حشراتکش، جراثیمکش اور مبیداتقوارض Hasharatkush, Jaraseemkush aur Mabeedate Qawariz (Pesticides, insecticides and rodenticide) The module includes the Identification, Mechanism of Action, toxic effects, detection methods, management, forensic significance and case studies of various Pesticides, insecticides and rodenticides • M 19U 1 19.1 آرگینوفاسفیٹس Organophospates(Organophosphates) 19.1.1. Identification, Mechanism of Action, toxic effects, detection methods, management, forensic significance and case studies of: 19.1.1.1. Malathion,	2	10	20	30	60

	19.1.1.2. Parathion 19.1.1.3. Diazinon 19.1.1.4. Chlorpyrifos etc. **• M 19U 2 19.2 پائریتھرایڈز Pyrethrides (Pyrethroids)** 19.2.1. Identification, Mechanism of Action, toxic effects, detection methods, management, forensic significance and case studies of: 19.2.1.1. Permethrin 19.2.1.2. Cypermethrin etc **• M 19U 3 19.3 مبیدات القوارض Mabeedatul Qawariz (Rodenticides)** 19.3.1. Identification, Mechanism of Action, toxic effects, detection methods, management, forensic significance and case studies of: 19.3.1.1. Warfarin 19.3.1.2. Brodifacoum etc.					
	M-20 خانگی سموم Khangi Samoom (Household Poisons) The module includes information about the Types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of Household Poisons **• M 20U 1 20.1 تنظیفی مواد Tanzeefi Mawad (Cleaning Agents)** 20.1.1. Types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of: 20.1.1.1. Bleach (Sodium Hypochlorite) 20.1.1.2. Ammonia 20.1.1.3. Drain Cleaners: Sodium Hydroxide, Sulfuric Acid 20.1.1.4. Detergents	2	10	20	30	60

	20.1.1.5. Antifreeze (Ethylene Glycol) 20.1.1.6. Toilet Bowl Cleaners (Hydrochloric Acid) 20.1.1.7. Air Fresheners **• M 20U 2 20.2 جمال افزا اور ذاتی نگہداشت کی مصنوعات Jamal Afza aur zati nigahdasht ki masnoo'at (Cosmetics and Personal Care Products)** 20.2.1. Cosmetics and Personal Care Products: Types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of: 20.2.1.1. Nail Polish Remover (Acetone) 20.2.1.2. Perfumes and Colognes (Ethanol) 20.2.1.3. Hair Dyes: Ammonia, Hydrogen Peroxide 20.2.1.4. Dusting powders 20.2.1.5. Isopropyl Alcohol (Rubbing Alcohol) 20.2.1.6. Hand Sanitizers (Ethyl Alcohol)					
		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 Pharmaceuticals and Over-the-Counter (OTC) Products	2	10	20	30	60

	The modules include the information about identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of: Pharmaceutical and Over-the-Counter (OTC) Products **• M 21U 1 21.1 موادافیونی Mawade Afyooni (Opioids)** 21.1.1. Types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of: 21.1.1.1. Morphine 21.1.1.2. Codeine 21.1.1.3. Oxycodone **• M 21U 2 21.2 بینزودیازپائنز Binzudiyazpinez (Benzodiazepines)** 21.2.1. Types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of: 21.2.1.1. Diazepam 21.2.1.2. Alprazolam **• M 21U 3 21.3 البابیتورات Albarbiturat (Barbiturates)** 21.3.1. Types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of: 21.3.1.1. Phenobarbital 21.3.1.2. Phenytoin **• M 21U 4 21.4 ادویہ بدون نسخہ Advia Bedoone Nuskha (Over-the-Counter drugs (OTC)** 21.4.1. Aspirin 21.4.2. Paracetamol 21.4.3. Cough Syrups-Dextromethorphan					

	21.4.4. Antihistamines					
	M-22 نباتی سمین Nabati Sammeen (Plant Toxins) The modules include the information about identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of: Plant Toxins **• M 22U 1 22.1 سمی نباتات Sammi Nabatat (Toxic Plants)** 22.1.1. Toxic Plants: Identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of: 22.1.1.1. Cardiotoxic: Digitalis, Tambaku, Kaner, Beesh 22.1.1.2. Neurotoxics: Azaraqi, Afyun, Datura, Bhang, Cocaine, Luffah 22.1.1.3. Gastointestinal toxins: Arand, Baladur, Jamal Gota, Madar, Shehm Hanzal, Lalchitra, Sibr, Ratti	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 Modular Assessment	2G Total
	M-23 مسمماتی حقائق کا تجزیہ وقوع پذیر رجحانات اور فنیات Musammimati Haqa'iq ka Tajziyah, Waqoo pazeer Rujhanaat aur Fanniyaat (Toxicological Data Analysis, Emerging Trends, Technologies and Pharmacovigilance	2	10	20	30	60

	The module deals with different methods of Data Analysis, Forensic Toxicology and Bio Toxicology and various challenges along with future directions. Pharmacovigilance will also be discussed in detail. **• M 23U 1 23.1 کمی بمقابلہ کیفی تجزیہ Kammi bamuqabilah Kaifi Tajziyah (Quantitative vs. Qualitative Analysis)** 23.1.1. Importance in Legal Contexts 23.1.2. Data Collection Tools 23.1.3. Preservation Techniques 23.1.4. Interpretation and Challenges **• M 23U 2 23.2 حیاتیاتی تغیر Hayatiyati Taghayyur (Biological Variability)** 23.2.1. Overview 23.2.2. Factors Affecting Drug Levels 23.2.3. Individual Responses to Toxicants **• M 23U 3 23.3 Pharmacovigilance** 23.3.1. Overview of Pharmacovigilance 23.3.2. Method of Pharmacovigilance of Unani Drugs					
	M-24 تشریح بعدالموت اور علم السموم Tashreeh Ba'd al Maut aur Ilmus Samoom (Autopsy and Toxicology) The modules include information about postmortem toxicology, Case Studies, and Courtroom Testimony **• M 24U 1 24.1 علم السموم بعدالوفات Ilmus Samoom Baad al Wafat (Postmortem Toxicology)** 24.1.1. Principles and procedures: Sample selection, interpretation of results	2	10	20	30	60

	24.1.2. Role of poison in criminal cases: Homicides, suicides, accidental deaths • **M 24U 2 24.2 مطالعہ موردی اور عدالتی شہادت (Mutala'e Mauredi aur Adalati Shahadat(Case Studies and Courtroom Testimony** 24.2.1. Analysis of forensic cases: Real-world examples and discussions 24.2.2. Expert testimony: Presentation of toxicological findings in court					
		4	20	40	60	120
		16	80	160	240	480

Paper No : 4 ماحولیاتی و تجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom (Environmental and Analytical Toxicology)

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 ماحولیاتی علم السموم کے مبادیات اور ان کا ظہور Mahauliyati Ilmus Samoom ke Mabadiyat, Mahauliyati Musammimat ke Makhaz aur unka Zahoor (Basics of Environmental Toxicology, Sources & Exposure of Environmental Toxicants The module is based on the basic knowledge of Environmental Toxicology, Sources & Exposure of Environmental Toxicants. • **M 25U 1 25.1 تعارف Ta'aruf (Introduction)**	2	10	20	30	60

	25.1.1. Definitions and concepts 25.1.2. History, Evolution and Development **• M 25U 2 25.2 جائزہ Jay'zah (Overview)** 25.2.1. Scope and significance 25.2.2. Interdisciplinary approach **• M 25U 3 25.3 ماحولیاتی علم السموم کا یونانی نظریہ Mahauliyati Ilmus Samoom ka Unani Nazariyah (Unani concept of environmental Toxicology** 25.3.1. Unani concept of Toxic air & Water **• M 25U 4 25.4 ذرائع Zara'e (Sources)** 25.4.1. Air pollution 25.4.2. Water pollution 25.4.3. Soil contamination 25.4.4. Industrial 25.4.5. Noise **• M 25U 5 25.5 طریقہ تعارض Tareeqa'e Ta'aruz (Exposure Pathways)** 25.5.1. Inhalation, ingestion, and contact 25.5.2. Environmental transport and transformation pollution 25.5.3. Occupational exposure					
	M-26 ماحولیاتی مسمّمات کے درجات Mahauliyati Musammimat ke Darajaat (Classes of Environmental Toxicants) The module deals with the classification of Environmental Toxicants **• M 26U 1 26.1 طبعی مسمّمات Tabayi Musammimat (Physical Toxicants)** 26.1.1. Particulate matter 26.1.2. Asbestos and other fibrous materials	2	10	20	30	60

	• **M 26U 2 26.2 کیمیاوی مسمّمات Kimiyawi Musammimat (Chemical Toxicants)** 26.2.1. Introductory part of 26.2.1.1. Heavy metals (e.g., lead, mercury, arsenic) 26.2.1.2. Industrial chemicals (e.g., PCBs, dioxins, solvents) 26.2.1.3. Pesticides and herbicides 26.2.1.4. Carcinogens 26.2.1.5. Chemical warfare • **M 26U 3 26.3 حیاتیاتی مسمّمات Hayatiyati Musammimat (Biological Toxicants)** 26.3.1. Pathogens (e.g., bacteria, viruses, protozoa) 26.3.2. Mycotoxins and allergens • **M 26U 4 26.4 مطفرات Mutaffirat (Mutagens)** 26.4.1. Physical 26.4.2. Chemical 26.4.3. Biological					
		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 ماحولیاتی مسمومات کے اثرات اور ممکنہ خطرات کا تعین Mahauliyati Musammimat ke asarat aur Mumkinah khatrat ka Ta'ayyun (Effects of Environmental Toxicants and Environmental Risk Assessment) The module deals with the Effects of Environmental Toxicants and Environmental Risk Assessment. **• M 27U 1 27.1 حاد مسمومیت Haad Masmoomiyat (Acute Toxicity)** 27.1.1. Mechanism of Action 27.1.2. Clinical manifestations 27.1.3. Case studies of acute poisoning **• M 27U 2 27.2 مزمن مسمومیت Muzmin Masmoomiyat (Chronic Toxicity)** 27.2.1. Long-term health effects (e.g., cancer, neurological effects) 27.2.2. Case studies of chronic exposure **• M 27U 3 27.3 مخصوص جمیعت Makhsoos Jamee'at (Special Populations)** 27.3.1. Vulnerable groups (e.g., children, pregnant women& elderly) 27.3.2. Specific health concerns for different populations (e.g. Health Professionals, industrial workers, etc.) **• M 27U 4 27.4 خطراتی تشخیص کا ڈھانچہ Khatrati Tashkhees ka Dhancha (Risk Assessment Framework)** 27.4.1. Hazard identification 27.4.2. Dose-response assessment 27.4.3. Exposure assessment 27.4.4. Risk characterisation **• M 27U 5 27.5 خطراتی آگاہی Khatrati Aagahi (Risk Communication)** 27.5.1. Communicating risk to the public	2	10	20	30	60

	27.5.2. Strategies for effective risk communication					
	M-28 ماحولیاتی مسمومیت کا یونانی علاج Mahauliyati Masmoomiyat ka Unani Ilaj (Unani Management of Environmental) Toxicity) The module includes information about the Unani Management of Environmental Toxicity **• M 28U 1 28.1 حاد مسمومیت کا بندوبست Haad Masmoomiyat ka Bandobast (Management of Acute Toxicity)** 28.1.1. Management of Acute Toxicity **• M 28U 2 28.2 مزمن مسمومیت کا بندوبست Muzmin Masmoomiyat ka Bandobast (Management of Chronic Toxicity)** 28.2.1. Management of Chronic Toxicity **• M 28U 3 28.3 ازالہ سمیت کا طریقہ کار اور تدابیر Izalaye Sammiyat ka Tareeqaye kar aur Tadabeer (Detoxification Procedures & Regimens)** 28.3.1. Detoxification Procedures & Regimens **• M 28U 4 28.4 بندوبست عوارضات Bando Baste Awarezaat (Management of complications)** 28.4.1. Management of complications	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**	**2G Total**

					Modular Assessment	
	M-29 ماحولیاتی علم السموم کا عملی اطلاق، قانونی اور اخلاقی امور اور رجحانات Mahauliyati Ilmus Samoom ka Amali Itlaq, Qanooni aur Akhlaqi Umoor aur Rujhanaat (Practical Applications, Regulatory & Ethical Issues and Emerging trends of Environmental Toxicology The module includes the Practical Applications, Regulatory & Ethical Issues and Emerging trends of Environmental Toxicology **• M 29U 1 29.1 مطالعات موردی Mutaleat Moordi (Case Studies)** 29.1.1. Historical and recent case studies of environmental toxicology 29.1.2. Analysis of specific toxicant incidents (e.g., Minamata disease, Love Canal) 29.1.3. Occupational case studies **• M 29U 2 29.2 عملی اطلاقات Amali Itlaqat(Practical Applications)** 29.2.1. Hands-on training in sampling and analysis 29.2.2. Interpretation of toxicological data 29.2.3. Communication with health authorities **• M 29U 3 29.3 ضوابطی ڈھانچہ Zawabiti Dhancha (Regulatory Framework)** 29.3.1. Environmental laws and regulations (e.g., EPA, OSHA) 29.3.2. Role of the Pollution Control Board 29.3.3. International agreements and standards **• M 29U 4 29.4 اخلاقی ملاحظات Akhlaqui Mulahezat (Ethical Considerations)** 29.4.1. Ethical issues in toxicological research and practice 29.4.2. Public health implications and policy considerations **• M 29U 5 29.5 صادراتی ملوثات Saderati Mulavvisat (Emerging Contaminants)**	3	15	30	45	90

	29.5.1. New and novel toxicants (e.g., microplastics, endocrine disruptors) **• M 29U 6 29.6 ماحولیاتی علم السموم میں پیش رفت Mahauliyati Ilmul Samoom men Peshraft (Advances in environmental Toxicology)** 29.6.1. Innovations in detection and risk assessment 29.6.2. Future trends in environmental toxicology					
	M-30 تجزیاتی علم السموم اور اس کی تجربہ گاہ Tajziyati Ilmus Samoom aur uski Tajurba gah (Analytical Toxicology and its laboratory) The module includes the basic information of Analytical Toxicology and the tools used in the laboratory. **• M 30U 1 30.1 تجزیاتی علم السموم کا تعارف اور اس کا تاریخی ارتقا Tajziyati Ilmul Samoom ka Ta'aruf aur uska Tareekhi Irtiqa (Introduction and Historical development of Tajziyati Ilmul Samoom)** 30.1.1. Introduction and Historical Development of Tajziyati Ilmul Samoom **• M 30U 2 30.2 تجزیاتی علم السموم کا اطلاق Tajziyati Ilmul Samoom ka Itlaq (Application of Analytical Toxicology)** 30.2.1. Application of Analytical Toxicology **• M 30U 3 30.3 تجزیاتی معمل میں مستعمل سازوسامان Tajziyati Ma'mal me musta'mal sazo samant(Equipment used in analytical laboratory** 30.3.1. Equipment used in the analytical laboratory	1	5	10	15	30
		4	20	40	60	120

Semester No : 6						
2A	**2B**	**2C**	**Notional Learning hours**			
Module Number	**Modules & units**		**2D Lectures**	**2E**	**2F**	**2G Total**

		Number of Credits		Practical Training	Experiential Learning including Modular Assessment	
	M-31 انکشافات اور تجزیے کے طریقے Inkeshafat wa Tajziye ke Tareeqe (Methods of Detection and Analysis) This module includes commonly used Analytical Tests and their interpretation, factors affecting analytical reports, Case studies, Forensic Biology and serology **• M 31U 1 31.1 فنیات نمونہ بندی Funniyate Namoona Bandi (Sampling Techniques)** 31.1.1. Human sampling 31.1.2. Environmental sampling, i.e. Air, water, soil, and biological samples 31.1.3. Field collection and preservation **• M 31U 2 31.2 تجزیاتی فنیات Tajziyati Fanniyat (Analytical Techniques)** 31.2.1. Spectroscopy (e.g., atomic absorption, mass spectrometry) 31.2.2. Chromatography (e.g., gas chromatography, liquid chromatography) 31.2.3. Biological assays (e.g., bioassays, molecular assays)	2	10	20	30	60
	M-32 تجزیاتی امتحانات اور ان کی روداد کی تاویل، طب القانونی حیاتیات اور مصلیات Tajziyati Imtehanaat aur unki roodadi Taveel, Tibbul Qanooni Hayatiyaat aur Masliyaat (Analytical Tests and Interpretation of their reports, Forensic Biology and Serology) This module includes commonly used Analytical Tests and their interpretation, factors affecting analytical reports, Case studies, Forensic Biology and serology	2	10	20	30	60

	• M 32U 1 32.1 دموی ترکیب Damavi Tarkeeb (Blood-Composition)s, Functions, and examination of blood evidences 32.1.1. Damavi Tarkeeb (Blood-Compositions, 32.1.2. Functions and examination of blood evidence • M 32U 2 32.2 منوی ساخت، ترکیب اور منوی دھبوں کا امتحان Manavi sakht, Tarkeeb aur Manavi dhabbon ka Imtihan (Semen-Nature, composition, Examination of semen stains 32.2.1. Semen-Nature, composition, Examination of semen stains • M 32U 3 32.3 بالوں کی شناخت اور موازنہ Balon ki shanakht aur Muwazena (Identification and comparison of Hair 32.3.1. Identification and comparison of Hair • M 32U 4 32.4 بول وبراز Baul wa Baraz (Urine and Faeces) 32.4.1. Urine and Faeces • M 32U 5 32.5 لعاب دہن اور انفی رطوبات Luabe Dahan aur Anafi Ratoobaat(Saliva and Nasal secretions) 32.5.1. Saliva and Nasal Secretions • M 32U 6 32.6 پسینہ، آنسو اور شیر انساں Paseena, Ansoo aur Sheere Insa'n (Sweat, Tears, and human milk) 32.6.1. Sweat, Tears, and Human Milk					
		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 مطبی ومابیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine)

Semester No : 3

Module 1 : مطبی علم السموم اور جسمانی جروح Matabi Ilmus Samoom aur Jismani Jurooh (Clinical Forensic Medicine & Physical injuries)

Module Learning Objectives

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

Describe Clinical Matabi Ilmus Samoom (Forensic Medicine)

Identify various types of Juroohat (injuries)

Present various cases of Juroohat (injuries) in terms of their nature, clinical features, age, mode and their medicolegal aspects.

Unit 1 1.1 مطبی طب القانون کا جائزہ Matabi Tibbul Qanoon ka Jay' izah (Overview of Clinical Forensic Medicine)

1.1.1. Definition and Scope

1.1.2. Historical Development

1.1.3. Key Roles and Responsibilities

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,28,29,30,38,39,40,41,42,43,44,45,46,47,53,65,78,82,84,85,99,100,101,105,109,112

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	3D Lecture/ Practical Training/ Experiential Learning	3E Domain/ Sub Domain	3F Level (Does/Shows how/Knows how/Know)	3G Teaching Learning Methods

		Hours				
CO1,CO2, CO3	Describe Clinical Forensic Medicine along with its scope and historical background.	1	Lecture	CC	Knows-how	L&PPT ,L&GD,L
CO5	Describe any historical medicolegal case and the role and responsibilities of a forensic expert in identifying them.	4	Experiential-Learning1.1	AFT-RES	Shows-how	DIS,RP,LS,SIM,BS
Unit 2 1.2 نظام قانونی کے ساتھ تعامل Nizame Qanooni ke sath Ta'amul (Interactions with Legal System) 1.2.1. Roles of Forensic Physicians 1.2.2. Medico-Legal Documentation and Reporting **References:** 2,6,9,11,17,20,22,26,28,29,30,35,53,66,67,68,84,86,88,101,109						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO3,CO5	Describe the role of a Forensic expert in the legal system.	1	Lecture	CC	Knows-how	L&PPT ,L
CO5	Prepare medico-legal report based on sample cases	3	Practical1.1	PSY-SET	Shows-how	CBL,D,DIS,PER,CD
CO5	Identify forensic photographs	4	Experiential-Learning1.2	PSY-ORG	Does	BS,PrBL,CD,BL,SDL
CO3,CO5	Describe the Medicolegal Documentation and reporting	1	Lecture	CC	Knows-how	L&PPT ,L,L&GD
Unit 3 1.3 تشریحات امتحان طب القانونی Tashreefat Imtihane Tibbul Qanooni (Forensic Medical Examination Protocols) 1.3.1 Systematic Approach to Examination 1.3.2.Documentation of Findings						

1.3.3. Chain of Custody in Clinical Settings

References: 35,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,53,56,57,58,59,63,64,65,66,70,72,74,80,82,84,86,90,94,99,101,105,109,112

3A	3B	3C	3D	3E	3F	3G
CO3,CO5	Describe the Systemic Approach to Forensic Medicolegal Examination.	1	Lecture	CC	Knows-how	L,L&PPT
CO1,CO3, CO5	Describe the Collection of forensic evidence	1	Lecture	CC	Knows-how	L,L&PPT
CO2,CO3, CO5	Describe the Chain of custody of forensic evidence collected in a clinical setting.	1	Lecture	CC	Knows-how	L,L&GD,L&PPT ,PL,LS
CO5	Demonstrate the collection of forensic evidence.	4	Practical1.2	PSY-GUD	Shows-how	SIM,RP,W
CO5	Demonstration of Chain of Custody.	3	Practical1.3	AFT-RES	Shows-how	BS,D
CO5	Document the Forensic evidence.	4	Experiential-Learning1.3	AFT-RES	Does	PrBL,CBL,SIM,D
CO5	Appraise the medicolegal aspect of different injuries.	5	Experiential-Learning1.4	PSY-MEC	Shows-how	RLE,CD,CBL

Unit 4 1.4 جسمانی جروحات کا امتحان Jismani Juroohat ka Imtihan (Examination of Physical Injuries)

1.4.1. Types of Injuries

1.4.2. Determining Age and Nature of Injuries

1.4.3. Role of Imaging Techniques (X-rays, CT/MRI scans)

References: 28,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,53,56,57,58,64,69,72,74,78,82,85,87,88,91,93,99,100,101,105,108						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO2,CO3, CO5	Define and classify mechanical injuries.	1	Lecture	CC	Knows-how	L,L&PPT
CO3,CO5	Describe the mechanism, age and nature of mechanical Injuries.	1	Lecture	CC	Knows-how	L,L&PPT ,PER,PL
CO5	Demonstrate mechanical injuries.	4	Practical1.4	PSY-GUD	Shows-how	SIM,RLE,DIS
CO5	Demonstrate Mechanical Injuries based on stages of wound healing.	3	Practical1.5	PSY-SET	Shows-how	PL,CD,DIS,CBL,RLE
CO5	Demonstrate Mechanical Injuries using the Imaging technique.	3	Practical1.6	PSY-SET	Shows-how	TBL,CBL,X-Ray,D,CD
CO5	Identify ante-mortem injuries	4	Experiential-Learning1.5	AFT-VAL	Knows-how	RLE,BS,PER,CBL
CO5	Demonstrate the post-mortem injuries and differentiate from antemortem injuries.	5	Experiential-Learning1.6	AFT-RES	Does	CBL,DL,CD,D,SIM
CO3,CO5	Describe the mechanisms of injury about the forces that cause them.	1	Lecture	CC	Knows-how	L&PPT ,L&GD,L
CO5	Describe the physiological processes involved in wound healing	1	Lecture	CC	Knows-how	L&GD,TUT,L&PPT ,SIM,L
Practical Training Activity						

Practical Training 1.1 Prepare medico-legal report
Total Learning Hours: 3 Hours **Step-1: Discussion on the procedure of preparation of Medicolegal Report: (1 Hours)** The teacher will describe; what is Medicolegal report and discuss the key points to be kept in mind while preparing a Medicolegal report. The teacher will present any two Medicolegal case reports before the students. e.g. injury/Death case reports/sexual crime reports/insanity reports etc. The student will observe the reports. **Step-2: Preparation of report by the student: (1 Hour 30 Min)** The student will be assigned 2 mock cases of forensic importance. The student will examine the cases and prepare a report and also prepare a PowerPoint presentation. **Step-3: Presentation of the report: (30 Min)** The student will present its report in the class before the teacher or the student may present before UG students in presence of the teacher. The teacher will suggest the modifications of the missing part, if any. The activity will be recorded in the Practical Record book.
Practical Training 1.2 Collection of Forensic Evidence
Total Learning Hours: 4 Hours **Step-1: Discussion on the topic: (1 Hour 30 Min)** The teacher will discuss about the method of collection of various samples, which may be forensic evidence, with the students. **Step-2:** **Activity-1: Demonstration of collection of biological samples: (1 Hour)** The student will visit the pathology lab of the college. The student will demonstrate the collection of blood or urine or saliva, or semen, whichever is feasible. The student will use sterile swabs for sample collection from specific body sites (oral, vaginal, anal, or rectal, depending on the case).

Activity-2: Demonstration of collection of sample from Clothing and Foreign Material:(1 Hour) The student will collect and package clothing, ensuring proper preservation of trace evidence (e.g., fibres, hair, and bodily fluids). Each piece will be packaged separately to avoid contamination. **Step-3: Recording the Activity: (30 Min)** The activity will be recorded in the logbook
Practical Training 1.3 Demonstration of the Chain of custody of Forensic evidence.
Total Learning Hours : 3 Hours **Step-1: Library Session: (2 Hours)** The student will study the chain of custody of forensic evidence during a medico-legal investigation. The student will study the collection of samples, which may be forensic evidence and study their packing, transfer and transportation. **Step-2: Creation of a Moot Court and Presentation of forensic evidence: (30 Min)** The teacher will create a mock court, and the student will demonstrate the Chain of custody of Forensic evidence. The teacher will rectify if required. **Step-3: Recording the Activity: (30 Min)** The activity will be recorded in the logbook.
Practical Training 1.4 Mechanical Injuries.
Total Learning Hours: 4 Hours **Step-1: Discussion on the topic: (1 Hour)** The teacher will describe the type of mechanical injury, like abrasions, lacerations, contusions, fractures, burns, etc. and classify them according to severity, mechanism and pattern The student will discuss with the teacher about the determination of the age of mechanical injuries. **Step-2: Visit to the simulation Lab: (2 Hours)**

The Student will visit the internal simulation laboratory and observe 5 different types of mechanical injuries.

The student will prepare a report of each case separately.

Step-3: Group Discussion: (30 Min)

The student will present their report in class and discuss it with other students. Other students will also give their input on each case.

The teacher will intervene in the group discussion and rectify, if required.

Step-4: Recording of the Activity: (30 Min)

The activity will be recorded in the Practical Record book.

Practical Training 1.5 Determination of Age and Nature of Mechanical Injuries based on Stages of Wound Healing.

Total Learning Hours: 3 Hours

Step-1: Visit to Surgical ward: (2 Hours)

The student will visit the surgical ward of the attached hospital/nearby hospital with the consent of the concerned departmental teacher/MS of the hospital.

The student will observe any 2 cases of injuries/operated cases admitted in the IPD of the hospital.

The student will assess the injury/wound and identify the different stages of wound healing (inflammatory, proliferative, and maturation) and correlate them with the time elapsed since the injury/operation.

In case of non-availability of surgical patients, the student may also use simulated injuries on models or mannequins, progressing through different stages over time.

The student will also discuss the case with his colleague.

Step-2: Preparation of the report: (30 Min)

The student will prepare an injury report and a PowerPoint presentation.

Step-3: Presentation of the report: (30 Min)

The student will present their report in class before the teacher, or the student may present before UG students in the presence of the teacher.

The teacher will suggest the modifications of the missing part, if any.

The activity will be recorded in the Practical Record book.
Practical Training 1.6 Role of Imaging technique in identification of mechanical Injuries.
Total Learning Hours: 3 Hours **Step-1: Discussion on the topic: (1 Hour)** The teacher will describe the role of radiology in the identification of mechanical Injury and demonstrate the X-ray, CT scan or MRI images of the cases having soft tissue injuries, fractures and different stages of healing through recorded videos. **Step-2: Identification of the injury: (1 Hour)** The student will visit the IPD and examine the cases' mechanical injuries and correlate the findings with external evidence, such as contusions, lacerations or the age of injury. **Step-3: Preparation of the report: (30 Min)** The student will prepare a report and also prepare a PowerPoint presentation. **Step-4: Presentation of the report: (30 Min)** The student will present their report in class before the teacher, or the student may present before UG students in the presence of the teacher. The teacher will suggest the modifications of the missing part, if any. The activity will be recorded in the Practical Record book.
Experiential Learning Activity
Experiential-Learning Learning 1.1: Historical medicolegal case.
Total Learning Hours: 4 Hours. **Step-1: Discussion on the topic: (30 Min)** The teacher will select a historical Medicolegal case and discuss it with the student. **Step-2: Library Session and Preparation of the script: (90 Min)**

The Student will study the case. The student will prepare a script. **Step-3: Role Play: (90 Min)** The student will present the content in the class as a role-play. The student will emphasise his role and responsibilities in identifying the problem. The teacher will rectify this as required. **Step-4: Recording the Activity: (30 Min)** The activity will be recorded in the logbook.
Experiential-Learning Learning 1.2: Identify forensic photographs
Total Learning Hours: 4 Hours **Step-1: Visit to the Simulation Lab (30 Min)** The teacher will assign 4 photographs of Medicolegal cases (2 cases of injury and 2 cases of violent asphyxial death) available in the simulation Lab. **Step-2: Identification of the Photograph: (1 Hour)** The student will identify the assigned photographs and study them deeply. **Step-3: Preparation of the report: (2 Hours)** The student will find out the Medicolegal aspect of the photograph and prepare separate reports of each photograph. The student will also prepare a PowerPoint Presentation or create digital content **Step-4: Presentation of the report: (30 Min)** The student will present their report in class before the teacher, or the student may present before UG students in the presence of the teacher. The teacher will suggest the modifications of the missing part, if any. The activity will be recorded in the logbook.
Experiential-Learning Learning 1.3: Forensic evidence.

Total Learning Hours: 4 Hours

Step-1: Creation of a simulated crime scene: (30 Min)

The teacher will create a simulated crime scene.

Step-2: Collection of evidence:

Activity-1: Collection of biological samples: (1 Hour)

The student will visit the pathology lab of the college.

The student will collect the biological sample, i.e. blood/urine/saliva/ semen, whichever is available in the simulated scenario..

The student will use sterile swabs for sample collection from specific body sites (oral, vaginal, anal, or rectal, depending on the case).

Activity-2: Collection of sample from Clothing and Foreign Material :(1 Hour)

The student will collect and pack clothing, ensuring proper preservation of trace evidence (e.g., fibres, hair, and bodily fluids).

Each piece will be packaged separately to avoid contamination.

Step-3: Presentation of the evidence: (1 Hour)

The student will present their evidence in the class.

The teacher will rectify as required.

Step-4: Recording the Activity: (30 Min)

The activity will be recorded in the logbook

Experiential-Learning Learning 1.4: Medicolegal Aspect of Injury

Total Learning Hours: 5 Hours

Step-1: Visit to Emergency Unit: (3 Hours)

The student will visit the emergency Unit of the attached hospital or/nearby hospital.

The student will observe any 2 cases of injuries attending the hospital.

The student will assess the injury and try to identify the Medicolegal aspect of the injury, i.e. suicidal/ /homicidal/accidental/fabricated.

Step-2: Preparation of injury report: (1 Hour) The student will prepare an injury report and a PowerPoint presentation. **Step-3: Presentation of the injury report: (1 Hour)** The student will present their report in class before the teacher, or the student may present before UG students in the presence of the teacher. The teacher will suggest the modifications of the missing part, if any.
Experiential-Learning Learning 1.5: Ante-mortem injuries
Total Learning Hours: 4 Hours **Step-1: Visit to Surgical ward and identification of ante mortem injuries: (3 Hours)** The student will visit the surgical ward/Emergency Unit of the attached hospital/nearby hospital with the consent of the concerned departmental teacher/MS of the hospital. The student will observe any 2 cases of injuries and identify different types of antemortem injuries, including abrasions, bruises, incised, lacerations, puncture, and fractures. The student will assess the different stages of wound healing (inflammatory, proliferative, and maturation) and correlate them with the time elapsed since the injury. **Step-2: Preparation of the report: (30 Min)** The student will prepare a report and also prepare a PowerPoint presentation. **Step-3: Presentation of the report: (30 Min)** The student will present their report in class before the teacher, or the student may present before UG students in the presence of the teacher. The teacher will suggest the modifications of the missing part, if any. The activity will be recorded in the Practical Record book.
Experiential-Learning Learning 1.6: Post-mortem injuries.
Total Learning Hours: 5 Hours

Step-1: Visit to the Mortuary and identification of postmortem injuries: (3 Hours)

The student will visit the simulation lab or mortuary of the attached hospital/nearby hospital with the consent of the concerned departmental teacher/MS of the hospital.

The student will examine any two simulated or real forensic cases (using models, mannequins, or cadavers) displaying different types of post-mortem injuries, including abrasions, bruises, incised, lacerations, puncture, and fractures, such as the absence of active bleeding, no inflammation, or dry and pale tissue.

The student will compare these findings with antemortem injuries for better understanding.

The student will assess the different stages of wound healing and correlate them with the time elapsed since the injury.

Step-2: Preparation of the report: (1 Hour)

The student will prepare a report and also prepare a PowerPoint presentation.

Step-3: Presentation of the report: (1 Hour)

The student will present their report in class before the teacher, or the student may present before UG students in the presence of the teacher.

The teacher will suggest the modifications of the missing part, if any.

The activity will be recorded in the Practical Record book.

Modular Assessment

Assessment	Hour
Formative Assessment: 4 Hours **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. **Viva (20 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):**	4

The student will be given 2 Short Answer Questions from 1, 2 and 3 units for 5 marks each. **Demonstration of Imaging Techniques (20 Marks):** Demonstrate the imaging techniques in the diagnosis of various cases from unit 4. Or Any practical in converted form can be taken for assessment (25 Marks). And Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	

Module 2 : حرارتی، برقی، کیمیاوی اور آتشی اسلحہ جاتی جروح کا طریقہ امتحان Haraarti, Barqi, kimyawi aur aatishi aslahajati jurooh ka tareeqa-e-Imtehan (Examination Techniques of Thermal, Electric, Chemical & Fire Arm injuries)

Module Learning Objectives

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

Describe & classify Thermal, Electric, Chemical and Fire Arm injuries

Classify and diagnose Thermal, Electric, Chemical and Fire Arm injuries.

Identify the medicolegal aspects, describe & classify Thermal, Electric, Chemical and Fire Arm injuries.

Unit 1 2.1. حرارتی جروح Haraarti Jurooh (Thermal Injuries)

2.1.1. Introduction

2.1.2. Classification

2.1.3. Examination

2.1.4. Management

2.1.5. Medicolegal imprtance

References: 32,35,36,47,53,56,64,74,82,83,84,86,88,90,99,100,101,105,108,109

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

CO5	Define and classify thermal injuries	1	Lecture	CC	Knows-how	L&PPT ,L,TUT
CO5	Describe the Examination, Management and Medicolegal importance of Thermal Injuries	1	Lecture	CC	Knows-how	TUT,L&PPT ,L
CO5	Demonstrate different Types of Thermal Injuries.	3	Practical2.1	PSY-SET	Shows-how	BL,D,BS,D-M,SDL
CO5	Demonstrate how to assess the severity of burn.	3	Practical2.2	PSY-SET	Shows-how	D-M,D,D-BED,BL,PT
CO5	Diagnose and manage a case of burn. Identification of various Thermal Injuries	4	Experiential-Learning2.1	AFT-VAL	Does	CBL,PER,RLE,CD
CO3,CO5	Discuss the mechanisms and physiological effects of thermal injuries	1	Lecture	CC	Knows-how	L,L&GD,L&PPT
CO5	Manage burns and scalds.	4	Experiential-Learning2.2	PSY-GUD	Does	PER,JC,D,DIS
CO5	Identify the firearm used for an injury.	4	Practical2.3	PSY-SET	Shows-how	D-M,D,PT,CD,BL

Unit 2 2.2. برقی جروح Barqi Jurooh (Electric injuries)

2.2.1. Introduction

2.2.2. Classification

2.2.3. Examination

2.2.4. Management

2.2.5. Medicolegal imprtance

References: 35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,53,64,72,74,78,88,94,99,100,101,105,108						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO5	Describe and classify Electric injuries.	1	Lecture	CK	Know	L&PPT ,SDL,L,TUT,PL
CO5	Describe the Examination, management and Medicolegal importance of Electric Injuries	1	Lecture	CC	Know	L&PPT ,L
CO5	Demonstrate the First-aid technique for the management of Electric Injuries	3	Practical2.4	PSY-SET	Knows-how	CD,D,PT,LS,SIM
CO5	Demonstrate safety equipment and their importance in prevention of electric injuries	6	Experiential-Learning2.3	PSY-ADT	Does	W,BL,TBL
Unit 3 2.3 کیمیاوی جروح Kimiyawi Jurooh (Chemical injuries) 2.3.1. Introduction 2.3.2. Classification 2.3.3. Examination 2.3.4. Management 2.3.5. Medicolegal imprtance **References:** 35,37,38,39,40,41,42,43,44,45,46,47,48,50,51,53,64,74,82,83,85,86,87,90,91,94,95,99,100,101,105,109						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO5	Describe the examination, management and medicolegal importance of chemical injury,	1	Lecture	CK	Knows-how	L,L&PPT

CO5	Demonstrate the First-aid technique for management chemical injuries	3	Practical2.5	PSY-SET	Shows-how	PrBL,BS,TBL,D
CO5	Define and Classify the Chemical Injuries	1	Lecture	CC	Knows-how	L,L&PPT
CO5	Diagnose and manage a case of chemical injury.	4	Experiential-Learning2.4	AFT-VAL	Does	RLE,CD,CBL,D
CO5	Investigate the long-term consequences of chemical injuries, including chronic health issues and environmental impacts	4	Experiential-Learning2.5	AFT-RES	Does	BS,JC,CD,CBL,SIM

Unit 4 2.4 آتشی اسلحہ جاتی جروح Atishi Aslahajati Jurooh (Firearm injuries)

2.4.1. Introduction

2.4.2. Classification

2.4.3. Examination

2.4.4. Management

2.4.5. Medicolegal imprtance

References: 24,35,36,37,39,40,41,42,43,44,45,46,47,48,53,64,65,74,82,83,84,85,86,87,94,95,99,100,101,105,109

3A	3B	3C	3D	3E	3F	3G
CO5	Define and classify the Fire arm injuries.	1	Lecture	CC	Knows-how	L,L&PPT
CO3,CO5	Describe the Examination, Management and medicolegal importance of firearm injuries	1	Lecture	CC	Knows-how	SIM,L,RP,L&PPT
CO5	Demonstrate different firearms injuries.	4	Practical2.6	PSY-SET	Shows-how	RLE,RP,CBL

CO5	Identify the range of fire arm injury	4	Experiential-Learning2.6	AFT-RES	Does	BL,PL,SIM,TBL,BS
CO3,CO5	Discuss characteristic injury patterns associated with various firearms, including Entry and exit wounds, Tattooing and stippling from gunpowder	1	Lecture	CC	Knows-how	L&GD,L&PPT ,L

Practical Training Activity

Practical Training 2.1 Demonstration of thermal Injuries.

Total Learning Hours: 3 Hours

Step-1: Discussion on the topic: (1 Hour)

The teacher will describe the different types of thermal injuries through recorded videos.

Step-2: Identification of thermal injury: (1 Hour)

The student will be provided some clinical images/models,/cadavers of burns and scalds.

The student will identify the models that it belongs to: superficial burns/deep tissue burns/scalds

Step-3: Preparation of the report: (30 Min)

The student will prepare a report and also prepare a PowerPoint presentation.

Step-4: Presentation of the report: (30 Min)

The student will present their report and demonstrate the edicolegal aspect of the injury in the class before the teacher, or the student may present before UG students in the presence of the teacher.

The teacher will suggest the modifications of the missing part, if any.

The activity will be recorded in the Practical Record book.

Practical Training 2.2 Assessment of the severity of Burn

Total Learning Hours: 3 Hours

Step-1: Discussion on the Topic: (1 Hour)

The teacher will describe the stages and assessment of severity of burns with the help of clinical images/models,/cadavers or a patient with burns.

The teacher will present one case of burn.

The student will observe the reports.

Step-2: Preparation of report by the student: (1 Hour 30 Min)

The student will be assigned 1 mock case of burn/ Video clip / simulations.

The student will examine the cases and prepare a report on the degree and extent of the burn, and also prepare a PowerPoint presentation.

Step-3: Presentation of the report: (30 Min)

The student will present their report in the class before the teacher, or the student may present before UG students in the presence of the teacher.

The teacher will suggest the modifications of the missing part, if any.

The activity will be recorded in the Practical Record book.

Practical Training 2.3 Identification of firearm used for an injury..

Total Learning Hours: 4 Hours

Step-1: Description of Fire Arms and injuries caused by them: (2 Hours)

The teacher will describe various fire arms and injury cause by them especially wound of entry and exit.

The teacher will provide different models of firearm injuries having wound of entry and exit.

Step-2: Identification of Fire Arms injuries: (2 Hours)

The student will observe both wounds and analyze their characteristics.

The student will carefully note wound characteristics in terms of shape, size, and presence of tattooing, abrasions, or burns and is expected to identify the range and caliber of the weapon used.

The activity will be recorded in the practical record book.

Practical Training 2.4 First-aid technique for the management of Electric Injuries

Total Learning Hours: 3 Hours

Step-1: Discussion on the Topic: (1 Hour)

The teacher will describe the First-aid technique for management of Electric Injuries with the help of clinical images/models,/cadavers or a patient with burns.

The teacher will also provide hands-on training to the students to practice first aid techniques for electrical injuries, including how to safely remove a person from an electrical source.

The student will observe the reports.

Step-2: Application of the Techniques: (1 Hour)

The teacher will create a simulated condition of an electric injury.

The student will apply the First-aid technique for the management of Electric Injuries.

The activity will be recorded in the practical record book.

Step-2: Presentation of the Activity: (1 Hour)

The student will present the activity in the class or may teach the UG students

Practical Training 2.5 First-aid technique for management of chemical injuries

Total Learning Hours: 3 Hours

Step-1: Discussion on the Topic: (1 Hour)

The teacher will describe the First-aid technique for management of chemical Injuries with the help of clinical images/models,/cadavers or a patient of burns.

The teacher will also provide hands-on training to the students to practice first aid techniques for electric injuries, including how to safely remove a person from an chemical source.

The student will observe the reports.

Step-2: Application of the Techniques: (1 Hour)

The teacher will create a simulated condition of a chemical injury.

The student will apply the First-aid technique for management of chemical Injuries.

The activity will be recorded in the practical record book. **Step-2: Presentation of the Activity: (1 Hour)** The student will present the activity in the class or may teach to the UG students
Practical Training 2.6 Firearms and injuries
Total Learning Hours: 4 Hours **Step-1: Discussion on the Topic: (2 Hours)** The teacher will describe different firearms and the characteristics of the injuries caused by them. **Step-2: Demonstration on Model: (2 Hours)** The student will provide the models of firearms or images to the student and explain them The teacher will also provide some models showing different injuries caused by different firearms The student will understand the parts of different firearms and characteristics of injuries The activity will be recorded in practical record book.
Experiential Learning Activity
Experiential-Learning Learning 2.1: Diagnosis and management of burn.
Total Learning Hours: 4 Hours **Step 1: Assignment of Case: (1 Hour)** The student will discuss the Diagnosis and management of a burn patient. The teacher will assign a case of burn attending attached hospital/nearby hospital / Video clip. **Step-2: Diagnosis of the case: (2 Hours)** The student will diagnose the type, severity, extent and degree of burn. The student will observe the management of that case.

Step-3: Case Presentation: (1 Hour) The student will take photographs of the case and prepare a presentation.. The student will present the case in the class.
Experiential-Learning Learning 2.2: Case study on Uani Management of burns and scalds.
Total Learning Hours: 4 Hours **Step-1: Assignment and discussion about the Case: (1 Hour)** The teacher will assign a case of chemical injury attending attached hospital/nearby hospital. The student will discuss about review the literature on the Unani management of burns and scalds. **Step-2: Library Session: (1 Hour)** The student will also review the literature on the Unani management of burns and scalds. The student will Review literature and search the case studies on review the literature on the Unani management of burns and scalds. **Step-3: Case study: (1 Hour)** The student will apply the knowledge on minimum 2 patients of burns of scalds **Step-4: Preparation and presentation of the Digital Content: (1 Hours)** The student will create a digital content on long-term consequences of chemical injuries. The student will compile a report and present in the class.
Experiential-Learning Learning 2.3: Importance of safety equipments in prevention of Electric injuries
Total Learning Hours: 6 Hours **Step-1: Library Session: (1 Hour)** The student will study about the safety equipment and their importance in prevention of electric injuries. **Step-2: Hands on Training: (2 Hour)**

The teacher will coordinate with Fire Service dept. and plan hands on training for the students regarding the handling of fire safety equipment and their importance in prevention of electric injuries. **Step-3: Fire Safety Audit: (2 Hour)** The student will visit the college and hospital campus and audit the available fire safety equipments. **Step-4: Preparation & Presentation of Audit Report Audit: (1 Hour)** The student will prepare and present its audit report in the class.
Experiential-Learning Learning 2.4: Diagnosis and management of chemical injury.
Total Learning Hours: 4 Hours **Step-1: Assignment and discussion about the Case: (30 Min)** The teacher will assign a case of chemical injury attending attached hospital/nearby hospital. The student will discuss about the diagnosis and management of the case. **Step-2: Library Session: (1 Hour)** The student will also study at his own about the key points on the diagnosis and management of chemical injuries. **Step-3: Case study: (2 Hour)** The student will diagnose the type, severity, extent and degree injury. The student will observe the management of that case. **Step-2: Compilation and presentation of the report: (30 Min)** The student will take photographs of the case and prepare a presentation.. The student will present the case in the class.
Experiential-Learning Learning 2.5: Chemical injuries case studies
Total Learning Hours: 4 Hours **Step-1: Assignment and discussion about the Case: (1 Hour)**

The teacher will assign a case of chemical injury attending attached hospital/nearby hospital.

The student will discuss about the long-term consequences of chemical injuries.

Step-2: Library Session: (1 Hour)

The student will also study about the long-term consequences of chemical injuries at his own and their environmental impacts.

The student will Review literature and search the case studies on long-term outcomes of chemical exposures and present findings on complications such as cancer, respiratory issues, or organ damage.

Step-2: Preparation and presentation of the Digital Content: (2 Hours)

The student will create a digital content on long-term consequences of chemical injuries.

The student will compile a report and present in the class.

Experiential-Learning Learning 2.6: Estimate the range of fire arm injury

Total Learning Hours: 4 Hours

Step-1: Library Session: (1 Hour)

The student is expected to study different gunshot wounds in terms of range such as contact, close, near and distant.

Step-2: Preparation of the Digital Content: (2 Hours)

The student will collect different pictures of gunshot wounds and create a digital content showing the key indicators like gun powder tattooing, smudging and soot deposition. The student will also discuss the matter with his colleagues.

Step-3: Class Presentation and recording of the activity: (1 Hour)

The student will present in the class

The teacher will rectify if required.

The activity will be recorded in Log Book.

Modular Assessment

Assessment	**Hour**

Formative Assessment: 4 Hours **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. **Viva (20 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1, 2 and 3 units for 5 marks each. **Demonstrate in the simulation lab (20 Marks):** Demonstration of any one case from unit 4. Or Any practical in converted form can be taken for assessment (25 Marks).& any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	4
Semester No : 4	
Module 3 : مطبی طب القانون میں بدفعلی، تشدد اور جنسی جرائم کا امتحان Matabi Tibbul Qanoon men Badfe'li, Tashaddud aur Jinsi jara'im ka Imtehan (Abuse and Violence in Clinical Forensic Medicine & Examination of Sexual Crimes)	
Module Learning Objectives (At the end of the module, the students should be able to) Describe various types of abuse and violence in clinical medicine. Identify the victims of abuse and violence Examine the victims of Sexual offences	
Unit 1 3.1 طفلی تعسف اور غفلت Tifli Ta'assuf aur Ghaflat (Child Abuse and Neglect) 3.1.1. Identification and Documentation of Abuse 3.1.2. Medical and Psychological Assessment 3.1.3. Reporting and Legal Considerations	

References: 35,40,42,43,44,45,47,48,51,53,77,78,83,84,85,86,88,90,94,99,100,101,103,105						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO5	Describe the child abuse and neglect.	1	Lecture	CC	Knows-how	L&PPT ,L
CO5	Discuss the types, risk factors, signs and symptoms, and impact on child development	1	Lecture	CC	Knows-how	L,L&PPT
CO5	Demonstrate a case of child abuse and neglect.	5	Practical3.1	PSY-GUD	Shows-how	D,D-M,BS,SDL
CO5	Appraise the therapeutic approach in abuse recovery.	5	Experiential-Learning3.1	AFT-VAL	Does	IBL,CBL,RLE,BS,BL
CO5	Identify the physical signs and behavioral indicators of child abuse and neglect.	4	Experiential-Learning3.2	CE	Does	BS,IBL,PER,BL

Unit 2 3.2 پیری تعسف اور غفلت Peeri Ta'assuf aur Ghaflat (Elder Abuse and Neglect)

3.2.1.Signs and Symptoms of Elder Abuse

3.2.2 Forensic Evaluation and Reporting

3.2.3 Legal and Protective Measures

References: 35,37,39,40,41,42,43,44,45,46,47,48,53,65,82,83,84,85,86,88,95,99,100,101,105,109

3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO5	Discuss Elder abuse and neglect and their types.	1	Lecture	CC	Knows-how	L&PPT ,L&GD,L
CO5	Describe the risk factors, signs and symptoms of elder abuse and neglect.	1	Lecture	CC	Knows-how	L&PPT ,L

CO5	Demonstrate a case of elderly abuse and neglect	5	Practical3.2	PSY-SET	Shows-how	CBL,SDL
CO5	Analyze the psychological dimension of elderly people	5	Experiential-Learning3.3	PSY-SET	Does	RLE,IBL,CBL

Unit 3 3.3 خانگی تشدد Khangi Tashaddud (Domestic Violence)

3.3.1. Clinical Indicators of Domestic Abuse

3.3.2. Assessment and Documentation

3.3.3. Legal Reporting and Support Services

References: 35,39,40,41,42,43,44,45,46,47,74,84,85,86,87,88,90,94,95,99,100,101,105

3A	3B	3C	3D	3E	3F	3G
CO5	Describe the domestic violence and discuss its forms, causes/risk factors and impact on victims.	2	Lecture	CC	Knows-how	TUT,L&PPT ,L
CO5	Discuss its Legal and Ethical Framework of domestic violence	2	Lecture	CC	Knows-how	L&PPT ,L
CO5	Analyse the risk factors of domestic violence.	5	Practical3.3	PSY-ADT	Shows-how	BS,SDL,SIM,D
CO5	Discuss and document how to assess the psychology of the survivor of the domestic violence.	5	Experiential-Learning3.4	AFT-VAL	Does	PAL,BL,CBL,IBL
CO5	Discuss and document how to interview of a victim of domestic violence.	5	Experiential-Learning3.5	AFT-VAL	Does	PBL,RP,SIM,BS,RLE

Unit 4 3.4 جنسی جرائم Jinsi Jara'em (Sexual offences)

3.4.1. Introduction

3.4.2. Classification

3.4.3. Examination

3.4.4. Management

3.4.5. Medicolegal importance

References: 35,39,40,41,42,43,44,45,46,47,48,49,50,51,53,64,74,78,83,84,85,86,88,91,94,95,99,100,101,105,109

3A	3B	3C	3D	3E	3F	3G
CO5	Describe and classify Sexual offences	1	Lecture	CC	Knows-how	L,L&PPT
CO5	Describe the Examination, Management and Medicolegal importance of Sexual Offences	3	Lecture	CC	Knows-how	L&PPT ,L
CO5	Demonstrate collection, preservation and handling of forensic evidences from the victim of sexual offence.	5	Practical3.4	PSY-SET	Shows-how	D,PAL
CO5	Educate community about sexual offenses through public education and victim support mechanisms	5	Experiential-Learning3.6	PSY-SET	Does	SDL,RLE,RP
CO5	Identify forensic evidence in a case of a sexual offence.	5	Experiential-Learning3.7	AFT-RES	Does	IBL,BL,BS,RP,SIM

Unit 5 3.5 اسقاط حمل قانونی Isqate Hamal Qanooni (Medical Termination of Pregnancy)

3.5.1. Introduction

3.5.2. Classification

3.5.3. Examination

3.5.4. Procedure

3.5.5. Medicolegal importance

References: 35,37,38,39,40,41,42,43,44,45,47,48,49,53,65,74,82,83,84,85,86,88,95,99,100,101,109,111,113,114,115,116

3A	3B	3C	3D	3E	3F	3G
CO5	Discuss the abortion, its indications & contraindications.	1	Lecture	CC	Knows-how	L,L&PPT
CO5	Discuss and understand the MTP Act, 1971 and its amendments with special reference to the indications, contraindications, complications and risks.	5	Practical3.5	PSY-GUD	Shows-how	BS,PT,SIM,SDL
CO5	Demonstrate and document various techniques of Medical Termination of Pregnancy	5	Experiential-Learning3.8	AFT-RES	Does	BL,SDL,DIS,PER,BS
CO5	Describe the various methods of Abortion	1	Lecture	CC	Knows-how	L,L&GD,L&PPT
CO5	Describe the complications and forensic significance of abortion.	1	Lecture	CC	Knows-how	L&GD,L&PPT ,L
CO5	Demonstrate the surgical abortion techniques.	5	Practical3.6	PSY-GUD	Shows-how	PAL,BL,SDL,RLE,D

Practical Training Activity

Practical Training 3.1 Demonstration of child abuse and neglect

Total Learning Hours: 5 Hours

Step-1: Decryption of the Topic (1 Hour)

The teacher will discuss about the child abuse and neglect.

The student is expected to study about the child abuse and neglect.

Step-2: Demonstration of Child Abuse: (3 Hours)

The teacher will provide some models/images of child abuse and demonstrate its features before the students.

The student will clinically assess the case and prepare a report explaining its medico legal importance.

Step-3: Class presentation and recording of the activity (1 Hour)

The activity will be presented in the class and recorded in the practical record book.

Practical Training 3.2 Demonstration of a case of elderly abuse and neglect

Total Learning Hours: 5 Hours

Step-1: description of the Topic (1 Hour)

The teacher will discuss about the elderly abuse.

The student is expected to study about the elderly abuse.

Step-2: Demonstration of Child Abuse: (3 Hours)

The teacher will provide some models/images of elderly abuse and demonstrate its features before the students.

The student will clinically assess the case and prepare a report explaining its medico legal importance.

Step-3: Class presentation and recording of the activity (1 Hour)

The activity will be presented in the class and recorded in the practical record book.

Practical Training 3.3 Screening of the risk factors of domestic violence.

Total Learning Hours: 5 Hours

Step-1: Discussion on the topic (1 Hour)

The teacher will describe the risk factors of domestic violence and the student will discuss about ways to manage the risk factors.

Step-2: Assessment of risk factors in simulated situation: (4 Hours)

The teacher will create a simulated situation of domestic violence with the help of UG students.

The student will keenly observe the situation and identify the risk factors of the situation.

The student will suggest increasing the intensity of that particular risk factor and again observing the situation; whether the intensity of domestic violence is increased or not. The student will establish the relationship of that particular risk factor(s) with the domestic violence. The activity will be recorded in the log book.
Practical Training 3.4 Demonstrate collection, preservation and handling of forensic evidences from the victim of sexual offence.
Total Learning Hours: 5 Hours **Step-1: Description of the topic: (1 Hour)** The student is expected to study the collection, preservation and handling of forensic evidences from the victim of sexual offence. **Step-2: Investigation of the victim of sexual offence (3 Hours):** Video session and discussion **Step-3: Preparation & Presentation of the report (1 Hour):** The student will prepare the report and record the activity in the practical record book.
Practical Training 3.5 MTP Act, 1971 and its amendments.
Total Learning Hours: 5 Hours **Step-1: Description of the topic (1 Hour):** The teacher will describe the legal and medical aspects of the Medical Termination of Pregnancy (MTP) Act, including its guidelines, procedures, and ethical considerations. The student will study the conditions under which an abortion can be legally performed according to the MTP Act, such as the maximum gestational period, the involvement of medical professionals, and the circumstances under which abortion is permitted (e.g., risk to the mother's life, foetal abnormalities, or cases of rape/incest). **Step-2: Role Play (3 Hours):**

The teacher will provide a case-based scenario or role-playing exercise involving the MTP Act, where students will be asked to assess the situation and determine the legal and medical steps required to perform a legal abortion. The student will apply their knowledge of the MTP Act to examine how the law is implemented in a clinical setting and the importance of documentation, medical evaluations, and approval by authorised medical professionals. **Step-3: Recording and reporting of the activity (1 Hour)** The activity will be recorded in the logbook, with reflections on the legal, ethical, and medical steps taken during the case study, as well as the process of ensuring compliance with the MTP Act.
Practical Training 3.6 Surgical abortion Techniques.
Total Learning Hours: 5 Hours **Step-1: Description of the Topic (90 Min)** The teacher will describe the different surgical techniques used in medical termination of pregnancy, along with their indications, procedures, and post-procedure care. The teacher will demonstrate and explain the various surgical methods used for MTP (e.g., suction aspiration, dilation and curettage). **Step-2: Observation & workshop: (2 Hours)** The student will observe the step-by-step procedure of each technique, noting the medical conditions and gestational periods under which they are used. They will identify the advantages and limitations of each method based on the clinical situation. The student will practice counselling skills by discussing the procedure with simulated patients, explaining the risks, benefits, and aftercare involved in each technique. The student will analyze the factors that influence the choice of technique, such as the gestational age, maternal health, fetal condition, and patient preference, and understand how these factors guide medical decision-making. **Step-3: Documentation and presentation (90 Min)**

The student will document the entire process for each technique, including patient assessment, informed consent, procedure notes, and post-procedure care, ensuring adherence to legal and ethical standards for MTP. The activity will be recorded in the logbook, noting the techniques observed or practiced the clinical decision-making process, patient counselling, and the management of post-procedure care.
Experiential Learning Activity
Experiential-Learning Learning 3.1: Therapeutic approach for child abuse.
Total Learning Hours: 5 Hours **Step-1: Library Session (1 Hour)** The student will study the various therapeutic approaches for the recovery from child abuse. **Step-2: Visit to a Psychologist: (3 Hours)** The teacher will fix a meeting with a physiologist for the student or provide digital content to demonstrate various therapeutic approaches. The student will visit to the psychologist and observe the different therapies given to the cases of child abuse. In case of non-availability of psychologist; the student can also experience the same from the videos provided by the teacher. The student search relevant videos by himself. **Step-3: Preparation of report and its presentation (1 Hour)** The student will prepare a report and present it in the class. The teacher will rectify, if required.
Experiential-Learning Learning 3.2: Indicators of child abuse and neglect
Total Learning Hours: 4 Hours **Step-1: Library session (1 Hour):** The student will study about the child abuse and neglect in the library and vast literature will be done using virtual and physical modes.

Step-2: Analysis of case studies (2 Hours):

The student will analyze real or simulated case studies involving children with varying signs of abuse (e.g., bruising patterns, malnutrition, emotional withdrawal), and discuss how these are recognized in clinical practice.

Step-3: Documentation (1 Hour):

Whole activity will be recorded in the log book.

Experiential-Learning Learning 3.3: Analysis of the psychological dimension of elderly people.

Total Learning Hours: 5 Hours

Step-1: Basic knowledge of the topic (1 Hour)

The student will study the psychology of elderly abused people and prepare a questionnaire to assess the psychological status of elderly people.

Step-2: Visit to Old age home: (3 Hour)

The teacher will fix a visit to nearby old age home for the student.

The student will visit the old age home and observe the elderly people and identify the people seems to be abused.

The student will interview them and record their responses in pre-structured questionnaire and extract the results.

Step-3: Preparation and presentation of the report (1 Hour)

The student will prepare a report and submit to the teacher.

The teacher will rectify the results if required.

Experiential-Learning Learning 3.4: Assesment of the psychology of the survivor(s) of the domestic violence.

Total Learning Hours: 5 Hours

Step-1: Library Session (1 Hour)

The student will study about the psychology and response of the survivors of domestic violence.

Step-2: Psychological Assessment: (3 Hours)

The teacher will select a survivor of domestic violence from the screening OPD of the hospital or the student may visit to nearby NGO/PHC/CHC/DH.

The student will prepare a questionnaire to assess the psychological status of the survivors of domestic violence and the teacher will vet the questionnaire. The student will interview the survivor and record the responses in the questionnaire and extract the results. **Step-3: Preparation and presentation of the report (1 Hour):** The student will prepare a report and submit to the teacher. The teacher will rectify the results if required.
Experiential-Learning Learning 3.5: Interviewing a victim of domestic violence.
Total Learning Hours: 5 Hours **Step-1: Library session and blended learning (1 Hour):** The student will study domestic violence through physical and digital content. **Step-2: Preparation of questionnaire (1 Hour):** The student will prepare a questionnaire, and the student will discuss the questionnaire with the teacher. **Step-3: Interview of the victim of domestic violence (2 Hour)** The student will prepare a script for the documentation of a victim of domestic violence as Clinicians, Law enforcement personnel, and Social worker. The student will interview the victims of domestic violence in different capacities, The student will emphasise the sensitivity of the interview and document it properly **Step-3: Documentation (1 Hour):** The activity will be presented in the class and recorded in the logbook.
Experiential-Learning Learning 3.6: Community awareness program on sensitization about the sexual offences.
Total Learning Hours: 5 Hours

Step-1: Collaborating with the concerned NGO: (1 Hr.)

The teacher will collaborate with any NGO working on the community / video introduction for sensitization on sexual offences through public education and victim support mechanisms

Step-2: Role play activity: (3 Hr.30 Min.)

The student will participate in the programs organized by the NGOs.

The student may also play roles in the activity.

Step-3: Recording the activity: (30 Min.)

The activity will be recorded in the log book.

Experiential-Learning Learning 3.7: Identification of forensic evidence in a case of sexual offence.

Total Learning Hours: 5 Hours

Step-1: Brainstorming session (1 Hour)

The student will study the testing of evidence in a case of sexual offence by case study and discussion.

Step-2: Creation of simulated scenario (30 Min):

The teacher will create a simulated courtroom scenario in which a case of sexual offence will be examined.

Step-3: Role Play (2 Hours 30 Minutes)

The students will play the role of an advocate and present forensic evidence in the case.

The student will learn how to test as expert witnesses, ensuring objectivity and scientific accuracy.

Step-4: Documentation: (1 Hour)

The activity will be recorded in the logbook.

Experiential-Learning Learning 3.8: Various techniques of Medical Termination of Pregnancy

Total Learning Hours: 5 Hours

Step-1: Library session: (1 Hour)

The student will understand and apply the different techniques used in medical termination of pregnancy, along with their indications, procedures, and post-procedure care.

Step-2: Demonstration: (3 Hours)

The teacher will demonstrate and explain the various techniques used for MTP, including medical methods (e.g., using Unani medications).

The student will observe the step-by-step procedure of each technique, noting the medical conditions and gestational periods under which they are used. They will identify the advantages and limitations of each method based on the clinical situation.

The student will practice counselling skills by discussing the procedure with simulated patients, explaining the risks, benefits, and aftercare involved in each technique.

The student will analyse the factors that influence the choice of technique, such as the gestational age, maternal health, foetal condition, and patient preference, and understand how these factors guide medical decision-making.

Step-3: Documentation ((1 Hour)

The student will document the entire process for each technique, including patient assessment, informed consent, procedure notes, and post-procedure care, ensuring adherence to legal and ethical standards for MTP.

The activity will be recorded in the logbook, noting the techniques observed or practised, the clinical decision-making process, patient counselling, and the management of post-procedure care.

Modular Assessment

Assessment	**Hour**
Formative Assessment: 6 Hours **Instructions -** Conduct a structured Modular assessment. The assessment will be for 75 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. **Viva/short questions (30 marks):** The teacher will conduct a viva, and 15 questions (2 marks each) covering all units will be asked. Or	6

3 short questions (5 marks each): The student will be given 3 short answer questions covering all units.

Journal club Presentatoin(30 Marks): Any Journal Club Presentation from units 2, 3, 4 & 5.

Experiential Learning Activity (15 Marks): Demonstration of any one experiential learning activity from Units 4 or 5.

Or

Any practical in converted form can be taken for assessment (40 Marks) and any experiential, as portfolio/ reflections/ presentations, can be taken as an assessment (35 Marks)

Module 4 : ماہیتی طب القانون Mahiyati Tibbul Qanoon (Forensic Pathology)

Module Learning Objectives

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

Describe Forensic Pathology, its Historical Developments and the role of Forensic pathologists.

Integrate the pathology with Forensic medicine.

Identify the medicolegal importance of Postmortem examination.

Unit 1 4.1 مرضیاتی طب القانون کا جائزہ Marziyati Tibbul Qanoon ka Jayezah (Overview of Pathological Forensic Medicine)

4.1.1. Definition and Scope

4.1.2. Historical Development

4.1.3. Role of Forensic Pathologists

References: 24,35,37,38,39,40,41,42,43,44,45,46,47,48,50,53,64,78,84,88,101,109,112

3A	3B	3C	3D	3E	3F	3G
CO5	Describe Forensic Pathology and role of forensic pathologists.	2	Lecture	CC	Knows-how	SDL,L,TUT,L&PPT ,BS

CO5	Describe the evolution of forensic pathology, tracing its roots from ancient practices to modern-day advancements.	2	Practical4.1	PSY-SET	Shows-how	SDL,PrBL,BS,DIS,PAL
CO5	Discuss and document the responsibilities of forensic pathologists in conducting autopsies and interpreting injuries.	4	Experiential-Learning4.1	PSY-GUD	Does	BL,RP,DIS,D,SDL
CO5	Demonstration the role of forensic pathology in the investigation of death	4	Practical4.2	CE	Shows-how	CD,CBL,PSM
CO5	Identify the role of Forensic Pathlogist in Crime Scene Investigation	4	Experiential-Learning4.2	AFT-CHR	Does	CBL,D-M,RP,BS,D

Unit 2 4.2 طب القانونی مرضیات کے بنیادی اصول Tibbul Qanooni Marziyat ke Bunyadi Usool (Basic Principles of Forensic Pathology)

4.2.1. Integration of Pathology and Forensic Medicine

4.2.2. Medico-Legal Importance of Post-Mortem Examinations

4.2.3. Ethical and Legal Considerations

References: 24,35,39,46,47,48,53,78,80,81,82,83,84,85,86,87,89,91,94,95,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO5	Describe the importance of pathology in forensic medicine.	1	Lecture	CC	Knows-how	L&PPT ,L
CO5	Analyze tissue samples for histopathological examination in forensic cases. Identify diseases or conditions that may have contributed to death.	4	Practical4.3	AFT-VAL	Shows-how	RP,SDL,LS,DL,BS
CO5	Describe the role of forensic pathology in identification of injuries.	5	Experiential-Learning4.3	PSY-SET	Does	PAL,W,BS,SDL,DIS
CO5	Describe the evolution of forensic pathology, tracing its roots from ancient practices to modern-day advancements.	2	Lecture	CC	Knows-how	L&GD,L,L&PPT ,PL,BS

Practical Training Activity
Practical Training 4.1 Evolution of forensic pathology
Total Learning Hours: 2 Hours **Step-1: Brainstorming session: (45 Min)** 1. The teacher will Describe the evolution of forensic pathology, tracing its roots from ancient practices to modern-day advancements. 2. The student will understand the historical development of forensic pathology and its application in modern criminal investigations and discuss with the teacher and other students of the class. **Step-2: Comparative study (1 Hour):** 3. The teacher will guide the students through a comparative case study approach, where they analyze historical and contemporary forensic investigations. 4. The students will compare early forensic methods (e.g., rudimentary autopsies) with modern techniques (e.g., DNA analysis, digital autopsies). **Step-3: Documentation: (15 Min.)** 5. The student will prepare a project and submit to the teacher.
Practical Training 4.2 Role of forensic pathology in the investigation of death
Total Learning Hours: 4 Hours **Step-1: Description of the Topic (1 Hour)** 1. TThe teacher will describe the identification of causes of death and correlatiion of findings to reconstruct events and suggest any ONE case studiy of unnatural deaths to the student. 2. The student is expected to study the principles of forensic pathology in the investigation of deaths. **Step-2: Critical analysis (2 Hours)** 3. The student will review the case study,and identify the key findings associated with cause and manner of death. **Step-3: Documentation (1 Hours)** 4. The student will record the observations and their significance in context of forensic pathology in the practical record book

Practical Training 4.3 Analysis of the tissue samples for histopathological examination in forensic cases.

Total Learning Hours: 4 Hours

Step-1: Library session (30 Min):

1. The student will study the analysis of tissue samples for histopathological examination in forensic cases

2. The student can also discuss with the teacher regarding the identification of diseases or conditions that may have contributed to death.

Step-2: Visit to Forensic Science Laboratory (2 Hours 30 Min):

3. The student will visit to the Forensic Science Laboratory to analyze the tissue samples for histopathological examination,

4. The student will Identify diseases or conditions that may have contributed to death.

Step-3: Preparation and presentation of the report: (1 Hour)

5. The student will compile the observations and prepare a power point.

6. The student will present in the class.

7. The activity will be recorded in practical record book.

Experiential Learning Activity

Experiential-Learning Learning 4.1: Responsibilities of forensic pathologists in conducting autopsies, interpreting injuries, and correlating findings with clinical aspects.

Total Learning Hours: 4 Hours

Step-1: Library and Brainstorming sessions (30 Min):

1. The student will study the autopsy procedures and identification of different types of injuries.

Step-2: Role Play (3 Hours)

2. The teacher will create a mock autopsy session, and the student will examine a range of injuries (blunt force trauma, gunshot wounds, burns, etc.) and interpret them based on case scenarios.

3. The students will also examine clinical data (e.g., medical history, medication records) to correlate these findings with autopsy results.

4. The student will play the role of a forensic pathologist bearing the Responsibilities in conducting autopsies, interpreting injuries, and correlating findings with clinical aspects

Step-3: Documentation (30 min)

4. The activity will be recorded in the logbook.

Experiential-Learning Learning 4.2: Role of Forensic Pathlogist in Crime scene Investigation

Total Learning Hours: 4 Hours

Step-1: Library session (1 Hour):

1. The student will study the examination and interpretation of evidences at a crime scene.

Step-2: Role Play (2 Hours)

2. The teacher will set up a mock crime scene with a variety of physical evidence such as simulated blood spatter, injury markers on a mannequin, and environmental clues.

3. The student will observe and document the key findings of the scene like patterns/ types/timing of injuries and present its findings in form of Role Play.

Step-3: Documentation of the activity (1 Hour)

4. These activity will be recorded in the logbook, focusing the role of forensic pathologist in crime scene investigation.

Experiential-Learning Learning 4.3: Discuss the role of forensic pathology in identification of injuries.

Total Learning Hours: 5 Hours

Step-1: Brainstorming and Library session (1 Hour)

1. The student will understand and apply forensic pathology techniques to identify, document, and interpret injuries on a body, recognizing their forensic significance

2. The teacher will provide case-based scenarios involving various types of injuries (e.g., blunt force trauma, sharp force injuries, firearm injuries, and burns).

Step-2: Critical analysis (3 Hours)

3. The student will observe and analyze photographic evidence or physical models depicting different types of injuries to understand variations in presentation based on cause and mechanism. **Step-3: Documentation (1 Hours)** 4. The activity will be recorded in the logbook, capturing detailed observations and interpretations, along with reflections on the role of forensic pathology	
Modular Assessment	
Assessment	**Hour**
Formative Assessment: 2 Hours **Instructions -** Conduct a structured Modular assessment. The assessment will be for 25 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. **1. Viva (10 marks):** The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked. **2. Short Answer Questions (05 marks):** The student will be given 1 Short Answer Question from 1 and 2 units for 5 marks. **3. Class Teaching (10 Marks):** The student will be assessed through the class teaching of any topic from Units 1 or 2 Or Any practical in converted form can be taken for assessment (25 Marks). or any of the experiential as portfolio/reflections/presentations, can be taken as an assessment (25 Marks)	2
Semester No : 5	
Module 5 : امتحان تشریح بعدالموت کی تکنیک Imtehan Tashreeh Ba'dul maut ki takneek (Post-Mortem Examination Techniques)	
Module Learning Objectives (At the end of the module, the students should be able to) Describe the procedure of an autopsy.	

Identify the cause of death

Perform medico-legal postmortem and be able to exhume, collect, preserve and dispatch specimens or trace evidence to the appropriate authority.

Unit 1 تشریح الجثہ کا طریقہ کار Tashreehul Jussa ka Tareeqa-e kar (Autopsy Procedures)

Autopsy Procedures

References: 26,35,37,38,40,41,53,78,80,81,82,86,89,94,95,99,100,101,106,109

3A	3B	3C	3D	3E	3F	3G
CO5	Describe Autopsy, its objectives, scope and role in medical and forensic contexts.	1	Lecture	CC	Knows-how	L,L&PPT
CO5	Discuss clinical, forensic and academic autopsy, including their objectives and indications	1	Lecture	CC	Knows-how	L&PPT ,L
CO5	Demonstrate how to assist in basic procedures during a live autopsy under expert supervision.	5	Practical5.1	PSY-MEC	Shows-how	RLE,PAL,DIS,CBL,SDL
CO5	Appraise the importance of an interdisciplinary approach in post-mortem investigation	7	Experiential-Learning5.1	PSY-ORG	Does	EDU,PAL,DIS,PL,TBL
CO5	Describe the importance of documentation and photography in an autopsy	1	Lecture	CC	Knows-how	L,L&GD,TUT,PER,L&PPT
CO5	Discuss the step-by-step process of performing an autopsy, including external and internal examinations, organ dissection, and sample collection	1	Lecture	CC	Knows-how	TUT,DIS,L&PPT ,L
CO5	Demonstrate the external examination in autopsy.	5	Practical5.2	PSY-GUD	Shows-how	CBL,FV,Mnt,D

CO5	Conduct a virtual autopsy using a virtual autopsy tool.	6	Experiential-Learning5.2	CAN	Does	D,DL,SIM,BL
Unit 2 5.2 موت کے تعینی اسباب Maut ke Ta'ayunati Asbab (Determining Cause of Death) 5.2.1 Determining Cause of Death **References:** 27,35,48,49,50,51,74,80,81,101,106						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO5	Describe the importance of pathological findings in the identification and interpretation of the cause of death.	1	Lecture	CC	Knows-how	L,L&PPT
CO5	Describe natural, accidental, suicidal and homicidal death on the basis of pathological finding	1	Lecture	CC	Knows-how	L,L&PPT
CO5	Demonstrate the techniques of visceral examination to find out the pathological signs indicating specific causes of death.	5	Practical5.3	PSY-MEC	Shows-how	BS,D-M,CBL
CO5	Perform pathological findings and autopsy report writing.	5	Experiential-Learning5.3	PSY-ADT	Does	LS,D,CBL,BL,TBL
CO5	Describe the role of Ancillary Tests (Histology, Toxicology, Microbiology) in determining the cause of death	1	Lecture	CC	Knows-how	L,L&PPT
CO5	Perform Autopsy Case Study Review and determination of cause of death.	3	Experiential-Learning5.4	CS	Does	DIS,Mnt,BS
Unit 3 5.3 تشریح الجثہ کا مخصوص طریقہ Tashreehul Jussa ka Maksoos Tareeqa (Special Autopsy Methods) 5.3.1. Special Autopsy Methods						

References: 26,35,37,38,40,41,48,49,50,51,53,74,78,80,81,82,86,89,94,95,99,100,101,106,109						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO5	Describe Special Autopsy Procedures, the key differences between standard and special autopsies and the circumstances in which special autopsies are required.	1	Lecture	CC	Knows-how	L,L&PPT
CO5	Describe the various types of special autopsies, e.g., neuropathological, forensic, pediatric, and toxicological	1	Lecture	CC	Knows-how	L&PPT ,L
CO5	Demonstrate special autopsies on Decomposed, exhumated or burned bodies.	5	Practical5.4	PSY-MEC	Knows-how	TBL,SDL,RLE,D
CO5	Discuss on legal and ethical dilemmas in special autopsies	5	Experiential-Learning5.5	AFT-RES	Does	SDL,BS,DIS,CBL,RP
CO5	Discuss the unique procedures used in special autopsies, such as detailed brain examination, toxicology sample collection, or specialized dissections	1	Lecture	CC	Knows-how	L,L&PPT
Practical Training Activity						
Practical Training 5.1 Autopsy procedure.						
Total Learning Hours: 5 Hours **Step-1: Description of the topic (1 Hour):** The teacher will describe the procedure of an Autopsy with the help of recorded videos or PowerPoint presentations. The student will also study the post-mortem techniques on his own and will discuss them with the teacher. **Step-2: Mortuary Visit (3 hours 30 minutes)**						

The teacher will arrange the visit of the student to the nearby mortuary

The student will observe full autopsies conducted by a Forensic expert and focus on the external and internal examination, inspection, incision techniques, organ removal, and their preservation.

The student will also observe the key anatomical structures and pathological findings, different injury types or abnormalities and interpret their significance in determining the cause of death

Step-3 Documentation (30 Min)

The activity will be recorded in the logbook.

Practical Training 5.2 Autopsy examination

Total Learning Hours: 5 Hours

Step-1: Demonstration of Topic (1 Hour):

The teacher will discuss about the external examination of the body during post-mortem examination and demonstrate the procedure for a systematic external examination, highlighting key aspects such as identifying physical injuries (e.g., contusions, abrasions, lacerations), signs of disease, or other abnormalities (e.g., skin discoloration, scars, marks, or lesions). The student will observe the teacher's technique and methodology for identifying these features.

Step-2: Mortuary Visit (3 Hours):

The student will visit to mortuary and perform a comprehensive external examination of any 1 body under the supervision of the forensic expert of the mortuary and identify physical injuries, signs of disease, or abnormalities, and document all findings according to proper forensic procedures

The student will perform a complete external examination of a body or a simulated cadaver. This will involve identifying and documenting various physical injuries (e.g., blunt force trauma, stab wounds), signs of disease (e.g., skin rashes, jaundice), and abnormalities (e.g., congenital anomalies, post-mortem changes).

Step-3: Documentation (1 Hour):

The student will document each finding accurately, including a detailed description of physical injuries, disease signs, and abnormalities. This includes recording the location, size, shape, and nature of injuries, as well as any relevant observations related to disease or conditions present on the body. They will also document in a standardised format, ensuring all relevant details are captured.

Practical Training 5.3 Internal organ examination
Total Learning Hours: 5 Hours **Step-1: Description of the topic (1 Hour)** 1. The student will learn techniques for conducting a detailed examination of internal organs to identify pathological signs associated with specific causes of death. 2. The teacher will guide the students to distinguish normal anatomical features from pathological changes. **Step-2: Clinical work Sampling: (3 Hours):** 3. The student will conduct or assist in the examination of specific organs, applying dissection skills to reveal structural changes like plaque buildup in coronary arteries or emboli in pulmonary vessels. **Step-3: Documentation (1 Hour):** 4. The activity will be recorded in the logbook in detail, including findings, pathological signs, and reflections on how these observations contribute to determining the cause of death.
Practical Training 5.4 Special autopsy on decomposed, exhumated or burned bodies.
Total Learning Hours: 5 Hours **Step-1: Description of the topic (1 Hour):** 1. The teacher will explain the special autopsy procedures used on the Decomposed, exhumated or burned bodies **Step-2: Demonstration of soecial autopsy procedures: (3 hours)** 2. The student will learn and practice the specialized techniques for performing or observing autopsies on severely decomposed, exhumed, or burned bodies, developing skills to handle challenging forensic cases 3. The student will perform or assist in the examination of severely decomposed, exhumed, or burned bodies under the supervision. They will practice techniques for bone preservation, tissue analysis, and proper handling of fragile remains, including taking tissue samples for further forensic analysis. 4. The student will assist in identifying and documenting key markers such as bone fractures, thermal damage, insect activity, and any residual soft tissue or DNA evidence. They will practice taking detailed notes and photographs for legal documentation

Step-3: Documentaion (1 Hour): 5. The activity will be recorded in the logbook, detailing each observation and procedure, challenges encountered, techniques used, and reflections on the forensic investigation of severely decomposed, exhumed, or burned bodies.
Experiential Learning Activity
Experiential-Learning Learning 5.1: An interdisciplinary approach to post-mortem investigation
Total Learning Hours: 7 Hours **Step-1: Brainstorming and Library session (3 Hours)** 1. The students are expected to understand the role of forensic toxicologists, crime scene investigators, and law enforcement personnel in post-mortem investigations. 2. The student will prepare a script in which he will explain the role of various experts like forensic pathologists, dentists, microbiologists, etc **Step-2: Role Play with edutainment(3 Hours)** 3. The teacher will create a simulated crime scene, and the students will play their assigned role and demonstrate their support for their findings in the overall investigation 4. The students will prepare a group and demonstrate the interdisciplinary contributions influencing the investigative process. 5. The student will reflect on the ways each field enhances the depth and precision of post-mortem conclusions **Step-3 Documentation (1 Hour)** 6. The activity will be recorded in the logbook.
Experiential-Learning Learning 5.2: Virtual autopsy.
Total Learning Hours: 6 Hours **Step-1: Blended Learning (2 Hours)**

The student will visit the simulation laboratory of the college and use virtual autopsy software to conduct 3D reconstructions of a body based on CT or MRI scans, identifying fractures, haemorrhages, and other internal injuries without physical dissection

The teacher will introduce the students to virtual autopsy software, demonstrating how it uses CT or MRI scans to create 3D reconstructions of the body. The student will observe how to manipulate the software interface to view and explore different layers of the body, such as bones, organs, and soft tissues.

Step 2: Demonstration (3 Hours)

The student will use the software to load CT or MRI scans of a body and conduct a 3D reconstruction. They will practice navigating through the scans to examine different sections of the body, focusing on identifying fractures, haemorrhages, or other signs of internal injuries without the need for physical dissection

The student will demonstrate the same in the class before other students under the supervision of the teacher.

Step 3: Documentation (1 Hour)

The activity will be recorded in the logbook

Experiential-Learning Learning 5.3: Autopsy report writing.

Total Learning Hours: 5 Hours

Step-1: Brainstorming session (1 Hour)

The student will study the basic pathological findings and will learn how to write an autopsy report focusing on the details of pathological findings.

The teacher will guide the student, outlining the steps involved from external examination to internal dissection, and briefly outline the importance of meticulous documentation, photo-taking, and measuring as part of the forensic investigation

Step-2: Role Play (2 Hours)

The student will take on the role of a forensic pathologist, working through a simulated autopsy process, documenting findings, taking photos, recording measurements, and writing an official autopsy report that includes the cause of death and any contributing factors.

The student will participate in a simulated autopsy scenario, either on a cadaver model or using virtual tools.

The student will take photographs of the injuries or abnormal conditions and record precise measurements for their report.

Step-3: Autopsy Report writing (2 Hours)

The student will write an autopsy report based on findings. of autopsy. The student will focus on those findings that are specifically related to the pathological changes. The activity will be recorded in the logbook.
Experiential-Learning Learning 5.4: Autopsy Case Study Review.
Total Learning Hours: 3 Hours **Step-1: Review of autosy case (2 Hours)** The student will review anonymised autopsy reports, including photos, findings, and conclusions, and correlate the autopsy findings with the causes of death to enhance diagnostic reasoning skills The teacher will provide anonymised autopsy reports that include case details, photographic evidence, and medical findings. The student will be introduced to the structure and content of an autopsy report and the importance of systematic case review The student will carefully review the anonymised autopsy reports, focusing on the findings such as injuries, organ conditions, toxicology results, and any abnormalities. The student will observe related images to visually link the findings to the conclusions presented in the report. The student will analyse the findings in the report and attempt to correlate them with the suspected or concluded cause of death **Step-2: Group Discussion (1 Hour):** The student will participate in group discussions or case study reviews, where they present their interpretations of the findings and compare them with others.
Experiential-Learning Learning 5.5: Legal and ethical dilemmas in special autopsies
Total Learning Hours: 5 Hours **Step-1: Library session (1 Hour):** 1. The student will be engaged in case-based discussions to understand and navigate legal and ethical dilemmas encountered during special autopsies, such as religious restrictions and family objections **Step-2: Case-Based Study (3 Hours)**

2. The teacher will present case scenarios where students examine ethical conflicts, such as religious objections to autopsies or family concerns regarding post-mortem procedures. Students will discuss the laws and guidelines that apply in each situation

3. The student will participate in role-playing exercises where they represent different viewpoints (e.g., the pathologist, the family, and legal advisors). Each student will practice navigating and balancing these perspectives to reach a resolution that aligns with both ethical and legal standards.

Step-2: Recording of Activity (1 Hour)

4. The activity will be recorded in the logbook, with detailed reflections on each case discussed, the ethical and legal dilemmas encountered, the proposed solutions, and personal insights on balancing legal requirements with ethical considerations

Modular Assessment

Assessment	**Hour**
Formative Assessment: 4 Hours **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. **1. Viva (20 marks):** The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked. **2. Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1 and 2 units for 5 marks each. **3. Experiential Learning Activity (1 No.) 20 Marks** - from unit 01 Any practical in converted form can be taken for assessment (25 Marks) and any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	4

Module 6 : پس مر گھونے والی ماہیتی تبدیلیاں Pase Marg hone wali Mahiyati Tabdiliya'n (Pathological Changes in Death)

Module Learning Objectives

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

Describe various postmortem changes and their medicolegal importance.

Examine the dead body to rule out the post-mortem interval and cause of death.

Analyse the pathological aspect of injury.

Unit 1 6.1 مابعدالموت ابتدائی تغیرات Ma badal maut ibtidayi Tabdiliyan (Early Post-Mortem Changes)

6.1.1. Algar Mortis (Cooling of the Body)

6.1.1.1. Definition and mechanism of Algar Mortis

6.1.1.2. Factors affecting the rate of cooling

6.1.1.3. Estimation of time of death based on body temperature

6.1.2. Rigor Mortis (Post-Mortem Rigidity)

6.1.2.1. Physiology of muscle stiffening after death

6.1.2.2. Phases of rigour mortis: onset, peak, and dissipation

6.1.2.3. Variables affecting Rigor Mortis and its forensic significance

6.1.3. Livor Mortis (Post-Mortem Lividity)

6.1.3.1. Definition and development of livor mortis

6.1.3.2. Fixation and shifting of lividity

6.1.3.3. Interpretation of lividity patterns for determining body position and movement after death

References: 27,35,48,72,74,80,81,82,83,84,85,89,90,99,100,101,106,109

3A	3B	3C	3D	3E	3F	3G
CO5	Desribe the Algor Mortis, its mechanism including factors affecting the rate of cooling and estimation of time since death.	1	Lecture	CK	Knows-how	L&PPT ,L
CO5	Describe Rigor Mortis, its physiology and phases along with its forensic significance.	1	Lecture	CK	Knows-how	L&PPT ,L

CO5	Identify the post-mortem interval based on the Algar Mortis in various environmental conditions.	5	Practical6.1	PSY-MEC	Shows-how	D-M,SDL,PAL,D
CO5	Identify the physiological process and phases of rigor mortis.	5	Experiential-Learning6.1	PSY-GUD	Does	PER,EDU,DIS,PAL, SIM
CO5	Describe livor mortis, its development and forensic significance.	1	Lecture	CC	Knows-how	L,L&PPT ,DIS,L&GD
CO5	Demonstrate Rigor Mortis, including its physiology and affecting factors.	5	Practical6.2	CAN	Shows-how	DL,D-M,CBL
CO5	Evaluate post-mortem lividity, including the physiological basis of blood pooling after death and the stages of lividity.	5	Experiential-Learning6.2	CAN	Does	CBL,PrBL,SIM,SDL

Unit 2 6.2 تغیرات موخرہ بعد الموت Taghayyurate Muakkherah Badal Maut (Late Post-Mortem Changes)

6.2.1. Decomposition

6.2.1.1. Phases of decomposition (fresh, bloat, active decay, advanced decay, skeletonisation)

6.2.1.2. Role of bacteria and enzymes in decomposition

6.2.1.3. External factors influencing decomposition (temperature, humidity, burial conditions)

6.2.2. Putrefaction

6.2.2.1. Definition and stages of putrefaction

6.2.2.2. Factors accelerating or delaying putrefaction

6.2.2.3. Visual and olfactory signs of putrefaction in different environments

6.2.3. Mummification

6.2.3.1. Conditions that lead to mummification

6.2.3.2. Characteristics of mummified bodies

6.2.3.3. Importance of mummification in forensic identification

6.2.4. Adipocere Formation

6.2.4.1. Definition of adipocere (saponification) formation

6.2.4.2. Conditions favouring adipocere formation

6.2.4.3. Forensic significance of adipocere in determining post-mortem interval

6.2.5. Skeletonization

6.2.5.1. Process of skeletonisation

6.2.5.2. Time factors and environmental influences

6.2.5.3. Forensic challenges in identifying skeletal remains

References: 27,35,48,72,74,80,81,82,83,85,89,90,99,100,101,106,109

3A	3B	3C	3D	3E	3F	3G
CO5	Describe the process, phases and factors affecting decomposition.	1	Lecture	CK	Knows-how	L,L&PPT
CO5	Describe putrefaction, its stages and inflencing factors that may accelerate or delay the process,.	1	Lecture	CK	Know	L&PPT ,L
CO5	Describe mummification and its characteristics, including the conditions that lead to it.	1	Lecture	CC	Knows-how	L&PPT ,L
CO5	Demonstrate the Phases of decomposition, i.e. fresh, bloat, active decay, advanced decay, skeletonisation, etc.	5	Practical6.3	PSY-SET	Shows-how	D-M,D-BED,D
CO5	Identify the process of mummification, including the environmental conditions that promote it.	5	Experiential-Learning6.3	PSY-GUD	Does	JC,D-BED

CO5	Describe adipocere and conditions favouring its development, including its forensic significance.	1	Lecture	CC	Knows-how	L&GD,L&PPT ,L
CO5	Describe the process of skeletonisation, including time factors and environmental influences, as well as the forensic challenges in identifying skeletal remains	1	Lecture	CC	Knows-how	L&PPT ,L&GD,L
CO5	Illustrate the process of adipocere formation, including the biochemical mechanisms involved, and the specific conditions favouring it.	6	Experiential-Learning6.4	AFT-VAL	Does	D,CBL,SIM

Unit 3 6.3 بعدالموت مخصوص تغیرات Badal Maut Makhsoos Taghayyurat (Special Post-Mortem Changes)

6.3.1. Tache Noire (Post-Mortem Ocular Changes)

6.3.1.1. Development of Tache Noires in the eyes

6.3.1.2. Importance of ocular changes in time of death estimation

6.3.2. Marbling (Venous Patterning)

6.3.2.1. Appearance of marbling due to venous decomposition

6.3.2.2. Timing and forensic significance

6.3.3. Post-Mortem Blisters and Skin Slippage

6.3.3.1. Formation of blisters due to skin separation

6.3.3.2. Conditions leading to skin slippage and its forensic implications

References: 27,35,48,72,74,80,81,82,83,85,89,90,99,100,101,106,109

3A	3B	3C	3D	3E	3F	3G
CO5	Describe Tache Noire and Marbling, including their importance and forensic significance	1	Lecture	CC	Knows-how	L&GD,L,L&PPT

CO5	Demonstrate Taches Noires (post-mortem ocular changes) after death.	5	Practical6.4	CAN	Shows-how	SIM,D,PrBL,TPW,D-M
CO5	Discuss the Post-Mortem Blisters and Skin Slippage, including its importance with forensic significance	1	Lecture	CC	Knows-how	L,L&PPT
CO5	Describe the process of marbling (marbilism) in post-mortem decomposition.	5	Experiential-Learning6.5	CAN	Does	BS,CD,D

Practical Training Activity

Practical Training 6.1 Postmortem Interval Estimation

Total Learning Hours: 5 Hours

Step-1: Demonstration on the topic: (1 Hr.)

The teacher will demonstrate the concept of algor mortis and its role in estimating the post-mortem interval.

The teacher will guide the students to use a variety of tools and resources to simulate the post-mortem body cooling. This activity may include using temperature-controlled environments, models, or digital simulations that replicate the cooling process under different conditions.

Step-2: Blended learning session: (2 Hr.)

The student will study the concept of algor mortis and its role in estimating the post-mortem interval.

The teacher will guide the students to use a variety of tools and resources to simulate the post-mortem body cooling. This activity may include using temperature-controlled environments, models, or digital simulations that replicate the cooling process under different conditions.

Step-3: Observation by the student: (1 Hr.)

The student will observe the temperature change in a body or simulated cadaver and identify the factors that influence the rate of cooling (e.g., environmental temperature, clothing, body size, and surroundings).

The student will analyse the relationship among different factors and the cooling rate, and estimate the time since death based on the observed changes.

Step-4: Recording the activity: (1 Hr.)

The activity will be recorded in the logbook, including the recorded temperatures, time intervals, modifications made, and the estimated time since death based on the observed cooling pattern.

Practical Training 6.2 Rigor Mortis

Total Learning Hours: 5 Hours

Step-1: Demonstration of the topic: (30 Min.)

The teacher will demonstrate the physiological process of rigor mortis using a simulated model or cadaver to observe the onset, peak, and dissipation of rigor mortis

Step-2: Library session: (1 Hr.)

The student is expected to study the rigor mortis (post-mortem rigidity), physiology of muscle stiffening and factors affecting rigor mortis.

Step-3: Observation and assessment by the student: (2 Hr. 30 Min.)

The student will observe the physiological changes that cause muscle stiffening after death, including the depletion of ATP in muscle fibres and the formation of actin-myosin cross-bridges, leading to stiffness. They will identify the three phases of rigor mortis: onset (stiffening), peak (maximum rigidity), and dissipation (relaxation).

The student will observe the factors that affect rigor mortis, such as environmental temperature, body composition, and time since death. The student will observe how these factors influence the timing and intensity of rigor mortis.

The student will assess the forensic significance of rigor mortis by using the observed data to estimate the post-mortem interval and understand its role in determining the time of death during a forensic investigation.

Step-4: Recording the activity: (1 Hr.)

The activity will be recorded in the logbook, noting the observed phases of rigor mortis, time intervals, environmental conditions, modifications made, and the estimated time since death based on rigor mortis progression.

Practical Training 6.3 Phases of decomposition.

Total Learning Hours: 5 Hours

Step-1: Demonstration on the topic: (1 Hr.)

The teacher will provide an introductory lecture on the decomposition process, explaining the fresh, bloat, active decay, advanced decay, and skeletonisation phases. Key characteristics of each stage, including physical, chemical, and microbial changes, will be discussed.

Step-3: Observation and Examination by the student: (3 Hr.)

The student is expected to understand and observe the different phases of decomposition (fresh, bloat, active decay, advanced decay, and skeletonisation), including the characteristics of each stage and the role of environmental factors.

The student will examine case studies or photographs (where real samples are unavailable) that illustrate each decomposition stage. They will document visual characteristics, noting specific markers that identify each phase, such as bloating, skin slippage, fluid release, and the presence of bones.

Step-4: Recording the activity: (1 Hr.)

The student will document their observations and findings in a logbook.

Practical Training 6.4 Taches Noires.

Total Learning Hours: 5 Hours

Step-1: Demonstration of the topic: (30 Minutes)

The teacher will present an overview of ocular changes following death, including corneal clouding, scleral drying, and the formation of *taches noires*. This will cover why and how these changes occur and their relevance in estimating time since death.

Step-2: Blended Learning: (2 Hours)

The student is expected to understand the process of post-mortem ocular changes, particularly the formation of *taches noires* (black spots on the sclera), along with their significance and timeline in post-mortem investigations.

Step-3: Observation and Examination by the student: (2 Hours)

The student will observe images or simulated models that depict different stages of ocular decomposition, focusing on the drying of the sclera and the appearance of *taches noires*. They will record the observable differences in scleral changes at various post-mortem intervals.

Step-4: Recording the activity: (30 Minutes)

The student will record their observations in a practical record book, describing the stages of post-mortem ocular changes, the specific conditions that lead to the development of *taches noires.*

Experiential Learning Activity

Experiential-Learning Learning 6.1: Phases of the rigor mortis.

Total Learning Hours: 5 Hours

Step-1: Assigning the duty in the simulation lab or dissection hall: (30 Min.)

The teacher will assign the duty of the student in the simulation laboratory or the dissection hall of the hospital.

Step-2: Blended learning session: (2 Hr.)

The student is expected to understand the physiological process of rigor mortis, including muscle stiffening after death, the phases of rigor mortis (onset, peak, and dissipation), and the variables affecting rigor mortis.

The student will study the biochemistry of rigor mortis, explaining how muscle stiffness occurs after death.

Step-3: Observation by the student: (1 Hr. 30 Min.)

The student will observe a controlled simulation (or a cadaver model, if available) of a body undergoing rigor mortis. They will document the progression of rigor mortis from onset to peak to dissipation, recording the time intervals and physical changes.

The student will document their observations, measurements, and estimations of time since death in a logbook.

Step-4: Recording the activity: (1 Hour)

The student will document their observations, measurements, and estimations of time since death in a logbook.

Experiential-Learning Learning 6.2: Post-mortem lividity (livor mortis).

Total Learning Hours: 5 Hours

Step-1: Understanding of the topic: (2 Hours)

The student will understand post-mortem lividity (livor mortis), including the physiological basis of blood pooling after death, the stages of lividity (onset, fixed, and shifting), and the forensic applications of livor mortis patterns in determining body position, post-mortem movement and estimating time since death.

Step-2: Observation and Examination by the student: (2 Hours)

The student will observe simulated or digital models, Photographs, and Video clips showing lividity patterns on bodies in various positions (e.g., prone, supine, or side-lying). The student will identify and record these patterns, noting how they correlate with different postures and positioning

Step-3: Recording the activity: (1 Hour)

The student will document their observations and conclusions in a logbook, summarising the physiological process of lividity, key timelines, and the application of lividity patterns in assessing body positioning and time since death.

Experiential-Learning Learning 6.3: Mummification.

Total Learning Hours: 5 Hours

Step-1: Assigning the duty in the simulation lab: (1 Hour)

The teacher will assign the role of the student in the simulation laboratory of the hospital to understand the process of mummification.

The teacher will provide an overview or virtual presentation on the biochemical process of mummification, focusing on factors such as low humidity, high temperature, and other conditions that inhibit bacterial decay.

Step-2: Blended learning session: (2 Hr.)

The student is expected to understand the process of mummification, including the environmental conditions that promote it, identifying key characteristics of mummified remains, and analyzing the forensic significance of mummification in post-mortem investigations.

The student will study the biochemistry of rigor mortis, explaining how muscle stiffness occurs after death.

Step-3: Observation by the student: (1 Hr.30 Min.)

The student will observe a controlled simulation (or a cadaver model, if available) of a body undergoing rigor mortis. They will document the progression of rigor mortis from onset to peak to dissipation, recording the time intervals and physical changes.

The student will examine case studies, images, or videos of mummified bodies from real forensic cases. They will take note of the specific environmental conditions and document the unique features that distinguish mummified remains from other forms of decomposition. **Step-4: Recording the activity: (30 Min.)** The student will record their observations, insights, and reflections in a logbook, summarizing key characteristics of mummified remains, environmental conditions leading to mummification, and the relevance of this knowledge in forensic pathology.
Experiential-Learning Learning 6.4: Adipocere process.
Total Learning Hours: 5 Hours **Step-1: Understanding of the topic: (1 Hr.)** The students will review the biochemical process of adipocere formation, focusing on fat hydrolysis and saponification in anaerobic, moist environments. The student will understand the process of adipocere formation, including the biochemical mechanisms involved, the specific conditions favouring saponification, and its forensic significance in determining the post-mortem interval and environmental context. **Step-2: Library session: (1 Hr.)** The student is expected to study the rigor mortis (post-mortem rigidity), physiology of muscle stiffening and factors affecting rigor mortis. **Step-3: Observation and Examination by the student: (2 Hr.)** The student will examine case studies or images of bodies affected by adipocere. They will document the specific conditions noted in each case, such as prolonged immersion in water or burial in moist soil. **Step-4: Recording the activity: (1 Hr.)** The student will document their findings, reflections, and observations in a logbook, summarising the characteristics of adipocere, the environmental factors that promote its formation, and its relevance in post-mortem interval estimation
Experiential-Learning Learning 6.5: Marbling (marbilism) in post-mortem decomposition.
Total Learning Hours: 5 Hours **Step-1: Understanding of the topic: (1 Hr.30 Min.)**

The student will study and understand the process of marbling (marbilism) in post-mortem decomposition, including its visual characteristics, formation timeline, and forensic significance in estimating the post-mortem interval.

Step-2: Blended Learning: (2 Hr.)

The student will study the overview of decomposition stages, highlighting the process of marbling. This includes the role of bacteria in blood vessels and how gas build-up leads to the distinctive marbled appearance on the skin

Step-3: Observation and Examination by the student: (1 Hr.)

The student will observe images or slides showing bodies at various stages of decomposition with marbling, noting the progression and changes in coloration and pattern. They will record differences in marbling development in different areas of the body.

Step-4: Recording the activity: (30 Min.)

The activity will be recorded in the logbook, with reflections on the physiological and environmental factors that influence marbling, as well as the forensic significance of marbling in post-mortem investigations for estimating time since death.

Modular Assessment

Assessment	Hour
Formative Assessment: 4 Hours **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. **Viva (20 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1, 2 and 3 units for 5 marks each. **Case-Based Scenario (20 Marks):**	4

Demonstration of any one case from units 1 and 2. Or Any practical in converted form can be taken for assessment (25 Marks) and Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	

Semester No : 6

Module 7 : ماحولیاتی طب القانون میں جدید اضافات Mahiyati Tibbul Qanoon me Jadeed Izafaat (Recent advances in Forensic Pathology)

Module Learning Objectives

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

Describe the use of newer techniques for the identification of pathological changes.

Discuss molecular forensic pathology.

Identify pathological changes with the help of newer techniques and tools.

Unit 1 7.1 طب القانونی مرضیات میں مستعمل جدید معملی آلات اور تکنیک Tibbul Qanooni Marziyat men musta;mal Jadeed Ma'mali Aalat aur Takneeks (Recent Laboratory Tools and Techniques used in Forensic Pathology)

7.1.1. Introduction

7.1.2. Software used in Forensic Pathological investigation

7.1.3. Role of Artificial Intelligence in Forensic Pathology

7.1.4. DNA Fingerprinting

7.1.5. Gene mapping

References: 26,48,53,54,70,74,79,81,86,88,91,99,101,106

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

CO5	Describe the latest laboratory tools and methods used in forensic analysis and discuss their benefits in improving accuracy and efficiency in forensic investigations.	1	Lecture	CK	Knows-how	L&PPT ,L
CO5	Practice the handling of Advanced Laboratory Tools in Forensic Analysis.	5	Practical7.1	PSY-SET	Shows-how	D,FV,SDL
CO5	Perform a case study where advanced technology in forensic genetics helped to solve it.	5	Experiential-Learning7.1	AFT-RES	Does	JC,PER
CO5	Discuss the Role of Software and Digital Tools in Forensic Medicine	1	Lecture	CC	Knows-how	L&GD,L&PPT ,L
CO5	Discuss the principles of DNA fingerprinting and its evolution, including newer techniques analysis.	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD
CO5	Describe the Role of Gene Mapping and Genomic Analysis.	1	Lecture	CC	Knows-how	L&PPT ,L&GD,L
CO5	Describe the Role of Artificial Intelligence (AI) in Forensic Analysis.	1	Lecture	CC	Knows-how	L,L&GD,L&PPT
CO5	Demonstrate the role and applications of software and digital tools in forensic medicine.	5	Practical7.2	AFT-RES	Shows-how	TPW,PER,X-Ray,SIM,PT
CO5	Analyse DNA fingerprinting using Short Tandem Repeat (STR) analysis.	5	Experiential-Learning7.2	AFT-RES	Does	SDL,BL,BS,PAL,DIS
CO5	Evaluate the role of 3D imaging technology in forensic investigations.	5	Experiential-Learning7.3	AFT-VAL	Shows-how	BS,JC,BL,CBL,PER
Unit 2 7.2 سالماتی مرضیات قانونی Salemati Marziyate Qanooni (Molecular Forensic Pathology)						

7.2.1. Introduction

7.2.2. Scope and prospects

7.2.3. Techniques

References: 26,48,53,70,74,79,81,86,88,91,99,101,106

3A	3B	3C	3D	3E	3F	3G
CO5	Describe molecular forensic pathology, its integration with traditional forensic practices and applications in understanding the molecular basis of death and disease	1	Lecture	CK	Knows-how	L&PPT ,L
CO5	Demonstrate the tools and techniques used in molecular forensic pathology.	5	Practical7.3	PSY-SET	Shows-how	BL,D,BS,DIS
CO5	Apply Magnetic Resonance Imaging (MRI) in forensic investigations.	5	Experiential-Learning7.4	PSY-SET	Does	TPW,RP
CO5	Discuss the emerging trends and advancements in molecular forensic pathology such as the use of omics technologies (genomics, proteomics, metabolomics).	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD
CO5	Describe the primary techniques used in molecular forensic pathology, including polymerase chain reaction (PCR), next-generation sequencing (NGS), and RNA analysis.	1	Lecture	CC	Know	L&PPT ,L,L&GD
CO5	Describe the role and applications of forensic radiology (CT Scans, MRI and 3D imaging) in forensic investigations.	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD

CO5	Discuss and appraise the role of bioinformatics in the management, analysis and interpretation of large datasets in forensic investigations, especially in DNA profiling and genomic analysis.	1	Lecture	AFT-SET	Knows-how	L&GD,L,L&PPT
CO5	Demonstrate the role and practical applications of CT scans in forensic investigations.	5	Practical7.4	AFT-VAL	Shows-how	BS,BL,X-Ray,D
CO5	Apply bioinformatics in forensic investigations.	6	Experiential-Learning7.5	CAN	Does	TPW,JC,BL,BS,PER

Practical Training Activity

Practical Training 7.1 Laboratory Tools in Forensic Analysis.

Total Learning Hours: 5 Hours

Step-1: Description of topic through Blended Learning (1 Hour)

The teacher will provide an introductory lecture, explaining each tool's mechanism, applications, and the types of forensic evidence they analyse (e.g., DNA, toxicology, tissue samples).

The student will gain knowledge and hands-on experience with cutting-edge forensic laboratory tools, including next-generation sequencing (NGS), mass spectrometry, and automated histology techniques

Step-2: Forensic Science Laboratory Visit (3 Hours)

The student will visit the nearby forensic laboratory or the forensic laboratory available in the college.

The student will observe the handling of NGS, mass spectrometry, and automated histology equipment in the lab. He will learn the basic operations, such as sample preparation, analysis protocols, and handling techniques

Step-3: Documentation (1 Hour)

The student will record their observations in a practical book, including descriptions of the tool functions, data gathered, and reflections on how these advanced techniques contribute to greater accuracy and efficiency in forensic casework.
Practical Training 7.2 Digital tools in forensic medicine.
Total Learning Hours: 5 Hours **Step-1: Description of the Topic (1 Hour)** The teacher will introduce software such as digital autopsy platforms, 3D reconstruction tools and forensic imaging programs, explaining their applications in case analysis, documentation and virtual autopsy procedures The student will develop an understanding of the role and applications of software and digital tools in forensic medicine, including case documentation, analysis, reconstruction, and reporting **Step-2: Simulation Laboratory Session (3 Hours)** The student will participate in a lab session to practice using selected forensic software (e.g., virtual autopsy software, forensic image analysis tools) to conduct a mock digital autopsy and identify significant findings, such as fractures, haemorrhages, or signs of trauma. **Step-3: Documentation (1 Hour)** Students will reflect on their learning experiences in the practical book.
Practical Training 7.3 Molecular forensic pathology.
Total Learning Hours: 5 Hours **Step-1: Description of the topic (2 Hours):** The teacher will introduce molecular biology tools such as PCR (Polymerase Chain Reaction), RT-PCR (Reverse Transcription PCR), gel electrophoresis, and DNA sequencing. Thereafter, the student will handle each tool and understand their roles in forensic investigations, including DNA profiling, pathogen identification, and toxicology. **Step-2: Demonstration (2 Hours):**

The student will understand and demonstrate the tools and techniques used in molecular forensic pathology, including the application of molecular biology techniques to forensic investigations. This includes learning how these tools help identify causes of death, trace substances, and solve cases. **Step-3: Documentation (1 Hour):** The student will document their observations of molecular tool demonstrations, including DNA extraction, PCR, and DNA sequencing
Practical Training 7.4 Forensic investigation.
Total Learning Hours: 5 Hours **Step-1: Description of the Topic (2 Hours):** 1. The teacher will demonstrate how CT scans are used in post-mortem imaging, highlighting their ability to create detailed cross-sectional images of the body 2. The student will understand the role and practical applications of CT scans in forensic investigations, focusing on their use for non-invasive analysis of skeletal injuries, internal trauma, and foreign object detection. **Step-2: Class Presentation (2 Hours):** 3. The student will observe and interpret CT scans showing signs of internal trauma, fractures and correlate the findings with potential causes of death. 4. The student will be present in the class. **Step-3: Documentation (1 Hour):** 5. The student will record their observations and interpretations in a logbook, including detailed reflections on how CT imaging contributes to forensic investigations.
Experiential Learning Activity
Experiential-Learning Learning 7.1: Forensic Genetics.
Total Learning Hours: 5 Hours **Step-1: Library session and Blended Learning (4 Hours)**

The student will understand the impact of advances in forensic genetics, such as DNA profiling and next-generation sequencing, in solving old cases and identifying previously unknown substances in historical instances. The Student will study various genetic techniques, such as mitochondrial DNA analysis, genetic genealogy, and STR (short tandem repeat) profiling, to achieve an overview of how these advances have been applied to cold cases The student will study documented cases, such as those solved using DNA genealogy databases or advanced DNA sequencing, observing how genetic tools provided breakthroughs and identifying the types of evidence (e.g., hair, bone) that facilitated these findings **Step-2: Class Presentation (1 Hour)** The student will document each case reviewed, the specific genetic technique applied and the case outcome
Experiential-Learning Learning 7.2: DNA fingerprinting and STR (short tandem repeat).
Total Learning Hours: 5 Hours **Step-1: Library session with Brainstorming and Blended Learning (2 Hours)** The student will understand the principles of DNA fingerprinting, explore its evolution, and learn about newer techniques like STR (short tandem repeat) analysis. The student will study case examples of the first applications of DNA fingerprinting, such as the famous case of Colin Pitchfork in the UK, which is one of the first uses of DNA profiling in a criminal case. They will learn how the technique was developed and how it transformed forensic investigations. **Step-2: Group Discussion (2 Hours)** The student will study case reports/scenarios, where forensic experts used DNA fingerprinting and STR data to solve a forensic case. Group Discussion will be conducted in the class, and the student will present their compilation in the class in the presence of the teacher. Other students will give their input. **Step-3: Documentation (1 Hour)** The student will document their findings, reflections, and the role of DNA profiling in criminal justice
Experiential-Learning Learning 7.3: Forensic 3D imaging
Total Learning Hours: 5 Hours

Step-1: Understanding of the topic: (1 Hr.30 Min.)

The student will explore and apply the use of 3D imaging technology in forensic investigations for visualising injuries, reconstructing crime scenes, and analysing anatomical structures in a non-invasive manner

Step-2: Blended Learning: (2 Hr.)

The student will review the case studies where 3D imaging was used to reconstruct facial features, analyse trauma, or replicate crime scenes. Students will evaluate the role of 3D imaging in solving these cases.

Step-3: Presentation: (1 Hr.)

The student will present the case in a class seminar.

Step-4: Recording the activity: (30 Min.)

The student will document their experience with 3D imaging, detailing its applications, advantages, and limitations in forensic investigations.

Experiential-Learning Learning 7.4: MRI in forensic

Total Learning Hours: 5 Hours

Step-1: Library session (2 Hours)

The student will understand the role and applications of Magnetic Resonance Imaging (MRI) in forensic investigations, focusing on its use in non-invasive soft tissue analysis, brain injury assessment, and detection of pathological conditions contributing to death

The student will study the basics of MRI, its imaging capabilities, and its specific advantages over other imaging techniques, such as CT scans.

Step-2: Group Discussion and Role Play (2 Hours)

Group discussion will be conducted in the class, and the student will present in the form of role play, its analysis and interpretation of MRI scans to detect soft tissue injuries, organ damage, or signs of asphyxia.

Step-3: Documentation (1 Hour)

The student will document their interpretations, along with reflections on the advantages and challenges of using MRI in forensic investigations, in the logbook.

Experiential-Learning Learning 7.5: Bioinformatics in forensic

Total Learning Hours: 6 Hours

Step-1: Library Session with Blended Learning and Brainstorming session (2 Hours)

The student will explore the role of bioinformatics in forensic investigations by conducting a comprehensive literature review on its applications, challenges, and advancements in areas such as DNA profiling, genomic analysis, and data interpretation.

The student will search a curated list of academic articles, case studies and reviews on bioinformatics techniques and their forensic applications for students to study.

Step-2: Preparation of Digital Content (2 Hours)

Students will extract and summarise key points from the literature on bioinformatics applications such as DNA sequencing, familial relationship analysis, and identification of unknown substances. The student will create a PowerPoint presentation or create Digital content.

Step-3: Class Presentation and Documentation (2 Hours)

Students will prepare a literature review report or presentation that synthesises their findings, including a critical appraisal of bioinformatics' current and future potential in forensic science

Modular Assessment

Assessment	Hour
Formative Assessment: 4 Hours **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. **1. Viva (20 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **2. Practical (2 Nos.) -** 10 Marks each (**20 Marks**) - from either of the units. **3. Case-Based Scenario (10 Marks):** Demonstration of any one case from unit 3. Or	4

Any practical in converted form can be taken for assessment (25 Marks). And Any of the experiential as portfolio/reflections/presentations, can be taken as an assessment (25 Marks)	

Module 8 : نفسیاتی طب القانون Nafsiyati Tibbul Qanoon (Forensic Psychiatry)

Module Learning Objectives

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

Describe Nafsiyati Tibbul Qanoon

Identify various Nafsiyati Amraaz of Medicolegal importance.

Unit 1 8.1 طب القانونی نفسیات کے مبادیات Tibbul Qanooni Nafsiyat ke Mabadiyaat(Basics of Forensic Psychiatry)

8.1.1. Definition and Scope of Forensic Psychiatry

8.1.2. Psychiatric Disorders Responsible for Crime

8.1.3. Schizophrenia and Psychotic Disorders

8.1.4. Personality Disorders: Mood Disorders

8.1.5. Substance Use Disorders

8.1.6. Impulse Control Disorders

8.1.7. Management of Psychiatric Offenders

References: 22,23,24,35,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,53,64,65,72,74,78,82,83,84,85,86,87,88,90,91,94,95,99,100,101,105,109

3A	3B	3C	3D	3E	3F	3G
CO5	Describe forensic psychiatry and its scope	1	Lecture	CC	Knows-how	L,L&PPT
CO5	Describe forensic psychiatric disorders by observing, assessing and analyzing real or simulated clinical cases.	5	Practical8.1	PSY-SET	Shows-how	D,BS,IBL,RP,PAL

CO5	Identify relationship between mental illness and criminal behavior.	5	Experiential-Learning8.1	PSY-GUD	Does	DIS,W,CBL,PAL,BS
CO5	Describe psychiatric disorders responsible for crime	1	Lecture	CC	Knows-how	L&GD,L&PPT ,L
CO5	Describe Psychotic Disorders.	1	Lecture	CC	Knows-how	L&PPT ,L&GD,L
CO5	Describe Personality and Mood Disorders	1	Lecture	CC	Knows-how	L&GD,TUT,L_VC,SDL,L&PPT
CO5	Describe Substance Use Disorders and Impulse Control Disorders	1	Lecture	CC	Knows-how	L&GD,L,L&PPT
CO5	Describe the management of Psychiatric Offenders.	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD
CO5	Develop practical skills in identifying, diagnosing, and managing mood disorders such as Major Depressive Disorder (MDD), Bipolar Disorder (BD), and Persistent Depressive Disorder (Dysthymia). ,	5	Practical8.2	PSY-SET	Shows-how	CBL,CD,D-BED
CO5	Develop experiential skills in diagnosis and management of psychotic disorders such as schizophrenia, Delusional Disorder, Brief Psychotic Disorder and schizoaffective disorder	6	Experiential-Learning8.2	PSY-SET	Does	JC
CO5	Develop the skills of diagnosis, and management of impulse control disorders (ICDs) such as Intermittent Explosive Disorder (IED), Kleptomania, Pyromania, and Trichotillomania.	5	Experiential-Learning8.3	PSY-GUD	Does	CD,CBL,RLE

Unit 2 8.2 طب القانونی سیاق وسباق میں دماغی صحت کی تشخیص Tibbul Qanooni Siyaq wa Sabaq men Demaghi Sehat ki Tashkees (Mental Health Evaluations in Forensic Contexts

8.1.1. Assessing Mental Health in Cases of Violence and Crime

8.1.2. Psychiatric Evaluations for Risk of Harm to Self and Others

8.1.3. Forensic Psychiatric Report Writing and Testimony

References: 22,23,24,35,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,53,64,65,72,74,78,82,83,84,85,86,87,88,90,91,94,95,99,100,101,105,109

3A	3B	3C	3D	3E	3F	3G
CO5	Describe mental health assessment and its forensic significance.in case of violence, crime, self-harm and harm to others.	1	Lecture	CC	Knows-how	L&PPT ,L
CO5	Demonstrate specific risk factors and behavioral markers associated with violence, self-harm and harm to others.	5	Practical8.3	PSY-SET	Shows-how	D,JC,CBL
CO5	Apply the role of mental health professionals in the investigation of cases involving violence, crime, self-harm and harm to others.	5	Experiential-Learning8.4	PSY-SET	Does	RLE,JC
CO5	Describe key techniques, including clinical interviews, MSE, and psychological testing, employed in forensic psychiatry to evaluate mental health	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD
CO5	Discuss specific risk factors and behavioral markers for violence, self-harm and harm to others.	1	Lecture	CE	Knows-how	L,PAL,L&GD,TUT,SDL
CO5	Describe the use of Risk Assessment Tools (e.g., HCR-20, C-SSRS) for evaluating risks in clinical practice	1	Lecture	CC	Knows-how	L&GD,L&PPT ,L
CO5	Apply standardized risk assessment tools, such as the HCR-20 (Historical, Clinical, Risk Management-20) and C-SSRS (Columbia-Suicide Severity Rating Scale), for evaluation of the risks related to the violence and self-harm.	5	Practical8.4	PSY-GUD	Shows-how	CBL,CD,D-BED,D,SIM

CO5	Investigate the role of mental disorders in violent criminal behavior through the analysis of famous criminal cases.	5	Experiential-Learning8.5	CAN	Does	CBL,D,C_L,CD

Practical Training Activity

Practical Training 8.1 Clinical understanding of forensic psychiatric disorders.

Total Learning Hours: 5 Hours

Step-1: Demonstration on the topic: (30 Min.)

The teacher will demonstrate about the clinical understanding of forensic psychiatric disorders to the students.

Step-2: Observation and understanding of the topic: (1 Hr.30 Min.)

The student is expected to develop a clinical understanding of forensic psychiatric disorders by observing, assessing, and analyzing real or simulated clinical cases under the supervision of a forensic psychiatrist.

The teacher will arrange for students to observe live or recorded psychiatric evaluations of patients with forensic implications.

Step-3: Group Discussions: (1Hr.30 Min.)

Students will engage in guided discussions of real or anonymized case files, focusing symptoms, diagnosis and the impact of psychiatric disorders on legal outcomes.

Step-4: Recording the Activity: (1 Hr.30 Min.)

Students will observe, assess 2-3 such cases and record them in the logbook, focusing the connection between clinical findings and forensic outcomes.

Practical Training 8.2 The Diagnosis and Management of Mood Disorders.

Total Learning Hours: 5 Hours

Step-1: Demonstration on the topic: (1 Hr.)

The teacher will demonstrate about how to develop practical skills in identifying, diagnosing, and managing mood disorders through patient observation, diagnostic assessment, and participation in individualized treatment planning.

Step-2: Practicing to develop practical skills: (3 Hr.)

The student is expected to develop practical skills in identifying, diagnosing, and managing mood disorders through patient observation, diagnostic assessment, and participation in individualized treatment planning.

The student will observe outpatient or inpatient cases of mood disorders such as Major Depressive Disorder (MDD), Bipolar Disorder (BD), and Persistent Depressive Disorder (Dysthymia) and document the symptoms such as low mood, anhedonia, mood swings, irritability, or euphoria, and their impact on daily functioning.

Step-3: Documentation: (1 Hr.)

Students will document their observations, diagnostic findings, and reflections on management strategies for each case.

Practical Training 8.3 Demonstration of Risk factors and behavioral markers associated with violence, self-harm, and harm to others.

Total Learning Hours: 5 Hours

Step-1: Demonstration on the topic: (30 Min.)

The teacher will demonstrate about the specific risk factors and behavioural markers associated with violence, self-harm and harm to others.

Step-2: Identification of the specific risk factors and behavioural markers: (1 Hr. 30 Min.)

The student is expected to identify specific risk factors and behavioural markers associated with violence, self-harm and harm to others through detailed case analysis and observation in a clinical or forensic setting.

The teacher will provide anonymized case studies involving individuals who have exhibited violent behaviour, self-harm or harm to others.

Step-3: Reviewing the case files, including medical records, psychiatric evaluations, and behavioural assessments: (2 Hr.)

Students will review the case files, including medical records, psychiatric evaluations, and behavioural assessments.

Step-4: Class presentation and Recording the activity in the record book: (1 Hr.)

The student will present in the class and. Activity will be recorded in practical book.

Practical Training 8.4 Application of standardized risk assessment tools.

Total Learning Hours: 5 Hours

Step-1: Demonstration on the topic: (1 Hr.)

The teacher will demonstrate about the application of standardized risk assessment tools, such as the HCR-20 (Historical, Clinical, Risk Management-20) and C-SSRS (Columbia-Suicide Severity Rating Scale), for evaluating risks related to violence and self-harm in a clinical or bedside setting.

Step-2: Blended learning session: (2 Hr.)

The student will try to understand and apply standardized risk assessment tools, such as the HCR-20 (Historical, Clinical, Risk Management-20) and C-SSRS (Columbia-Suicide Severity Rating Scale), for evaluating risks related to violence and self-harm in a clinical or bedside setting.

The teacher will demonstrate the use of the HCR-20 and C-SSRS tools on a case study or clinical example, explaining how each item in the tool is used to assess the risk of violence or suicide.

Step-3: Practicing or Performing on HCR-20 and C-SSRS tools : (1 Hr.)

The student will perform risk assessments using the HCR-20 and C-SSRS tools with patients attending the hospital or simulated environment.

Step-4: Documentation: (1 Hr.)

The student will document the patient's historical factors, clinical presentation, risk management, and risks related to violence and self-harm following the structured approach.

Experiential Learning Activity

Experiential-Learning Learning 8.1: Establishment of Relationship between mental illness and criminal behavior.

Total Learning Hours: 5 Hours

Step-1: Assigning the topic: (30 Min.)

The teacher will assign the student in experiential projects that involve real-world data analysis, interviews and case studies under expert supervision.

Step-1: Blended learning session: (2 Hr.30 Min.)

The student is expected to explore the connection between mental illness and criminal behaviour by engaging in experiential projects that involve real-world data analysis, interviews and case studies under expert supervision.

The student will review anonymized medical and psychiatric records of offenders, correlating their diagnoses with patterns of criminal behaviour.

The student will work on comprehensive case studies, integrating medical history, forensic reports, and legal outcomes to assess the impact of mental illness on criminal behaviour.

Step-3: Presentation and Recording the Activity: (2 Hr.)

The student will record all the findings and present in class seminar.

Experiential-Learning Learning 8.2: Diagnosis and management of Psychotic disorders.

Total Learning Hours: 6 Hours

Step-1: Assigning the Clinical cases: (1 Hr.)

The teacher will assign clinical cases related to psychotic disorders by observing and engaging in real-world clinical cases.

Step-2: Hospital OPD/IPD Visit: (2 Hr.)

The student will visit the hospital OPD/IPD to develop practical skills in diagnosing and managing psychotic disorders by observing and engaging in real-world clinical cases, focusing on individualized treatment planning and therapeutic interventions.

The Students will observe a patient diagnosed with psychotic disorders, such as schizophrenia, schizoaffective disorder, brief Psychotic Disorder or delusional focusing on recognition of key symptoms such as delusions, hallucinations, disorganized thought processes, and negative symptoms.

Step-3: Reviewing the patient history/lab reports/neuroimaging reports: (2 Hr.)

They will review patient histories, lab results, and neuroimaging reports to differentiate psychotic disorders from other medical or psychiatric conditions.

The students will engage in formulating treatment plans under the supervision of psychiatrist.

Step-4: Documentation: (1 Hr.)

Students will document the patient history, lab results, and neuroimaging reports to differentiate psychotic disorders from other medical or psychiatric conditions.

Experiential-Learning Learning 8.3: Diagnosing, and managing impulse control disorders (ICDs).

Total Learning Hours: 6 Hours

Step-1: Assigning the Clinical cases: (1 Hr.)

The teacher will assign clinical cases related to identifying, diagnosing, and managing impulse control disorders (ICDs).

Step-2: Hospital OPD/IPD Visit: (4Hr.)

The student will visit the hospital OPD/IPD to develop skills in identifying, diagnosing, and managing impulse control disorders (ICDs) by engaging with real-life clinical cases, applying diagnostic assessments, and participating in individualized treatment plans.

The Student will observe patients presenting with common impulse control disorders such as Intermittent Explosive Disorder (IED), Kleptomania, Pyromania, and Trichotillomania in both inpatient and outpatient settings.

Step-3: Documentation: (1 Hr.)

Students will document the observed behaviours like impulsive aggression, stealing, fire-setting, or hair-pulling, and assess the impact of these behaviours on the patient's life and relationships.

The students will document their observations, diagnostic findings, and treatment plans for three cases.

Experiential-Learning Learning 8.4: Role of mental health professionals in the investigation of cases involving violence.

Total Learning Hours: 5 Hours

Step-1: Instruction by the teacher: (1 Hr.)

The teacher will instruct and arrange the various study material to students to explore the role of mental health professionals in the investigation of cases involving violence, crime, self-harm, and harm to others

Step-2: CRL: (2 Hr.)

The student will explore the role of mental health professionals in the investigation of cases involving violence, crime, self-harm, and harm to others by conducting a comprehensive literature review.

The student will study and analyze the role of mental health professionals in the investigation of psychotic disorders, using the cases of Psychotic Disorders and Serial Killing like the Case of Raman Raghav (1960s)

Step-4: Class presentation and Recording the activity in the record book: (2 Hr.)

The student will present the cases involving psychotic disorders and violent crimes, examining the role of mental health professionals in such investigations and activity will be recorded in practical book.

Experiential-Learning Learning 8.5: Investigation of the role of mental disorders in violent criminal behavior.

Total Learning Hours: 5 Hours

Step-1: Assigning the topic: (30 Min.)

The teacher will identify and assign the psychological profiles of offenders, the forensic psychiatric assessments, and the influence of mental illness on criminal acts.

Step-2: Critical examination by the student: (2 Hr.)

Students will critically examine the psychological profiles of offenders, the forensic psychiatric assessments, and the influence of mental illness on criminal acts.

Select one or more of the following criminal cases: Richard Chase, Ted Bundy, Andrea Yates, David Berkowitz, Aileen Wuornos, or Mary Bell.

Step-3: Reviewing and analysing the case files by the student: (2 Hr.)

The student will review case files, psychiatric evaluations, court documents, and media reports related to the selected case.

Analyze the mental health diagnoses (e.g., schizophrenia, antisocial personality disorder, PTSD) and the impact of these conditions on the criminal behaviour exhibited

Step-4: Documentation: (30 Min.)

The student will document the critical observation from case files, psychiatric evaluations, court documents, and media reports related to the selected case.

Modular Assessment

Assessment	**Hour**
Formative Assessment: 4 Hours **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. **1. Viva (20 marks):** The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked. **2. Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1 and 2 units for 5 marks each.	4

3. Case-Based Scenario/ Report writing (20 Marks): Demonstrate and prepare a report on any one case from unit 2. Or Any practical in converted form can be taken for assessment (25 Marks). and any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	

Paper No : 2 مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology)

Semester No : 3

Module 9 : مطبی علم السموم کے بنیادی اصول Matabi Ilmus Samoom ke bunyadi Usool (Fundamentals of Clinical Toxicology)

Module Learning Objectives

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

Describe clinical toxicology.

Differentiate clinical and forensic toxicology

Document well-known poisoning cases.

Unit 1 9.1 مطبی علم السموم کا جائزہ Matabi Ilmus Samoom ka Jayezah (Overview of Clinical Toxicology)

9.1.1. Definition & Scope

9.1.2. Historical background

9.1.3. Role of poison in human history

9.1.4. Importance in public health

9.1.5. Documentation of Well-Known Poisoning Cases

References: 21,28,29,30,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,87,91,94,95,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1	Describe the historical background of clinical toxicology.	1	Lecture	CC	Knows-how	L&PPT ,L,L&GD,L_VC
CO1,CO2, CO3	Demonstrate the journey of poison and poisoning in human history.	4	Practical9.1	CE	Shows-how	D

CO1,CO2, CO3	Illustrate the importance and scope of clinical toxicology.	2	Lecture	CC	Knows-how	L&GD,L&PPT ,L
CO1,CO2, CO3	Describe the Importance of clinical toxicology in public heath.	5	Practical9.2	CE	Shows-how	PrBL,RP,RLE,D
CO1,CO2, CO3	Present the clinical aspects of historical Thallium Murder case.of poisoning.	5	Experiential-Learning9.1	PSY-SET	Does	RP,SDL,PAL,PL,PER
CO1,CO2, CO3	Discuss the clinical aspects of historical Napoleon Bonaparte cases of poisoning.	5	Experiential-Learning9.2	PSY-SET	Does	PL,BS,RLE,PER
CO1,CO2, CO3	Present the clinical aspects of historical Umbrella murder case of poisoning.	5	Experiential-Learning9.3	PSY-SET	Does	BS,CBL,SDL,RP,PAL
CO1,CO2, CO3	Prepare the case sheets of poisoning.	5	Practical9.3	CAN	Shows-how	SDL,DIS,BS,PAL,D

Unit 2 9.2 علم السموم کے بنیادی اصول Ilmus Samoom ke Bunyadi Usool (Basic Principles of Toxicology)

9.2.1. Dose-response relationship

9.2.2. Toxicokinetic

9.2.3. Toxicodynamic

References: 21,28,29,30,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,87,91,94,95,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Describe toxicokinetics and toxicodynamics of poisons on the basis of Unani principles as well as modern concept.	3	Lecture	CK	Knows-how	L&GD,L,L&PPT

CO1,CO2, CO3	Demonstrate the routes of administration of poison in 2 hospitalized cases of different types of poisoning. Demonstrate the mechanism of action and routes of elimination in 2 hospitalized cases of different types of poisoning.	6	Practical9.4	PSY-MEC	Shows-how	PBL,PER,CBL,D
CO1,CO2, CO3	Discuss the factors modifying the action of poison.	4	Experiential-Learning9.4	PSY-GUD	Does	D-BED,CBL
CO1,CO2, CO3	Demonstrate the mechanism of action and routes of elimination in 2 hospitalized cases of different types of poisoning.	5	Practical9.5	PSY-GUD	Shows-how	BS,PBL,D,CBL

Unit 3 9.3 طب القانونی علم السموم بمقابلہ معالجاتی علم السموم Tibbul Qanooni Ilmus Samoom Bamuqabilah Moalajati Ilmus Samoom (Forensic Toxicology vs. Clinical Toxicology)

9.3.1. Differences and Similarities

9.3.2. Case Studies

References: 21,28,29,30,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,87,91,94,95,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Describe the medicolegal aspects of various poisoning cases	3	Lecture	CC	Knows-how	PER,L&PPT ,L&GD,DIS,L
CO1,CO2, CO3	Perform case studies of Clinical Toxicology.	4	Experiential-Learning9.5	CE	Does	JC,D,PL,CBL,DIS

Unit 4 9.4 ضوابط اور قانون سازی Zawabit aur Qanoon Sazi (Regulation and Legislation)

9.4.1. Poisoning and laws

9.4.2. Regulatory agencies and their roles (e.g., Food & Drug Administration (FDA), European Medicines Agency (EMA)

9.4.3. Poison control centres and their functions

References:

21,28,29,30,42,43,44,45,46,50,51,52,53,54,59,61,63,65,67,72,73,75,76,77,79,84,85,87,91,94,95,100,101,102,103,104,105,110,113,114,115,116

3A	3B	3C	3D	3E	3F	3G
CO1,CO5	Enumerate & Describe various laws related to poisons and poisoning	3	Lecture	CC	Knows-how	L&PPT ,L,L&GD,SDL
CO1,CO5	Describe Regulatory agencies and their roles in the case of poisons and poisoning in India	3	Lecture	CC	Knows-how	TUT,PAL,L,L&PPT
CO1,CO5	Discuss FSSAI and their roles.	5	Experiential-Learning9.6	CE	Does	DIS,RP,FV,D,PER
CO1,CO5	Discuss FDA and their roles.	5	Practical9.6	PSY-GUD	Shows-how	DIS,PER,SDL,RP,D
CO1,CO5	Analyse various agencies and poison control centres and their functions	5	Experiential-Learning9.7	PSY-SET	Does	FV,PrBL
CO1,CO5	Visit to various agencies, poison control centres, and appreciate their services and functions.	6	Experiential-Learning9.8	CE	Does	FV,PL,RLE

Practical Training Activity

Practical Training 9.1 Journey of poison and poisoning in human history.

Total Learning Hours: 4 Hours

Step-1: Description of the Topic: (2 Hour)

The Student will review the literature and search the uses of various substances as poison in human history and compile the information in form of power point or Digital Content.

Step-2: Presentation of the Content: (1 Hour 30 Minutes)

The student will present its compilation in the class focusing on their diagnosis and management.

The teacher will give his/her inputs with respect to the improvement of the content.

Step-3: Recording of the content: (30 Minutes)

The activity will be recorded in the practical record book emphasizing the critical review of the content.

Practical Training 9.2 Importance of clinical toxicology in public heath.

Total Learning Hours: 5 Hours

Step-1: Description of the content: (1 Hour)

The student will search the literature on clinical toxicology and study its importance in public health.

Step-2: Preparation of the Content: (1 Hour 30 Minutes)

2. The student will prepare a script focusing on the role of a forensic expert using clinical toxicology as a tool for the betterment of public health.
3. The teacher will suggest modification, if any, in the script.

Step-3: Role Play: (1 Hour 30 Minutes)

4. The student will play the role of a forensic expert who is working on public health and using clinical toxicology as a tool.

Step-4: Recording of the Content: (1 Hour)

5. The activity will be recorded in the practical record book.

Practical Training 9.3 Preparation of case sheets of poisoning.

Total Learning Hours: 5 Hours

Step-1: Visit to Clinical Toxicology OPD: (2 Hours)

The student is expected to visit the Clinical Toxicology OPD of the hospital.

The teacher will assign two cases of poisoning to the student.

Step-2: Examination and diagnosis of the case: (2 Hours)

The student will examine the cases and diagnose them clinically and prepare their case sheets focusing upon the clinical features of the case.

Step-3: Presentation of case sheet: (1 Hour)

The student will present the cases in the class.

The teacher will suggest the modifications, if any.

The case sheets will be submitted to the HoD for future records.

Practical Training 9.4 Demonstration of Routes of administration of poisons.

Total Learning Hours: 6 Hours

Step-1: Explanation of the content: (2 Hours)

The student is expected to study the routes of administration of different poisons.

The teacher will assign two cases of poisoning to the student.

Step-2: Examination and diagnosis of the case: (2 Hours)

The student will examine the cases and diagnose them clinically and prepare their case sheets focusing upon the clinical features of the case.

Step-3: Presentation of case sheet: (2 Hours)

The student will present the cases in the class.

The teacher will suggest the modifications, if any.

The case sheets will be submitted to the HoD for future records.

Practical Training 9.5 Demonstration of the mechanism of action and routes of elimination in 2 hospitalized cases of different types of poisoning.

Total Learning Hours: 5 Hours

Step-1: Demonstration of the topic: (1 Hr.)

The teacher will demonstrate the mechanism of action and routes of elimination of different poisons.

Step-2: Blended Learning: (2 Hr.)

The student will study the mechanism of action and routes of elimination of different poisons.

The teacher will assign two cases of poisoning to the student.

The student will assess the patient clinically and try to find out the mechanism of action and routes of elimination of the poison.

Step-3: Presentation: (1 Hr. 30 Min.)

The student will present its logical findings before the teacher.

The teacher will rectify if needed.

Step-4: Recording the activity: (30 Min.)

The activity will be recorded in the record book.

Practical Training 9.6 FDA and their roles.

Total Learning Hours: 5 Hours

Step-1: Description of the Topic: (2 Hours)

The teacher will describe about FDA and their role for assuring the safety, efficacy, and security of human and veterinary drugs, biological products, medical devices, our nation's food supply, cosmetics, and products that emit radiation.

Step-2: Role-play of Food Safety Officer: (2 Hours)

The student will role play of Food Safety Officer emphasizing upon the monitoring of manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption as per standards prescribed by FDA..

Step-3 Recording of the Content: (1 Hours)

The activity will be recorded in the practical record book.

Experiential Learning Activity

Experiential-Learning Learning 9.1: Role play or video case on Thallium Murder case.

Total Learning Hours: 5 Hours

Step-1: Description of the content: (1 Hour 30 Minutes)

The teacher will describe the historical Thallium Murder case of poisoning.

The student will critically analyse the clinical toxicological aspect of the case.

Step-2: Preparation of the Content: (1 Hour 30 Minutes)

3. The student will prepare a script focusing on the role of a forensic expert in the diagnosis of the case.

4.The teacher will suggest modification, if any, in the script.

Step-3: Role Play or video case: (1 Hour30 Minutes)

5.The student will play or video case the role of a forensic expert in the diagnosis of the case.

Step-4: Recording of the Content: (30 Minutes)

6.The activity will be recorded in the practical record book.

Experiential-Learning Learning 9.2: Role play or video case on Napoleon Bonaparte cases of poisoning.

Total Learning Hours: 5 Hours

Step-1: Description of the content: (1 Hour 30 Minutes)

The teacher will describe the historical Napoleon Bonaparte case of poisoning.

The student will critically analyse the clinical toxicological aspect of the case.

Step-2: Preparation of the Content: (1 Hour 30 Minutes)

The student will prepare a script focusing on the role of a forensic expert in the diagnosis of the case.

The teacher will suggest modification, if any, in the script.

Step-3: Role Play or video case: (1 Hour30 Minutes)

The student will play the role or video case of a forensic expert in the diagnosis of the case.

Step-4: Recording of the Content: (30 Minutes)

The activity will be recorded in the practical record book.
Experiential-Learning Learning 9.3: Role play or video case on Umbrella murder case of poisoning.
Total Learning Hours: 5 Hours **Step-1: Description of the content: (1 Hour 30 Minutes)** The teacher will explain the historical Umbrella murder case of poisoning. The student will critically analyse the clinical toxicological aspect of the case. **Step-2: Preparation of the Content: (1 Hour 30 Minutes)** The student will prepare a script focusing on the role of a forensic expert in the diagnosis of the case. The teacher will suggest modification, if any, in the script. **Step-3: Role Play or video case: (1 Hour30 Minutes)** The student will play the role or video case of a forensic expert in the diagnosis of the case. **Step-4: Recording of the Content: (30 Minutes)** The activity will be recorded in the practical record book.
Experiential-Learning Learning 9.4: Factors modifying the action of poison.
Total Learning Hours: 4 Hours **Step-1: Explanation of the content: (1Hour)** The teacher will explain the factors modifying the action of poisons and dose response relationship of poisons. The teacher will assign 2 cases of poisoning from OPD/IPD or nearby govt hospital to the student. **Step-2: identification of the poisoning case: (1 Hour30 Minutes)** The student will identify the form/type/route of administration/mechanism of action and route of elimination of the case. **Step-3: Description of poisoning case : (1 Hour)** The student will describe the factors modifying the action of poison like dose, form, combination and general condition of the body etc.

Step-4: Recording of the Content: (30 Minutes) Activity will be recorded in the logbook.
Experiential-Learning Learning 9.5: Preparation of Case studies of clinical toxicology.
Total Learning Hours: 4 Hours **Step-1: Assigning the topic: (30 Min.)** The teacher will assign the case studies to be prepared to the students. **Step-2: Blended learning session: (2 Hr.)** The student will compile and prepare case studies of clinical toxicology through various modes. **Step-3: Presentation of the Content: (1 Hours)** The student present the cases in the class, the teacher will rectify if needed. **Step-4: Recording of the Content: (30 Min.)** The activity will be recorded in logbook.
Experiential-Learning Learning 9.6: Poison control centres and their functions.
Total Learning Hours: 5 Hours **Step-1: Description of the Topic: (2 Hours)** The teacher will describe instructions and functions of various poison control centres **Step-2: Recording of the Content: (1 Hour)** The student note the instructions, functions and SOP and all these record in logbook **Step-3: Presentation of the Content: (2 Hours)** The student presents all the content in the class under the guidance of teacher

Experiential-Learning Learning 9.7: FSSAI and their roles.
Total Learning Hours: 5 Hours **Step-1: Description of the Topic: (2 Hours)** The teacher will describe about FSSAI and their roles **Step-2: Role-play of Food Safety Officer: (2 Hour)** The student will role play of Food Safety Officer emphasizing upon the monitoring of manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption as per standards prescribed by FSSAI.. **Step-3 Recording of the Content: (1 Hour)** The activity will be recorded in the practical record book.
Experiential-Learning Learning 9.8: Visit to various agencies, control centres, and appreciate their services and functioning.
Total Learning Hours: 6 Hours **Step-1: Visit to Poison Control Centres or Agencies: (2 Hour)** The student will visit nearest poison control centres or agencies. **Step-2: identification of the poisoning case: (2 Hour)** The student learn the functions and SOPs of the centres by the expert **Step-3: Recording of the Content: (1 Hour)** All the things record in log book. **Step-4: Presentation of the Content: (1 Hour)** 4. All the things record in log book will be presented in the class and discussed with the teacher
Modular Assessment

Assessment	**Hour**

Formative Assessment: 6 Hours **Instructions—**Conduct a structured Modular assessment. This module's assessment will be worth 75 marks. 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. **1. Viva/short questions (30 marks):** Viva will be conducted by the teacher, and 15 questions (2 marks each) covering all units will be asked. Or 3 short questions (5 marks each): The student will be given 3 short answer questions covering all units. **2. Practical (30 Marks):** 3 Practical from units 1, 2 & 4 for 10 Marks each **3. Present a case study/ prepare a case report (15 Marks)** Present a case study in the seminar or prepare a case report activity from Units 3. Or Any practical in converted form can be taken for assessment (40 Marks). and any experiential work, such as portfolio/ reflections/ presentations, can be taken as an assessment (35 Marks)	6
Module 10 : سموم کی تقسیم Samoom ki Taqseem (Classification of Poisons)	
Module Learning Objectives (At the end of the module, the students should be able to) Classify the poisons Compare different poisons	
Unit 1 10.1 سموم کی تقسیم Samoom ki Taqseem (Classification of Poisons) 10.1.1. Unani classification 10.1.2. Modern Classification 10.1.3. Comparative studies of poisons: Organics vs. inorganics, Heavy metals and metalloids, & Pesticides, solvents, and industrial chemicals	

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,28,29,30,42,43,101,104,110						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO1,CO4	Describe the concept of poison and its classification based on modern scientific principles, including source, action, and chemical composition.	1	Lecture	CC	Knows-how	DIS,SDL,L&GD,TUT
CO1,CO4	Demonstrate, collect, prepare and document at least 10 poisonous plants for a herbarium.	5	Practical10.1	PSY-SET	Shows-how	DIS,D,SDL
CO1,CO4	Identify various poisons on the basis of morphological features.	6	Experiential-Learning10.1	CE	Does	D,SDL,DIS,PrBL,PAL
CO1	Identify various types of poisoning based on the clinical features presented by patients in an outpatient department (OPD) setting.	7	Experiential-Learning10.2	AFT-RES	Does	CBL,DIS,FV
CO1,CO4	Differentiate between various categories of poisons such as corrosive, irritant, systemic & environmental poisons, and describe their mechanisms of action.	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD
CO1,CO4	Analyse the classification of poisons based on their effect on specific organs, including neurotoxic, hepatotoxic, nephrotoxic, and hematotoxic poisons.	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD
CO1,CO4	Illustrate the role of poisons in forensic and clinical toxicology by categorising them according to intent (homicidal, suicidal, accidental, occupational).	1	Lecture	CC	Knows-how	L&PPT ,L&GD,L
CO1,CO4	Compare the classification systems of poisons as used by Unani physicians with modern toxicological classifications.	5	Practical10.2	CAN	Shows-how	PrBL,LS

CO1,CO4	Describe the concept of poisons in the context of the Unani system of medicine, including the classification based on humoral theory (hot, cold, dry, moist) and how this influenced treatment approaches.	1	Lecture	CC	Knows-how	L,L&GD,L&PPT

Practical Training Activity

Practical Training 10.1 Preparation of Herbarium.

Total Learning Hours: 5 Hours

Step-1: Description of the Topic: (1 Hour)

The teacher will describe the method of collection, preparation, and documentation of at least 10 poisonous plants for a herbarium.

Student will analyse the toxic principles of each plant, their toxic effects, and historical or medical significance and Identify at least 10 poisonous plants commonly found in nearby area.

Step-2: collection of specimen: (2 Hour)

Collect the plant's toxic parts and clean it carefully to remove dirt and debris without damaging the plant.

Step-3 Preparation of Herbarium: (2 Hour)

Place the specimens between newspapers or blotting paper for pressing, ensuring no overlap. Mount each dried specimen on a herbarium sheet using adhesive. Label the sheet with the following details: Botanical name Common name, Family, Habitat and geographical distribution, Toxic part(s) of the plant, Toxic compound(s) present, Mode of toxicity, Historical or medicinal significance and Date and location of collection.

Practical Training 10.2 Moden and Unani Classification.

Total Learning Hours: 5 Hours

Step-1: comparative study of classification of Poisons : (1 Hour 30 Minutes)

Students will critically compare the classification systems of poisons as used by Unani physicians with modern toxicological classifications, identifying similarities, differences, and their implications for current toxicological practices.

Step-2: Observation and Study: (1Hour 30 Minutes)

Study the writings of prominent Unani physicians such as Ibn Sina (*Avicenna*), Al-Razi (*Rhazes*), and Ibn Al-Baytar, focusing on their classification of poisons, based on sources (e.g., animal, plant, mineral), effects (e.g., lethal, paralytic, corrosive), and methods of administration.

Step-3 Exploration of Classification: (1 Hour)

Explore current toxicological classification systems based on modern scientific principle

Step-4: Recording of Comparative Study: (1 Hour)

Record a side-by-side comparison of the two classification systems, focusing on principles, Categories, and Applications

Experiential Learning Activity

Experiential-Learning Learning 10.1: Poisons and their morphological features.

Total Learning Hours: 6 Hours

Step-1: Description of the Topic: (2 Hour)

Students will participate in a guided field visit or lab session where they will observe a variety of poisonous plants. Each student will be assigned specific plants to identify and categorize based on their morphological features (e.g., leaf shape, flower type, bark texture, fruit appearance, etc.).

Step-2: Identification of the content: (1Hour 30 Minutes)

Students will learn to recognize key identification features of toxic plants, such as the presence of toxins (e.g., alkaloids, glycosides), distinctive physical traits (e.g., thorns, unique leaves), and any associated warnings (e.g., red coloration in berries, aromatic oils).

Step-3 categorization of the content: (1 Hour 30 Minutes)

Students will categorize poisonous plants into different families or groups (e.g., Solanaceae, Euphorbiaceae, Apocynaceae) based on their observed morphological features. They will record the plant's scientific name, common name, and toxic properties (e.g., symptoms of poisoning, lethal dose).

Step-3: documentation of content: (1 Hour)

Each plant will be photographed to document its appearance from different angles (e.g., leaf, flower, stem, fruit). The photographs will serve as visual aids for future reference and the seminar presentation.

Experiential-Learning Learning 10.2: Various 7 cases of different types of poisoning based on the clinical feature.

Total Learning Hours: 7 Hours

Step-1: Description of the Topic: (2 Hours)

The student will identify various types of poisoning based on the clinical features presented by patients in an outpatient department (OPD) setting. The student will learn to recognize key symptoms, correlate them with specific poisons, and understand the clinical management of poisoning cases.

Step-2: Clinical Observation: (2 Hours)

The student will observe actual poisoning cases in the OPD or simulated case scenarios, where patients exhibit clinical signs of poisoning (e.g., altered mental status, gastrointestinal symptoms, respiratory distress, skin manifestations).

Step-3 Identification of the cases: (2 Hours)

Based on patient history and presenting symptoms (e.g., nausea, vomiting, seizures, sweating, dilated pupils, or altered consciousness), the student will identify potential types of poisoning (e.g., organophosphates, cyanide, alcohols, heavy metals).

Step-4: Interpretation of cases: (1 Hour)

Students will learn to differentiate between poisons with overlapping symptoms, emphasizing the importance of detailed patient history, physical examination, and clinical tests.

Modular Assessment

Assessment	**Hour**
Formative Assessment: 2 Hours **Instructions -** Conduct a structured Modular assessment. The assessment will be for 25 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. **1. Viva (20 marks):** The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked.	2

2. Short Answer Questions (05 marks): The student will be given 1 Short Answer Question from unit 01 for 5 marks. Or Any practical in converted form can be taken for assessment (25 Marks). Or any of the experiential as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	

Semester No : 4

Module 11 : مسمّمات کا تعارض اور ان کے اثرات Musammimat ka Ta'aruz aur Asarat (Exposure and effects of Toxicants))

Module Learning Objectives

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

Describe sources and routes of exposure and their effects.

Identify the effects of toxicants.

Describe the mechanism of action of the effects of toxicants

Unit 1 11.1 مسمّمات کا تعارض Musammimaat ka Ta'aruz (Exposure of Toxicants)

11.1.1. Sources of exposures

11.1.1.1. Domestic

11.1.1.2. Occupational

11.1.1.3. Agricultural/Horticultural

11.1.1.4. Industrial

11.1.1.5. Accidental

11.1.2. Routes of Exposure

11.1.2.1. Enteral

11.1.2.2. Parenteral

References: 21,26,28,29,30,34,42,43,44,45,46,52,54,56,63,65,73,75,76,77,93,101,102

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Define the concept of toxicant exposure in various contexts, such as domestic, agricultural, occupational, industrial and accidental scenarios.	2	Lecture	CC	Knows-how	ML,SDL,L&GD,PL
CO1,CO2, CO3	Identify at least 5 poisons from various sources and demonstrate their exposure through audio visual or graphical/pictorial aids	6	Practical11.1	PSY-SET	Shows-how	D,PrBL,PER
CO1,CO2, CO3	Assess the measures adopted by the personnel involved in industries and agricultural fields to combat with the toxicological effects.	4	Experiential-Learning11.1	PSY-ADT	Does	SDL,BS,FV
CO1,CO2, CO3	Describe the various routes of toxicant exposure, including inhalation, ingestion, dermal absorption and injection.	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD
CO1,CO2	Present a case of domestic exposure of toxicants.	3	Experiential-Learning11.2	PSY-MEC	Does	PER,DIS,D
CO1,CO2	Present a case of occupational exposure of toxicant.	3	Experiential-Learning11.3	PSY-MEC	Does	D,PER,DIS
CO1,CO2	Present a case of industrial exposure of toxicant.	4	Experiential-Learning11.4	PSY-MEC	Does	D,PER,DIS
CO1,CO2	Present a case of agricultural exposure of toxicant.	4	Experiential-Learning11.5	PSY-MEC	Does	DIS,PER,D
Unit 2 11.2 مسمّمات کے اثرات Musammimaat ke Asaraat (Effects of Toxicants) 11.2.1. Types of effects/Actions						

11.2.1.1. Local vs Systemic

11.2.1.2. Acute vs. chronic

11.2.1.3. Organ-specific

11.2.1.4. Modifying factors

References: 21,26,28,29,30,34,42,43,44,45,46,52,54,59,63,65,73,75,76,77,93,101,102

3A	3B	3C	3D	3E	3F	3G
CO1,CO2	Define the concept of toxic effects and explain the distinction between local, systemic, acute, and chronic effects of toxicants on the human body.	2	Lecture	CC	Knows-how	L&GD,PAL,SDL,D,L
CO1,CO2	Demonstrate the effect of various poisonings like irritant, neurological, GI, cardiac, etc. through audiovisual or graphical/pictorial aids.	6	Practical11.2	PSY-SET	Shows-how	SDL,PBL,BS,D
CO1,CO2	Present a case of accidental exposure of toxicant.	4	Experiential-Learning11.6	PSY-MEC	Does	DIS,PER,D
CO1,CO2	Describe the types of toxicant actions, including direct toxicity (e.g., corrosive effects), indirect toxicity (e.g., metabolic disruption) and specific organ toxicity (e.g., hepatotoxicity, nephrotoxicity).	1	Lecture	CK	Knows-how	L,L&PPT ,L&GD
CO1,CO2	Define the key factors that modify the effect of toxicants, including dose, route of exposure, duration, and chemical composition, and explain their role in determining toxicity	1	Lecture	CC	Knows-how	L&PPT ,L&GD,L

Unit 3 11.3 ادویاتی تسمم Adviyati Tasammum(Drug Toxicity)

11.3.1. Prescription and over-the-counter drugs

11.3.2. Drug-drug interactions and polypharmacy

References: 21,26,28,29,30,34,42,43,44,45,46,52,54,59,63,65,73,75,76,77,93,101,102

3A	3B	3C	3D	3E	3F	3G
CO2,CO4	Define drug toxicity and differentiate between the toxic effects of prescription and over-the-counter (OTC) drugs, emphasising common drugs that can cause toxicity when misused or overdosed	1	Lecture	CC	Knows-how	PAL,BS,L,L&GD,L&PPT
CO4	Demonstrate the overdose effects of any 5 over-the-counter drugs.	8	Practical11.3	CAN	Shows-how	CBL,DIS,D
CO4	Present at least 2 cases of Adverse Drug Reactions attending OPD/IPD.	4	Experiential-Learning11.7	PSY-SET	Does	D
CO1,CO2	Describe the factors that contribute to drug toxicity, including dosage, individual susceptibility, and pre-existing conditions, and explain how they influence the severity of adverse drug reactions.	1	Lecture	CC	Knows-how	L&GD,L,L_VC,L&PPT
CO1,CO2	Discuss the concept of polypharmacy, particularly in elderly populations, and explain how the concurrent use of multiple medications can lead to adverse effects and increased toxicity.	1	Lecture	CC	Knows-how	L,L_VC,L&GD,L&PPT

Practical Training Activity

Practical Training 11.1 Identify the Poisons from various sources and demonstrate their exposure.

Total Learning Hours: 6 Hours

Step-1: Description of the Topic: (1 Hour)

The teacher will a lot at least 5 poisons from various sources in the nearby areas.

Step-2: Collection and Identification: (2 Hour)

The student will collect and identify at least 5 poisons from various sources in nearby areas.

Step-3 Demonstration of the Poisons: (2 Hours)

The student will demonstrate their exposure through audio-visual or graphical/pictoral aids.

Step-4: Recording and review: (1 Hour)

The activity will be recorded in the practical record book.

Practical Training 11.2 Demonstration of effect of various poisonings like irritant, neurological,GI,cardiac etc.

Total Learning Hours: 6 Hours

Step-1: Discussion of the various poisonings: (2 Hours)

The teacher will discuss the effect of various poisonings like irritant, neurological, GI, cardiac, etc.

Step-2: Prearation of ppt or digital content: (2 Hours)

The student will prepare a power point or create digital content presenting the effects.

Step-3 Demonstration of poisoning: (2 Hours)

The student will demonstrate types of poisoning (irritant, neurological, gastrointestinal, cardiac, etc.) with the help of the content prepared by him.

The student will use audiovisual or graphical materials such as animations, diagrams, or live demonstrations using clinical cases or model systems.

Practical Training 11.3 Adverse Drug Reactions.of over-the-counter drugs.

Total Learning Hours: 8 Hours

Step-1: Description of over dose effect: (2 hour 30 Minutes)

The teacher will discuss about the overdose effects of certain over-the-counter drugs.to the student.

Step-2: Assignment of the 4 cases: (1Hour)

The teacher will assign 4 cases of OTC overdose

Step-3: Identification of drugs over dose effect and management: (2 Hour 30 Minutes)

The sudent will identify the drug involved in the reaction and note the detailed description of reaction. The student will also observe the supportive treatment given and its outcome **Step-4: Presentation and recording of the Content : (2 Hour)** The student will present the cases in class. The activity will be recorded in practical record book.
Experiential Learning Activity
Experiential-Learning Learning 11.1: Assess the practices of preventive measures adopted by the personnel involved in industries and agricultural fields to combat with the toxicological effects.
Total Learning Hours: 4 Hours **Step-1: Plan of a Visit to Industry or Agriculture: (30 Minutes)** The teacher will plan a visit for the student to a nearby industry or a agriculture field. **Step-2: Visit to Industry or Agriculture: (2 Hour)** The student is expected to visit the industry or agricultural fields **Step-3: Study of the measures: (1 Hour)** The student will study the measures adopted by the industries to combate the toxicological effects. **Step-4: Recording and review: (30 Minutes)** The activity will be recorded in the log book.
Experiential-Learning Learning 11.2: Case study on the domestic exposure of toxicants.
Total Learning Hours: 3 Hours **Step-1: Assignment of domestic exposure of Toxicant: (1 Hour)** The teacher will assign a case of domestic exposure of toxicant.

Step-**2: Examination and Diagnosis: (1Hour)** The student will examine the cases and try to diagnose the exposure of the toxicant. **Step-3: Recording , Presentation and Review: (1 Hour)** The student will record the case in record book and present the case in the class. The other students will raise the queries and the student will answer. The teacher will rectify the content if required.
Experiential-Learning Learning 11.3: Case study on the occupational exposure of toxicant.
Step-1: Assigning the topic: (30 Min.) The teacher wills assign a case of occupational exposure of toxicant. **Step-2: Examination and diagnosis of the case: (1 Hours)** The student will examine the cases and try to diagnose the exposure of the toxicant. **Step-3: Presentation of case sheet: (1 Hour)** The student will present the case in the class. The other students will raise the queries and the student will answer. The teacher will rectify the content if required. **Step-3: Recording of the activity: (30 Min.)** The student will record the case in record book and present the case in the class.
Experiential-Learning Learning 11.4: Case study on the industrial exposure of toxicant.
Total Learning Hours: 4 Hours **Step-1: Assignment of domestic exposure of Toxicant: (1 Hour)** The teachers will assign a case of industrial exposure of toxicant. **Step-2: Examination and Diagnosis: (1Hour 30 Minutes)**

The student will examine the cases and try to diagnose the exposure of the toxicant. **Step-3: Recording, presentation and Review: (1 Hour 30 Minutes)** The student will record the case in record book and present the case in the class. The other students will raise the queries and the student will answer. The teacher will rectify the content if required.
Experiential-Learning Learning 11.5: Case study on the agricultural expsure of toxicant.
Total Learning Hours: 4 Hours **Step-1: Assignment of domestic exposure of Toxicant: (1 Hour)** The teachers will assign a case of agricultural exposure of toxicant. **Step-2: Examination and Diagnosis: (1Hour 30 Minutes)** The student will examine the cases and try to diagnose the exposure of the toxicant. **Step-3: Recording, presentation and Review: (1 Hour 30 Minutes)** The student will record the case in record book and present the case in the class. The other students will raise the queries and the student will answer. The teacher will rectify the content if required.
Experiential-Learning Learning 11.6: Case study on the accidental exposure of toxicant.
Total Learning Hours: 4 Hours **Step-1: Assigning of the case: (30 Minutes)** The teachers will assign a case of accidental exposure of toxicant. **Step-2: Examination and Diagnosis of the case: (1 Hour 30 Minutes)** The student will examine the cases and try to diagnose the exposure of the toxicant. **Step-3: Recording and Presentation: (1 Hour 30 Minutes)**

The student will record the case in record book and present the case in the class..

Step-4: Query and rectification: (30 Minutes)

The other students will raise the queries and the student will answer.

The teacher will rectify the content if required.

Experiential-Learning Learning 11.7: Preparation of case records of Adverse Drug Reactions.

Total Learning Hours: 4 Hours

Step-1: Description of the cases of Drug Reaction: (1 Hour)

The teacher will discuss about the reactions of various drugs and assign few cases of drug reactions to the student.

Step-2: Identification of drug in the involvement of reaction: (1Hour)

The student will identify the drug involved in the reaction and note the detailed description of reaction.

Step-3: Observation of Supportive reatment (1 Hour)

The student will also observe the supportive treatment given and its outcome

Step-4: Presentation and recording of the Content: (1 Hour)

The student will present the cases in class.

The activity will be recorded in practical record book.

Modular Assessment

Assessment	Hour
Formative Assessment: 4 Hours **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.	4

1. Viva (20 marks): The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked. **2. Case study / Report writing (10 marks):** The student will present a case study or prepare a report on cases from 2 and 3 units for 5 marks each. **3. Experiential learning activity (20 Marks):** The student will visit the nearby hospital or their hospital ward to observe and prepare a report of the cases of drug interaction or any toxicant exposure case. Or Any practical in converted form can be taken for assessment (25 Marks).and any of the experiential as portfolio/reflections/presentations, can be taken as an assessment (25 Marks)	

Module 12 : تشخیص سمیت Tashkhees e Sammiyat (Diagnosis of poisoning)

Module Learning Objectives

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

Describe the diagnosis of poisoning.

Identify the clinical signs and symptoms of poisoning.

Apply laboratory tools for the assessment condition of the patient and the diagnosis of poisoning.

Unit 1 12.1 معالجاتی تشخیص Moalajati Tashkhees (Clinical Assessment)

12.1.1. History taking

12.1.2. Physical examination

12.1.3. Circumstantial evidence

12.1.4. Experiment on animals

References: 21,26,28,29,30,34,42,43,44,45,46,47,50,54,59,63,65,73,75,76,77,93,101,102

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

CO2,CO3	Describe the importance of history-taking in the diagnosis of poisoning, including the information about substance type, dose, route and duration of exposure.	1	Lecture	CC	Knows-how	L,L&GD,L&PPT
CO2,CO3	Demonstrate at least 5 classical cases of poisoning through history taking, physical examination and discuss the circumstantial evidences.	5	Practical12.1	PSY-GUD	Shows-how	SDL,PER
CO2,CO3	Diagnose of poisoning on the basis of Nazariyae Akhlat (humoral theory).	5	Experiential-Learning12.1	PSY-ORG	Does	D
CO2,CO3	Discuss the systematic approach to clinical examination in a suspected case of poisoning, like evaluation of vital signs, mental status and physical findings indicative of specific toxidromes, etc.	1	Lecture	CC	Knows-how	L&GD,L_VC,L&PPT
CO2,CO3	Describe the characteristic signs and symptoms associated with different types of poisons, such as respiratory depression, pupil changes, skin manifestations and cardiovascular abnormalitie,s etc.	1	Lecture	CC	Knows-how	L&PPT ,L,L&GD
CO2,CO3	Discuss the role of circumstantial evidence, such as the presence of empty containers, chemical residues or signs of environmental exposure, in corroborating the diagnosis of poisoning.	1	Lecture	CC	Knows-how	L&GD,L,L&PPT
CO2,CO3	Illustrate tagayyurate Mizaj wa akhlat in poisoning cases, e.g. effect of haar and barid samoom on mizaj and akhlat.	1	Lecture	CC	Knows-how	L&PPT ,L,L&GD
CO1,CO2, CO3	Identify the role of circumstantial evidence in corroborating the diagnosis of poisoning.	5	Experiential-Learning12.2	PSY-GUD	Does	L&GD,L,L&PPT

CO1,CO2, CO3	Apply a systematic approach to the clinical examination of suspected poisoning cases.	5	Experiential-Learning12.3	AFT-RES	Does	BS,PL,DIS
Unit 2 12.2 معملی تشخیص Ma'mali Tashkhees (Laboratory Assessment) 12.2.1. Description of Forensic Science Laboratory (FSL) 12.2.3. SOPs for sample collection, preservation & transportation 12.2.3. Laboratory analysis of Vomitus, Stomach wash, Blood & Urine **References:** 21,26,28,29,30,34,42,43,44,45,46,47,48,52,54,59,63,65,73,75,76,77,79,93,101,102,104						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO1,CO2, CO3	Describe the significance of urine analysis in the diagnosis of poisoning, focusing on changes in colour, odour, volume and turbidity as diagnostic markers.	1	Lecture	CC	Knows-how	L&PPT ,L&GD,L
CO2,CO3	Demostrate the changes in Qaroora in case of sammiyat and corelate them with the changes in mizaj.	5	Practical12.2	CAN	Shows-how	SDL,DL,PAL,BS,DIS
CO2,CO3	Demostrate the toxicological laboratory analysis of blood.	5	Practical12.3	PSY-MEC	Does	DL
CO2,CO3	Compile and present the functioning of the Forensic Science Laboratory.	6	Experiential-Learning12.4	CAN	Does	LRI,PAL,FV,RLE,SDL

CO2,CO3	Demostrate *Muaina i Nabz* in case of sammiyat and corelate them with the changes vital functions of the body.	5	Experiential-Learning12.5	PSY-GUD	Does	CBL,D-BED,D,SDL
CO1,CO2, CO3	Discuss the role of laboratory assessment in the diagnosis of poisoning, focusing on the analysis of biological samples like vomitus, stomach wash, blood and urine, etc.	1	Lecture	CC	Knows-how	L&PPT ,L&GD,L
CO1,CO2, CO3	Describe the structure, functions and significance of Forensic Science Laboratories (FSL) in the cases of poisoning.	1	Lecture	CC	Knows-how	L&PPT ,L,L&GD
CO1,CO2, CO3	Outline the standard operating procedures (SOPs) for collecting, preserving and transporting biological samples.	1	Lecture	CC	Knows-how	L&PPT ,L,L&GD
CO1,CO2, CO3	Discuss the techniques used in laboratory analysis of vomitus, stomach wash, blood, and urine, including qualitative and quantitative methods.	1	Lecture	CC	Knows-how	L&GD,L,L&PPT
CO1,CO2, CO3	Demonstrate the role of urine analysis in diagnosis of poisoning.	5	Practical12.4	PSY-MEC	Shows-how	CBL,CD,D

Practical Training Activity

Practical Training 12.1 Demonstration of cases of poisoning.

Total Learning Hours: 5 Hours

Step-1: Description of the Topic: (1 Hour 30 Minutes)

The Teacher will guide the students through the process of history-taking in suspected poisoning cases in a clinical setting, emphasizing the importance of obtaining accurate history in diagnosing poisoning and determining the appropriate treatment.

Step-2: Conduct History taking: (1 Hour)

Students will conduct history-taking in real-time, focusing on the key components (exposure, substance, dose, route, and timing).

Step-3 Practice of Recording: (1 Hour)

Students will practice recording a detailed history of poisoning, including exposure history, the suspected toxin, and clinical findings

Step-4: Clinical Discussion: (1 Hour 30 Minutes)

Students will engage in a clinical discussion based on the history taken to formulate a differential diagnosis and line of treatment for the case.

Practical Training 12.2 Imtehane Qaroora in case of sammiyat and correlation with the changes in mizaj.

Total Learning Hours: 5 Hours

Step-1: Discussion of the Topic: (1 Hour 30 Minutes)

The teacher will discuss about the examination of Qaroora in detail in terms of diagnosis of poisoning cases. Assessment of Mizaj on the basis of changes in Qaroora will also be discussed in detail.

Step-2: Observation of the sample: (1 Hour)

The student will observe the different stored samples of Qaroora available in the lab.

Step-3 Correlation of the changes with Mizaj: (1 Hour 30 Minutes)

The student will try to correlate the physical and microscopic change with the mizaj of the case.

Step-4: Description of Correlation: (1 Hour)

The student will describe its correlation in front of teacher.

The teacher will rectify, if required.

Practical Training 12.3 Practical demonstration of toxicological laboratory analysis of blood.

Total Learning Hours: 5 Hours

Step-1: Description of the Topic: (1 Hour 30 Minutes)

The teacher will describe the toxicological laboratory analysis of blood and will also describe the method and forensic examination technique of laboratory analysis of blood.

Step-2: Sample Collection and Analysis: (2 Hour)

The student will visit the institutional pathology lab or nearby forensic lab and observe the toxicological laboratory analysis of blood.

Step-3 Comparative study: (1 Hour 30 Minutes)

The student will perform the toxicological analysis of blood of minimum two cases and record the inferences in the practical record book.

Practical Training 12.4 Demonstration of the role of urine analysis in diagnosis of poisoning.

Total Learning Hours: 5 Hours

Step-1: Description of the Topic: (1 Hour 30 Minutes)

The student is expected to understand the role of urine analysis in diagnosing poisoning. This includes identifying changes in the composition, colour, odour and appearance.

The teacher will provide an overview of how urine analysis was traditionally used in the diagnosis of poisoning in ancient and era.

Step-2: Sample Collection and Analysis: (1Hour 30 Minutes)

The students will collect urine samples from patients and analyse the colour, odour, turbidity and specific gravity to analyse the poisoning e.g dark colour urine in heavy metals and garlic odour, in organophosphate

Step-3 Comparative study: (1 Hour)

Students will compare traditional methods of urine analysis (colour, odour, sediment) with modern toxicological testing techniques).

Step-4: Documentation of the Findings: (1 Hour)

Students will document their findings and reflections on the role of urine analysis in diagnosing poisoning, both historically and in a modern clinical setting

Experiential Learning Activity

Experiential-Learning Learning 12.1: Diagnosis of poisoning on the basis of Nazariyae Akhlat (humoral theory).

Total Learning Hours: 5 Hours

Step 1: Introduction to Unani Concepts of Poisoning (1 Hour)

The student will study the Unani concepts of diagnosing poisoning, focusing on how the humoral theory (the balance of four bodily fluids: blood, phlegm, yellow bile, and black bile) was used to explain changes in temperament due to poisoning.

Step 2: Behavioural and Mood Changes in Poisoning (1 Hour 30 minutes)

Students will search how changes in mood or behaviour, such as aggression, confusion, delirium, or drowsiness, were historically linked to specific poisons based on humoral imbalance.

Step 3: Identifying Physical Symptoms of Poisoning (1 Hour 30 minutes)

Students will identify symptoms such as flushed skin (excessive blood), excessive sweating and drooling (sign of phlegm), or sudden collapse (possibly linked to black bile) in the context of poisoning. They will record these observations and relate them to specific poisons.

Step 4: Documenting Findings & Case Reflections (1 Hour)

Students will document their observations, reflections, and findings from the clinical simulations and case studies in a logbook.

Experiential-Learning Learning 12.2: Circumstantial evidence in the diagnosis of poisoning.

Total Learning Hours: 5 Hours

Step 1: Introduction to Circumstantial Evidence in Poisoning Cases (1 Hour 30 minutes)

The student is expected to understand and analyze how circumstantial evidence, such as empty containers, chemical residues, or signs of environmental exposure, plays a critical role in corroborating the diagnosis of poisoning.

Step 2: Analyzing a Simulated/Real Poisoning Case (1 Hour 30 minutes)

Students will analyze a simulated or real case of poisoning where circumstantial evidence is crucial to diagnose the case of poisoning. in which circumstantial evidence is crucial to diagnosing the poisoning.

Step 3: Identifying & Collecting Circumstantial Evidence (1 Hour)

Students will identify and collect circumstantial evidence, including Empty medication bottles, containers of agricultural chemicals, or food with unusual smells, visible signs like powdery residues, spilled liquids, or charred remains and environmental clues such as poor ventilation or suspicious materials.

Step 4: Systematic Documentation for Forensic & Clinical Correlation (1 Hour)

Students will document findings systematically for forensic and clinical correlation.
Experiential-Learning Learning 12.3: Systematic approach to the clinical examination of suspected poisoning cases.
Total Learning Hours: 5 Hours **Step 1: Introduction to Poisoning Cases (1 Hour)** The teacher will describe a systematic approach to the clinical examination of suspected poisoning cases. This includes evaluating vital signs, assessing mental status, and identifying physical findings indicative of specific toxidromes to guide diagnosis and management. Step 2: **Group Discussion Assessment of Vital Signs (1 hour 30 minutes)** A group discussion on the importance of a structured clinical approach in suspected poisoning cases will be held focusing on the assessment of vital signs (e.g., heart rate, respiratory rate, blood pressure, and temperature), evaluation of mental status (e.g., level of consciousness, orientation, agitation, or sedation) and observation of physical findings (e.g., pupil size, skin changes, odours, or other toxidrome-specific signs). Step 3: **Observation of Physical Finding and Wrap-up and Practical Application (2 hours 30 minutes)** This activity ensures that the students develop practical skills in evaluating poisoning cases, fostering a deeper understanding of toxicological assessment and patient management in clinical settings.
Experiential-Learning Learning 12.4: Visit to the Forensic Science Laboratory.
Total Learning Hours: 6 Hours **Step 1: Planning of Visit to FSL (1 Hour 30 minutes)** The teacher will plan a visit for the student to the nearby Forensic Science Laboratory (FSL) **Step 2**: **Observation of various sections of FSL (2 Hours 30 minutes)** The student will visit FSL and critically observe the various sections, their machinery and procedures done in each section for the diagnosis of poisoning. **Step 3**: **Recording of crucial point (1 Hour)** The student will note the crucial points of forensic importance in his practical record book. **Step 4: Presentation of Experience (1 Hour)**

The student will also present his experience with colleagues and the teacher.	
Experiential-Learning Learning 12.5: Demostration of *Muaina i Nabz* in case of sammiyat and corelate them with the changes vital functions of the body.	
Total Learning Hours: 5 Hours **Step 1: Introduction to Muaina-i-Nabz in Sammiyat: (1 Hour 30 minutes)** The teacher will discuss about the *Muaina i Nabz* in case of sammiyat and corelate them with the changes vital functions of the body in detail. **Step 2: Practical Pulse Examination in Poisoning Cases: (1 Hour 30 minutes)** The student will examine the Nabz of cases of sammiyat and observe its changes, if any. **Step 3: Correlation of Pulse Changes with Vital Functions: (1 Hour)** The student will try to correlate these changes with the changes in vital functions like respiratory, cardiac and nervous changes. **Step 4: Documentation of Observations: (1 Hour)** The observation will be recorded in log book.	
Modular Assessment	
Assessment	**Hour**
Formative Assessment: 4 Hours **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. **1. Viva (20 marks):** The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked. **2. Practical (10 marks):** 1 Practical from units 1 & 2 for 10 Marks. **3. Case-Based Scenario (20 Marks):** Demonstration of any one case from unit 1. Or	4

Any practical in converted form can be taken for assessment (25 Marks).and any of the experiential as portfolio/reflections/presentations, can be taken as an assessment (25 Marks)	

Semester No : 5

Module 13 : مسمماتی ہنگامیت کا بندوبست Musammimati Hangamiyat ka Bandobast aur Tafreet Miqdariyat (Management of Toxicological Emergencies and Overdose Scenarios

Module Learning Objectives

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

Describe the decontamination procedures of various toxicants and the application of specific antidotes.

Conduct the studies related to epidemiological toxicology.

Unit 1 13.1 رفع آلودگی Rafa'e Aloodgi (Decontamination)

13.1.1. Application of Vomiting, Gastric lavage, Purgation, Urination, Perspiration, Cupping, Recent techniques in the Decontamination of:

13.1.1.1. Inhaled Toxicants

13.1.1.2. Injected Toxicants

13.1.1.3. Contact Toxicants

13.1.1.4. Ingested Toxicants

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,26,28,29,30,34,42,43,44,45,46,50,51,52,72,73,75,91,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Describe decontamination and its importance as a primary step in managing poisoning cases, reducing the absorption of toxicants and preventing further harm.	1	Lecture	CC	Knows-how	L,L&PPT ,DIS

CO1,CO2, CO3	Demonstrate of decontamination procedures for ingested toxicants, by practicing gastric lavage.	5	Practical13.1	PSY-GUD	Shows-how	D-BED,L&GD,L_VC,SIM
CO1,CO2, CO3	Apply the principles and techniques of decontamination for inhaled toxicants.	6	Experiential-Learning13.1	PSY-ORG	Does	BS,RLE,CBL
CO2,CO3	Illustrate the Management of Mucosal Toxicant exposure.	6	Experiential-Learning13.2	PSY-ORG	Does	D-BED
CO1,CO2, CO3	Demonstrate the effective decontamination of contact toxicants.	5	Practical13.2	PSY-GUD	Shows-how	IBL,LS,TPW
CO1,CO2, CO3	Describe and value the specific methods of decontamination for inhaled toxicants, such as removal from the toxic environment, oxygen therapy and ventilatory support and their significance in cases of respiratory poisoning.	1	Lecture	AFT-VAL	Knows-how	L&GD,L&PPT ,L
CO1,CO2, CO3	Discuss the approaches to decontaminating contact toxicants, including skin washing, use of neutralisers and proper disposal of contaminated clothing.	1	Lecture	CC	Knows-how	L&GD,L,L&PPT
CO1,CO2, CO3	Describe the methods for decontaminating ingested toxicants such as gastric lavage, activated charcoal administration and induced emesis.	1	Lecture	CC	Knows-how	L&GD,L&PPT ,L
CO1,CO2, CO3	Illustrate the decontamination of the injected poison.	7	Experiential-Learning13.3	PSY-GUD	Does	D-BED,D,RLE

Unit 2 13.2 تریاقات مخصوصہ کا استعمال Tiryaqate Makhsoosa Istemal (Use of Specific Antidotes)

13.2.1. Overview

13.2.2. Classification

13.2.3. Indications

13.2.4. Preparation

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,26,34,100,101

3A	3B	3C	3D	3E	3F	3G
CO3	Demonstrate the administration and mechanism of action of various specific antidotes in clinical toxicology.	5	Practical13.3	CE	Shows-how	PER,L&GD,DL
CO3	Demonstrate the preparation of the Universal Antidote.	5	Practical13.4	PSY-GUD	Does	DL,PT
CO1,CO2, CO3	Discuss the classification and application of antidotes based on their mechanisms of action.	1	Lecture	CC	Knows-how	L&PPT ,LS,L&GD
CO1,CO2, CO3	Describe the indications for specific antidotes to counteract the effects of poisons like heavy metals, cyanide and opioid overdose.	1	Lecture	CC	Knows-how	LS,L,PAL,SDL,L&PPT
CO1,CO2, CO3	Describe the processes involved in the preparation of chemical antidotes, including chelating agents like dimercaprol (BAL) and EDTA, emphasising their role in binding and neutralising toxic substances.	1	Lecture	CC	Knows-how	L,LS,ML,L&GD,DIS
CO1,CO2, CO3	Discuss the preparation and use of natural and universal antidotes and their significance in cases where specific antidotes are unavailable.	1	Lecture	CC	Knows-how	L&GD,L&PPT ,L

Unit 3 13.3 معاون نگہداشت Mua'win Nigahdasht (Supportive Care)

13.3.1. Removal from source

13.3.2. Maintenance of vitals

13.3.3. Ventilation

13.3.4. Good nursing care

13.3.5. Symptomatic treatment

13.3.6. Counselling

13.3.7. Others

References: 26,28,29,30,34,100,101

3A	3B	3C	3D	3E	3F	3G
CO2,CO3	Define supportive care in the context of poisoning management	1	Lecture	CC	Knows-how	L,L&GD
CO2,CO3	Demonstrate airway management and respiratory support in poisoning management.	5	Practical13.5	PSY-MEC	Does	D-BED,RLE
CO2,CO3	Assess the fluid imbalance and the patient’s hydration status in case of poisoning.	6	Experiential-Learning13.4	PSY-ORG	Does	SDL
CO1,CO2, CO3	Discuss the key components of supportive care, including airway management, respiratory support, cardiovascular stabilisation, and fluid-electrolyte balance	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD

Unit 4 13.4 مطبی مطالعہ موردات Matabi Mutale'a-e-Mauredat (Clinical Case Studies)

13.4.1. Analysis of real-world poisoning case

13.4.2. Management strategies and outcomes

References: 79,100,101,104,110

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

CO1,CO2, CO3	Discuss the Management strategies and outcomes of poisoning by giving an example of a real poisoning case.	1	Lecture	CC	Knows-how	PAL,BS,CBL,SDL
CO1,CO2, CO3	Discuss and present a research study related to poisoning cases through a journal club format.	5	Practical13.6	CE	Shows-how	JC,PER
CO1,CO2, CO3	Present case studies of household and occupational poisoning cases.	7	Experiential-Learning13.5	PSY-MEC	Does	LS,TPW,CBL
CO1,CO2, CO3	Describe the importance of historical cases of poisoning in the development of antidotes and forensic toxicology.	1	Lecture	CC	Knows-how	L&GD,L,L&PPT
Unit 5 13.5 مسمماتی وبائیت Musammimati Wabayiyat (Toxicological Epidemiology) 13.5.1. Surveillance of poisoning incidents 13.5.2. Preventive strategies **References:** 26,28,29,30,79,100,101,104,110						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO1,CO2, CO3	Describe Toxicological epidemiology and its importance in the surveillance of poisoning incidents	1	Lecture	CC	Knows-how	L&GD,ML,FC
CO1,CO2, CO3	Conduct awareness and surveillance programs of preventive strategies regarding common poisonings.	7	Experiential-Learning13.6	AFT-RES	Does	TBL,RLE,PER
CO1,CO2, CO3	Evaluate the effectiveness of toxicological epidemiology in the surveillance and assessment of high-risk populations.	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD

CO1,CO2, CO3	Discuss the role of toxicological epidemiology in developing preventive strategies such as public health interventions, regulatory measures and education to reduce toxicant exposure.	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD

Practical Training Activity

Practical Training 13.1 Practicing Gastric lavage.

Total Learning Hours: 5 Hours

Step 1: Introduction to Gastric Lavage (1 Hour)

The student is expected to understand and perform decontamination procedures for ingested toxicants, by practicing gastric lavage.

Step 2: Demonstration of Gastric Lavage Procedure (1 Hour)

The teacher will demonstrate the steps of gastric lavage using a mannequin or simulation model, focusing on proper insertion of the orogastric tube, lavage technique, and patient monitoring.

Step 3: Supervised Student Practice (Hands-on Training) (1 Hour 30 minutes)

Students will practice performing gastric lavage under supervision, ensuring they follow safety protocols to prevent complications (e.g., aspiration, oesophageal injury).

Step 4: Case-Based Learning and Problem Solving (1 Hour 30 minutes)

Students will document the process of Gastric lavage, including observations on patient response, procedural challenges, and clinical decision outcome.

Practical Training 13.2 Decontamination of contact toxicants.

Total Learning Hours: 5 Hours

Step-1: Demonstration on the topic: (1 Hours)

The teacher will demonstrate about the effective decontamination of contact toxicants, including identifying toxic substances, applying appropriate decontamination techniques, and ensuring safe handling and disposal of contaminated materials.

Step-2: Understanding and practice: (3 Hours) The student is expected to understand and demonstrate the effective decontamination of contact toxicants, including identifying toxic substances, applying appropriate decontamination techniques, and ensuring safe handling and disposal of contaminated materials. Students will practice the decontamination techniques: like immediate removal of toxic agents using water and soap, application of specific neutralizing agents. The teacher will rectify if needed. **Step-4: Recording the activity: (1 Hours)** Students will document each decontamination procedure, noting the toxicant, techniques used, and patient outcomes.
Practical Training 13.3 Use of specific antidotes in clinical toxicology.
Total Learning Hours: 5 Hours **Step 1: Introduction to Antidotes and Their Mechanisms (1 Hour)** The student is expected to understand the administration and mechanism of action of various specific antidotes in clinical toxicology. **Step 2: Clinical Case Studies and Antidote Selection (1 Hour)** The teacher will present clinical case studies involving different types of poisoning (e.g., opioid overdose, organophosphate poisoning, methanol toxicity). **Step 3: Practical Demonstration of Antidote Administration (1 Hour)** Students will identify the appropriate antidote for each case (e.g., naloxone for opioids, atropine for organophosphates, fomepizole for methanol) based on the toxic agent and clinical presentation. **Step 4: Mechanism of Action and Monitoring Patient Response (1 Hour)** The teacher will explain how specific antidotes counteract toxic effects (e.g., competitive inhibition, receptor blockade or metabolic conversion). **Step 5: Documentation, Case Review, and Q&A (1 Hour)** Students will record each antidote demonstration, including patient scenarios, antidote selection, administration details, and observed outcomes
Practical Training 13.4 Preparation, of the Universal Antidote.
Total learning Hours: 5 Hours

Step 1: Introduction to the Universal Antidote (1 Hour)

The student is expected to understand the preparation, of the Universal Antidote. The student will gain hands-on experience in the preparation of Universal Antidote in simulated clinical settings.

Step 2: Demonstration of Preparation (1 Hour 30 minutes)

The teacher will demonstrate the preparation of the Universal Antidote, focusing on accurate measurements and proper mixing techniques of activated charcoal, magnesium oxide, and tannic acid.

Step 3: Student Practice – Hands-On Preparation (1 Hour 30 minutes)

Students will prepare the antidote independently, ensuring adherence to the standard formula.

Step 4: Documentation, Review, and Assessment (1 Hour)

Students will document the preparation process of Universal Antidote.

Practical Training 13.5 Airway management and respiratory support in poisoning management.

Total Learning Hours: 5 Hours

Step 1: Introduction to Airway Management in Poisoning (1 Hour) Theteacher will describe airway management and respiratory support in poisoning management.

Step 2: Demonstration of Airway Management Techniques (1 Hour) The teacher will demonstrate the importance of securing the airway in poisoning cases, particularly when the patient presents with respiratory distress or altered mental status.

Step 3: Student Practice – Basic Airway Management (1 Hour) The student will learn to identify signs of airway compromise, such as stridor, wheezing, or cyanosis, and practice early intervention strategies to prevent hypoxia.

Step 4: Advanced Respiratory Support and Oxygen Therapy (1 Hour) Under supervision, the student will practice assessing airway patency and perform interventions, such as positioning the patient to maintain an open airway, using suction devices if needed, and, if required, assisting ventilation with a bag-valve mask or endotracheal intubation.

Step 5: Documentation, Case Review, and Assessment (1 Hour) The student will practice administering supplemental oxygen, using various devices such as nasal cannulas, simple face masks, or non-rebreather masks based on the severity of the patient's respiratory distress.
Practical Training 13.6 Evaluation of the research study through journal club.
Total learning Hours : 5 Hours **Step 1: Introduction to Research Analysis in Poisoning (1 Hour) The** student is expected to critically evaluate and analyze research studies related to poisoning cases through a journal club format. **Step 2: Summarizing and Structuring the Research Paper (1 Hour)**The student will identify and select a research paper from credible sources, focusing on impact factors, peer-reviewed journals and high-quality research publications. **Step 3: Presentation of Research Findings (1 Hr 30 Min)**The student will prepare a summary of the selected articles, outlining the research question, hypothesis, study design, methods, results, and conclusions. **Step 4: Journal Club Discussion and Critical Analysis (1 Hr 30 Min)**T Thestudent will present the research article to the journal club which will be followed by a discussion of the article, critiquing the strengths and weaknesses of the study, including sample size, study design statistical analysis, and validity of the results.
Experiential Learning Activity
Experiential-Learning Learning 13.1: Decontamination for inhaled toxicants.
Total learning Hours: 6 Hours **Step 1: Introduction to Inhalation Toxicology (1 Hour)** The student is expected to understand and apply specific methods of decontamination for inhaled toxicants, including removal from the toxic environment, oxygen therapy, and ventilatory support. **Step 2: Case Analysis of Respiratory Poisoning (1 Hour 30 minutes)** Students will analyse simulated cases of respiratory poisoning (e.g., carbon monoxide, chlorine gas exposure). **Step 3: Role-Playing Emergency Response (1 Hour 30 minutes)**

Students will role-play the immediate removal of a patient from a toxic environment and discuss its impact on limiting toxin absorption. **Step 4: Oxygen Therapy and Ventilatory Support (1 Hour)** Students will practice setting up and administering oxygen using different devices, such as non-rebreather masks, nasal cannulas, and hyperbaric oxygen systems. **Step 5: Documentation and Reflection (1 Hour)** Students will record each decontamination case in their logbooks, including observations, the rationale behind chosen interventions, and reflections on patient outcomes.
Experiential-Learning Learning 13.2: Management of Mucosal Toxicant Exposure.
Total learning Hours: 6 Hours **Step 1: Introduction to Mucosal Toxicology (1 Hour)** The student is expected to learn a systematic approach to managing mucosal toxicant exposure, focusing on immediate decontamination, antidote therapy, and patient monitoring. **Step 2: Clinical Identification and Symptom Recognition (1 Hour)** The student will identify symptoms, specific to the mucosal site (oral, nasal, ocular, genitourinary) and systemic toxic effects in a clinical setting **Step 3: Immediate Decontamination Procedures (1 Hour)** The Student will immediately rinse the affected mucosal area with water or saline to limit the toxicant's absorption **Step 4: Antidote Therapy and Supportive Care (1 Hour)** The Student will administer site-specific antidotes and initiate supportive care (e.g., oxygen therapy, pain management) under supervision. **Step 5: Documentation, Case Review, and Assessment (1 Hour)** 5. Students will document each decontamination procedure, noting the toxicant, techniques used, and patient outcomes
Experiential-Learning Learning 13.3: Decontamination of injected poison.
Total Learning Hours: 5 Hours

Step 1: Introduction to Injected Toxicants (1 Hour)

The student is expected to learn the systematic approach to decontaminating injected toxins, focusing on local wound management, administration of antidotes, and systemic stabilisation.

Step 2: Clinical Signs and Diagnosis (1 Hour)

The teacher will guide the student in recognising clinical signs at the injection site (e.g., inflammation, swelling) and systemic poisoning symptoms

Step 3: Immediate Wound Management (1 Hour)

The student will learn proper cleaning of the injection site using antiseptic solutions and the application of sterile dressings to limit toxin absorption and prevent infection.

Step 4: Antidote Therapy and Supportive Care (1 Hour)

Under supervision, the student will practice administering specific antidotes and initiate supportive therapies.

Step 5: Documentation, Monitoring, and Case Review (1 Hour)

The student will observe and document changes in the patient's vital signs and systemic symptoms, ensuring appropriate escalation of care as needed.

Experiential-Learning Learning 13.4: Fluid imbalance and the patient's hydration status in the case of poisoning.

Total Learning Hours: 5 Hours

Step 1: Introduction to Fluid-Electrolyte Balance in Poisoning (1Hr 15min)

The student is expected to learn the assessment of a patient's hydration status and management of fluid-electrolyte imbalance in case of poisoning

Step 2: Demonstration of Hydration Assessment Techniques (1Hr 15min)

The student will learn to assess the patient's hydration status and recognise signs of fluid imbalance, such as dehydration, oedema, or electrolyte disturbances, in a clinical or simulated case of poisoning.

Step 3: Student Practice – IV Fluid Therapy (1Hr 15min)

Under supervision, the student will practice administering intravenous fluids to maintain optimal fluid and electrolyte balance, choosing the appropriate type of fluid based on the patient's clinical condition.

Step 4: Electrolyte Monitoring and Correction Strategies (1Hr 15min) The student will monitor laboratory results, including serum electrolyte levels and apply this information to adjust fluid therapy accordingly. They will also observe and record the changes in the patient's clinical status as the fluid and electrolyte imbalance is restored.
Experiential-Learning Learning 13.5: Case studies of household and occupational poisoning cases.
Total learning Hours: 7 Hours **Step 1: Orientation & OPD Visit Preparation (2 Hours)** The student will visit in OPD or a nearby hospital **Step 2: OPD/Hospital Visit & Case Identification (3 Hours)** The student will record at least one household and occupational poisoning case **Step 3: Case Presentation & Discussion (1 Hour)** The student will present the case under the guidance of the teacher **Step 4: Reflection, Documentation & Assessment (1 Hour)** The case study will be recorded in a logbook
Experiential-Learning Learning 13.6: Awareness and surveillance programs of preventive strategies regarding common poisonings.
Total learning Hours :7 Hours **Step 1: Introduction to Awareness & Surveillance (1 Hour)** the teacher explaine the method of awareness and surveillance for prevention of common poisoning cases. **Step 2: Site Selection & Planning (1 Hour)** the student selecte sites of the community and create awareness and surveillance programs of preventive strategies regarding common poisonings. **Step 3: Community Awareness & Surveillance Activity (5 Hours)** 3. the student record all the event with photographsnt with photographs

Modular Assessment	
Assessment	**Hour**
Formative Assessment: 6 Hours **Instructions -** Conduct a structured Modular assessment. The assessment will be for 75 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. **Viva/short questions (30 marks):** The teacher will conduct viva, and 15 questions (2 marks each) covering all units will be asked. Or 6 short questions (5 marks each): The student will be given 3 short answer questions covering all units. **Practical (30 Marks):** 2 Practical of preparation of antidotes from unit 2, 15 Marks each **Experiential Learning Activity (15 Marks):** Demonstration of any one experiential learning activity from Units 3 and 4. or Any practical in converted form can be taken for assessment (40 Marks). and Any experiential work, such as portfolio/ reflections/ presentations, can be taken as an assessment (35 Marks)	6
Module 14 : یونانی تریاقات Unani Tiryaqaat (Unani Antidotes)	
Module Learning Objectives (At the end of the module, the students should be able to)	

Describe Unani Antidotes

Prepare Unani Antidotes

Apply the proper antidote

Unit 1 14.1 مفرد یونانی تریاقات Mufrad Unani Tiryaqat (Single Drug Unani Antidotes)

14.1.1. Overview of Mufrad Antidotes: Habbul Ghar, Juntiyana, Mur makki, Narjil Daryayi, jadwar, Beesh, Hilzoon, Sadaf, Farfiyun, Fudnaj, Fundq, Gile makhtoom, Jund Beedastar, Kafoor, Khashkhash, Khurfa, Mushk, Sandal, Zaravand Mudaharaj, Milk Maaul asl Sirka, Shikanjbeen,Shahed etc.

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO2,CO3	Enlist and describe mufrad unani antidotes based on their morphological and physical properties.	2	Lecture	CC	Knows-how	PAL,L&GD,IBL,L,L&PPT
CO2,CO3	Describe various forms of Tiryaqate Mufarada such as safoofat, nuqooat, matbookhat, saootat, nashooqat, zimadat etc.	4	Practical14.1	PSY-GUD	Shows-how	DL,D,SDL,PAL
CO3	Administer a Mufrad Tiryaq in a case of poisoning such as Jadwar, Beesh, Mur Makki, Habbul Ghar, Juntiyana etc.	5	Experiential-Learning14.1	CE	Does	D,CBL

Unit 2 14.2 مرکب یونانی تریاقات Murakkab Unani Tiryaqat (Compound Unani Antidotes)

14.2.1. Methods of Preparation of the following murakkab Tiryaqat: Tiryaqe arba, Tiryaqe Farooq, Tiryaqe Wabai, Tiryaqe Nazla, Tiryaqe Azam, Tirayqe Al-Tyn, Tirayqe Teen Makhtoom, Tirayqe Teen Romi etc

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO3	Describe murakkab antidotes based on their composition and properties.	2	Lecture	CC	Knows-how	L&GD,L&PPT ,D

CO3	Prepare any Two Murakkab Tiryaqat used in various cases of poisoning.	4	Practical14.2	PSY-SET	Shows-how	D,DL,SDL
CO3	Prepare a Tiryaq for a case of irritant poisoning case.	5	Experiential-Learning14.2	PSY-MEC	Does	CBL,DIS

Unit 3 14.3 مرکب تریاقات کی تیاری اور ان کا استعمال Murakkab Tiryaqat ki Tayyari aur unka Istemal (Preparation and application of Murakkab Tiryaqat

14.3.1. Methods of Preparation and Application of the following Tiryaqat:

14.3.1.1. Tiryaqe Wabai

14.3.1.2. Tiryaqe Arba

14.3.1.3. Tiryaqe Azam

14.3.1.4. Tiryaq Farooq

References: 2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO3	Describe the indications and benefits of unani antidotes (Mufrad and Murakkab).	1	Lecture	CC	Knows-how	TUT,L,PAL,DIS,L&GD
CO3	Demonstrate the benefits and application of Unani antidotes in various cases of poisoninig.	2	Practical14.3	CC	Shows-how	DL,BS,SDL,D,DIS
CO3	Present a research/review paper or case study published in a reputed journal in which Tiryaqat (Mufrad & Murakkab) are used for the management of a case of poisoning.	3	Experiential-Learning14.3	PSY-MEC	Does	PER,JC

Practical Training Activity

Practical Training 14.1 Practical demonstration on various forms of Tiryaqate Mufrada.

Total Learning Hours : 4 Hours

Step 1: Theoretical Discussion on Mufrad Tiryaqat (1 Hour)

The teacher will discuss the various forms of mufrad tiryaqat in the class.

Step 2: Literature Search & Research Work (1 Hour)

The student is expected to search the literature regarding the use of mufrad tiryaqat in various forms like safoofat, nuqooat, matbookhat, saootat, nashooqat, zimadat etc.

Step 3: Practical Preparation at Saidla Department or Central Pharmacy (1 Hour)

The student will visit the Saidla Department of the college or central pharmacy and prepare any TWO froms of Tiryaqe Mufrada.

Step 4: Display, Documentation & Assessment (30 minutes)

The preparation will be displayed in the department.

Step 5: **Final Review & Discussion (30 minutes)**

The student will record them in his practical record book

Practical Training 14.2 Preparation of any Two Murakkab Tiryaqat used in various cases of poisoning.

Total Learning Hour: 4 Hours

Step 1: Theoretical Discussion on Murakkab Tiryaqat (1 Hour)

The teacher will discuss the various forms of Murakkab Tiryaqat in the class.

Step 2: Literature Search & Research Work (1 Hour)

The student is expected to search the literature regarding the use of Murakkab tiryaqat in various forms like safoofat, nuqooat, matbookhat, zimadat, Sharat, Majoon, Arq etc.

Step 3: Practical Preparation at Saidla Department or Central Pharmacy (1 Hour)

The student will visit the Saidla Department of the college or central pharmacy and prepare any TWO Murakkab Tiryaqat. **Step 4: Display, Documentation & Assessment (1 Hour)** The preparation will be displayed in the department. **Step 5: Final Review & Discussion** The student will record them in his practical record book.
Practical Training 14.3 Demonstration of the benefits and application of Unani antidotes in various cses of poisoninig.
Total Learning Hours : 2 Hours **Step 1: Introduction & Identification (20 min)** The student is expected to study the benefits and application of Unani antidotes in various cases of poisoning. **Step 2: Display & Identification (20 min)** The teacher will display any 5 samples of Tiryaqi drugs before the student. **Step 3: Explanation & Discussion (30 min)** The student will identify the sample and explain the benefits of each Triyaqi drug in the class. **Step 4: Practical Application in Simulated Cases (30 min)** The student will demonstrate the application of those Tiryaqi drugs in simulated cases of poisoning. **Step 5: Documentation & Review (20 min)** The activity will be recorded in the practical record book.
Experiential Learning Activity
Experiential-Learning Learning 14.1: Administration of a Mufrad Tiryaq in a case of poisoning.
Total Learning Hour : 5 Hours **Step 1: Theoretical Study of Mufrad Drugs Used as Tiryaq (1 Hour)**

The student is expected to study the Mufrad drugs used as Tiryaq. **Step 2: Case Assignment & Diagnosis (1 Hour)** The teacher will assign a case of poisoning to the student. **Step 3: Selection of Suitable Mufrad Tiryaq (1 Hour)** The student will diagnose the case and select a suitable mufrad Tiryaq for that case. **Step 4: Administration Under Supervision (1 Hour)** The student will administer the said Tiryaqi drug under the supervision of the teacher. **Step 5: Documentation & Case Discussion (1 Hour)** The student will observe the effect of Tiryaq and record them in the record book.
Experiential-Learning Learning 14.2: Preparation of Tiryaq for a case of irritant poisoning case.
Total Learning Hours : 5Hours **Step 1: Theoretical Discussion & Case Assignment (1 Hour)** The teacher will describe the preparation of Tiryaq for various poisoning cases, and assign a case of irritant poisoning case to the student. **Step 2: Preparation of Tiryaq (2Hour)** The student will prepare the Tiryaq for the case and prescribe to the patient. **Step 3: Administration & Patient Monitoring (1 Hour)** The student will observe the effect of Tiryaq in the patient. **Step 4: Observing & Evaluating Effects (1 Hour)** The effects will be recorded in the log book.
Experiential-Learning Learning 14.3: Presentation on Tiryaqat (Mufrad & Murakkab) used for the management of poisoning.
Total Learning Hours : 3 Hours **Step 1: Assignment of Research Paper (30 min)**

The teacher will assign a research/review paper or case study published in a reputed journal, in which Tiryaqat (Mufrad & Murakkab) are used for the management of a case of poisoning.

Step 2: Critical Analysis of the Paper (40 min)

The student will critically analyse the paper and compile the pros and cons of the paper, and prepare a PowerPoint.

Step 3: PowerPoint Preparation (50 min)

The student will present the journal in class.

Step 4: Student Presentation & Discussion (60 min)

The teacher will rectify, if required.

Modular Assessment

Assessment	Hour
Formative Assessment: 2 Hours **Instructions -** Conduct a structured Modular assessment. The assessment will be for 25 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. **Viva (10 marks):** The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked. **Practical (15 Marks):** 1 Practical from unit 2 of 15 Marks. Or Any practical in converted form can be taken for assessment (25 Marks). Or Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	2

Semester No : 6

Module 15 : حیاتیاتی سمیت Hayatityati Sammiyat (Bio-toxicity)

Module Learning Objectives

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

Describe Bio-toxicity

Identify Bio-toxicity

Manage Bio-toxicity

Unit 1 15.1 سمیاتی اہمیت کے حامل حشرات و فقرات Sammiyati Ahmiyat ke Hamil Hasharat wa Fuqraat (Reptiles & Arthorpods of Toxicological importance)

15.1.1. Biology of the following Reptiles & Arthropods:

15.1.1.1. Snakes

15.1.1.2. Scorpion

15.1.1.3. Canthrides

15.1.1.4. Bee

15.1.1.5. Wasp

15.1.1.6. Centrpede

References: 26,28,30,34,42,43,44,45,46,50,51,52,65,73,84,85,86,87,91,93,95,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Describe the identification features of Snakes, Scorpions, Centipedes, Bees, Wasps and Centipedes.	2	Lecture	CC	Knows-how	L&GD,BS,PBL,L&PPT ,L
CO1,CO2, CO3	Demonstrate various stages of life including identification features of Snakes, Scorpion, Canthrides, Bee, Wasp and Centipede.	5	Practical15.1	CC	Shows-how	BS,PAL,PT

CO1,CO2, CO3	Describe the toxicological importance of Snakes, Scorpion, Canthrides, Bee, Wasp and Centipede.	4	Experiential-Learning15.1	PSY-SET	Shows-how	PER,BS,PL,RLE,DIS

Unit 2 15.2 مختلف جانوروں کے زہروں کی حیاتیات Mukhtalif Janwaron ke Zahron ki Hayatiyat (Biology of Venoms of different animals)

15.2.1. Biology of the following venoms:

15.2.1.1. Snake Venom

15.2.1.2. Scorpion Venom

15.2.1.3. Bee Venom

15.2.1.4. Wasp venom

15.2.1.5. Cantharide venom

15.2.1.6. Centipede venom

References: 26,28,30,34,42,43,44,45,46,50,51,52,65,73,84,85,86,87,91,93,95,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Describe the biological features of venoms/stings/toxic substances of Snake, Scorpion, Bee, Wasp, Cantharide, Centipede.	1	Lecture	CC	Knows-how	BS,TUT,L&GD,L&PPT ,L
CO1,CO2, CO3	Demonstrate the features of venoms/stings/toxins of Snake, Scorpion, Bee, Wasp, Cantharide, Centipede.	3	Practical15.2	PSY-SET	Shows-how	D,SDL,DL,PAL,RLE
CO1,CO2, CO3	Identify the venoms/stings/toxins of Snake, Scorpion, Bee, Wasp, Cantharide, Centipede.	4	Experiential-Learning15.2	CC	Does	RLE,FV,SDL,PAL,DIS

Unit 3 15.3 مختلف زہروں کے سمی اثرات کی تشخیص Mukhtalif Zahron ke Sammi Asarat ki Tashkees (Diagnosis of the toxicological effects of different venoms)

15.3.1. Diagnosis of the toxicological effects of the following venoms:

15.3.1.1. Snake Venom

15.3.1.2. Scorpion Venom

15.3.1.3. Bee Venom

15.3.1.4. Wasp venom

15.3.1.5. Cantharide venom

15.3.1.6. Centipede venom

15.3.1.7 Dog Bite

15.3.1.8 Monkey Bite

15.3.1.9 Cat Bite

15.3.1.10 Fox Bite

15.3.1.11 Rat Bite

References: 26,28,30,34,42,43,44,45,46,50,51,52,65,73,84,85,86,87,91,93,95,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Describe the toxicological effects of poisonings of Snake bites, Scorpion/Bee/wasp stings, cantharidin/centipede toxins.	2	Lecture	CC	Knows-how	TUT,RLE,LS,SDL,L& PPT
CO1,CO2, CO3	Demonstrate clinically the toxicological effects of poisonings of Snake bite, Scorpion/Bee/wasp stings, cantharide/centipede toxicity.	3	Practical15.3	PSY-SET	Shows-how	TBL,SDL,BS
CO4	Demonstrate the clinical diagnosis of toxicological effects of poisonings of Snake bite, Scorpion/Bee/wasp stings, cantharide/centipede toxicity.	5	Experiential-Learning15.3	CE	Does	BS,C_L,CBL,SDL,DIS

Unit 4 15.4 حیاتیاتی تسمم کا معالجاتی بندوبست Hayatiyati Tasammum ka Mualejati Bando Bast (Medical Management of Biotoxicity)

15.4.1. Use of Mufrad and Murakkab advia in the management of the following biotoxic conditions:

15.4.1.1. Snakebite

15.4.1.2. Scorpion bite

15.4.1.3. Bee stings

15.4.1.4. Wasp sting

15.4.1.5. Cantharide poisoning

15.4.1.6. Centipede poisoning

15.4.1.7 Dog Bite

15.4.1.8 Monkey Bite

15.4.1.9 Cat Bite

15.4.1.10 Fox Bite

15.4.1.11 Rat Bite

References: 26,28,30,34,42,43,44,45,46,50,51,52,65,73,84,85,86,87,91,93,95,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Describe the Advia used to manage poisonings of Snakebite, Scorpion/Bee/wasp stings, cantharides/centipede toxins.	3	Lecture	CC	Knows-how	TUT,L_VC,L&PPT
CO1,CO2, CO3	Prepare topically used murakkabat for the management of Snakebite, Scorpion/Bee/wasp stings, cantharides/centipede toxins.	4	Practical15.4	PSY-GUD	Shows-how	PT,W,D,TPW
CO1,CO2, CO3	Manage the case of biotoxicity.	4	Experiential-Learning15.4	PSY-GUD	Shows-how	BS,RLE,D-BED,Mnt,CBL

Unit 5 15.5 حیاتیاتی تسمم میں مستعمل علاج بالتدابیر Hayatiyati Tasammum men Musta'mal Ilaj Bit Tadabeer (Therapies used for the management of Biotoxicity)

15.5.1. Role of the following therapies in the management of Biotoxicity:

15.5.1.1. Fasd

15.5.1.2. Hijamat

15.5.1.3. Irsale Alaq

15.5.1.4. Takmeed

15.5.1.5. Ishal

15.5.1.6. Qai

15.5.1.7. Idrar

15.5.1.8. Kai

15.5.1.9. Dalk

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Define the clinical importance of Fasd, Hijama, Irsale Alaq, Takmeed, Ishal, Qai, Idrar, Amle Kai and Dalk in the management of biotoxicity.	2	Lecture	CC	Knows-how	L&GD,L&PPT ,L
CO1,CO2, CO3	Demonstrate *Qai, Ishal, Idrar, Takmeed and Dalk.*	5	Practical15.5	PSY-GUD	Shows-how	RLE,D-BED,PT,Mnt,CBL
CO1,CO2, CO3	Demonstrate the use of *Hijamah* in a clinical case of biotoxicity.	2	Experiential-Learning15.5	PSY-GUD	Does	CBL,Mnt,D-BED,SDL,DIS
CO1,CO2, CO3	Demonstrate the use of *Fasd* in a clinical case of biotoxicity.	2	Experiential-Learning15.6	PSY-GUD	Does	DIS,Mnt,RLE,D-BED,CBL
CO1,CO2, CO3	Demonstrate the use of *Amale Kai* in a clinical case of biotoxicity.	2	Experiential-Learning15.7	PSY-GUD	Does	D-BED,CBL,DIS,RLE, Mnt

CO1,CO2, CO3	Demonstrate the use of *Irsale Alaq* in a clinical case of biotoxicity.	3	Experiential-Learning15.8	PSY-GUD	Does	Mnt,CBL,RLE,D-BED,DIS

Unit 6 15.6 حیاتیاتی سمم پر کیس اسٹڈیز Case Studies on Biotoxicity

15.6.1. Various case studies on Biotoxicity

References: 26,28,30,34,42,43,44,45,46,50,51,52,65,73,84,85,86,87,91,93,95,100,101

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

Practical Training Activity

Practical Training 15.1 Life cycle of Snakes, Scorpion, Canthrides, Bee, Wasp and Centipede.

Total Learning Hours: 5 Hours

Step-1: Description of the Topic: (2 Hour)

The teacher will demonstrate various stages of Snakes, Scorpion, Cantharides, Bee, Wasp and Centipede with the help of models/specimens/video clips or any other tool.

Step-2: Identification of the snake: (2 Hour)

The Student is expected to identify various stages of life including their identification features.

Step-3 Assignment Submission and Recording in Practical Record Book(1 Hour)

The student will prepare the assignment on above and record them in the practical record book.

Practical Training 15.2 Demonstration the features of venoms/stings/toxic substances of Snake, Scorpion, Bee, Wasp, Cantharide, Centipede.

Total Learning Hours: 3 Hours

Step 1: **Characteristics of Venoms, Stings, and Toxins (1 Hour)**

The teacher will demonstrate the features of venoms/stings/toxic substances of Snake, Scorpion, Bee, Wasp, Cantharides, Centipede.

Step 2: **Methods for Extracting and Handling Venoms & Stings (1 Hour)**

The student will learn the techniques of collection of venoms/stings/toxins of Snake, Scorpion, Bee, Wasp, Cantharides, and Centipede.

Step 3: **Biological Study and Documentation of Venoms & Sting (1 Hour)**

The student will learn the biological features of venoms/stings/toxins of Snake, Scorpion, Bee, Wasp, Cantharides, Centipede, and record in the practical record book

Practical Training 15.3 Clinical demonstration of the toxicological effects of poisonings of Snake bite, Scorpion/Bee/wasp stings, cantharide/centipede toxicity.

Total learning Hours: 3 Hours

Step 1: Demonstration of Clinical Cases (1 Hours 30 minutes)

The teacher will demonstrate the clinical cases of poisonings of Snake bite, Scorpion/Bee/wasp stings, and cantharides/centipede toxicity.

Step 2: Observation & Case Sheet Preparation (1 Hour 30 minutes)

The student will observe the diagnostic features of the poisoning and prepare the case sheets of above poisoning cases, and preserve them as record.

Practical Training 15.4 Preparation of topically used murakkabat for the management of Snakebite, Scorpion/Bee/wasp stings, cantharides/centipede toxins.

Total learning Hours: 4 Hours

Step1: Assignment of Murakkabat for Bio toxicity (30 Minutes)

The teacher will assign one locally used murakkabat to manage any one of the following bio toxicity- Snakebite, Scorpion/Bee/wasp stings, and cantharides/centipede toxins.

Step 2: Practical Preparation in Saidla Lab (2 Hours)

The students will visit the saidla lab and prepare any one murakkab each used locally for the management of Snakebite, Scorpion/Bee/wasp stings, cantharides/centipede toxins under the supervision of Saidla teacher/lab instructor.

Step 3: Application Method Description (1 Hour)

The students will describe the method of application of prepared murakkabat.

Step 4: Documentation & Record-Keeping (30 Minutes)

4. The student will document the preparation procedure in a practical notebook/digitally.

Practical Training 15.5 Demonstration of *Qai, Ishal, Idrar, Takmeed and Dalk.*

Total learning Hours: 5 Hours

Step 1: Observation of Regimenal Therapies in Practice (2 Hours)

The students will visit the departmental therapy unit/IBT unit and observe the ongoing therapies i.e., *Qai, Ishal, Idrar, Takmeed* and *Dalk.*

Step 2: Learning SOPs and Technical Aspects (2 Hours)

The students will learn the technical parts/SOPs of the above therapies and will go through hands-on training.

Step 3: Seminar Presentation (1 Hour)

The students will record the activities and present them in the departmental seminar

Experiential Learning Activity

Experiential-Learning Learning 15.1: Toxicological importance of Snakes, Scorpion, Canthrides, Bee, Wasp and Centipede.

Total Learning Hours: 4 Hours

Step 1: Explanation of Toxicological Importance (1.5 Hours)

The teacher will explain the toxicological importance of Snakes, Scorpion, Cantharides, Bee, Wasp and Centipede.

Step 2: Field Visit & Observation (1 Hour)

The student will visit nearby zoological park/snake park and observe the habitat of Snakes, Scorpion, Cantharides, Bee, Wasp and Centipede.

Step 3: Digital Content Creation (1 Hour)

The student will create digital content on the toxicological importance and present its content in the class.

Step 4: Teacher's Review and Corrections (30 Minutes)

The teacher will rectify if required.

Experiential-Learning Learning 15.2: Identification of the venoms/stings/toxins of Snake, Scorpion, Bee, Wasp, Cantharide, Centipede.
Total Learning Hours: 4 Hours **Step 1: Introduction to Venoms, Stings, and Toxins (1 Hour)** The teacher will describe the features of venoms/stings/toxins of Snakes, Scorpion, Cantharides, Bee, Wasp and Centipede. **Step 2: Field Visit & Expert Discussion (1 Hour 30 Minutes)** The student will visit nearby zoological/biological park/snake park and discuss with the scientists/officer-in charge about the venoms/stings/toxins of Snakes, Scorpion, Cantharides, Bee, Wasp and Centipede. **Step 3: Digital Content Creation & Presentation (1 Hour)** The student will create digital content on above bio toxic substance and present its content in the class **Step 4: Teacher's Review and Corrections (30 Minutes)** The teacher will rectify if required.
Experiential-Learning Learning 15.3: Clinical diagnosis of toxicological effects of poisonings of Snake bite, Scorpion/Bee/wasp stings, cantharide/centipede toxicity.
Total learning Hours: 5Hours **Step 1: Case Assignment and Discussion (1 Hour)** The teacher will assign at least any 5 cases of poisonings of Snake bite, Scorpion/Bee/wasp stings, cantharides /centipede toxicity. **Step 2: Case Diagnosis & Differential Diagnosis (2 Hours)** The student will diagnose the case and describe the differential diagnostic features of the poisoning. **Step 3: Case Presentation (1.5 Hours)** The student will present the cases before the teacher **Step 4: Review & Corrections by Teacher (30 Minutes)**

The teacher will rectify, if required.
Experiential-Learning Learning 15.4: Management of Biotoxicity.
Total learning Hours: 4 Hours **Step 1: Case Assignment and Initial Discussion (45 Minutes)** The teacher will assign a case of Snakebite, Scorpion/Bee/wasp stings, cantharides/centipede toxins. **Step 2: Diagnosis and Murakkab Preparation (1.5 Hours)** The students will diagnose the case and prepare a murakkab instantly from the available mufrad drugs in the OPD/Casualty. **Step 3: Observation and Clinical Management (1.5 Hours)** The students can also use any already prepared murakkab, if available. **Step 4: Case Report Preparation (45 Minutes)** The students will observe the condition of the patient and the teacher will intervene in the management if required. **Step 5: Case Presentation & Review (30 Minutes)** The case report will be prepared and presented in the class/departmental seminar.
Experiential-Learning Learning 15.5: Demonstration of *Hijamah* in a clinical case of biotoxicity.
Total Learning Hours: 2 Hours **Step 1: Case Assignment and Initial Discussion (15 Minutes)** The teacher will assign a clinical case of biotoxicity i.e., snakebites, Scorpian / Bee/ Wasp sting, cantharides/ centipede poisoning. **Step 2: Diagnosis and Treatment Planning (30 Minutes)** The student will diagnose the toxicity and manage the case by *Hijama* therapy along with other necessary modalities as per the teacher's instruction. **Step 3: Hijama Therapy Application and Case Management (30 minutes)** The student will observe the condition of the patient and the teacher will intervene if required.

Step 4: Case Report Documentation (30 Minutes)

The case report will be prepared and presented by the students in the class/departmental seminar

Step 5: Seminar Presentation and Logbook Entry (15 Minutes)

The activity will be recorded in the logbook.

Experiential-Learning Learning 15.6: Demonstration of *Fasd* in a clinical case of biotoxicity.

Total learning Hours: 2 Hours

Step-1: Assigning the case: (15 Min.)

The teacher will assign a clinical case of biotoxicity i.e., snakebites, Scorpion / Bee/ Wasp sting, cantharides/ centipede poisoning.

Step-2: Diagnosis of the case: (30 Min.)

The student will diagnose the toxicity and manage the case by *Fasd* along with other necessary modalities as per the teacher's instruction.

Step 3: Observation and presentation (1 Hour)

The student will observe the condition of the patient and the teacher will intervene if required.

The case report will be prepared and presented by the students in the class/departmental seminar

Step 4: Documentation & recording of the activity (15 Min.)

The activity will be recorded in the logbook.

Experiential-Learning Learning 15.7: Demonstration of *Amale Kai* in a clinical case of biotoxicity.

Total learning Hours: 2 Hours

Step-1: Assigning the case: (15 Min.)

The teacher will assign a clinical case of biotoxicity i.e., snakebites, Scorpion / Bee/ Wasp sting, cantharides/ centipede poisoning.

Step-2: Diagnosis of the case: (30 Min.)

The student will diagnose the toxicity and manage the case by *Amale Kai* along with other necessary modalities as per the teacher's instruction.

Step 3: Observation and presentation (1 Hour)

The student will observe the condition of the patient and the teacher will intervene if required. The case report will be prepared and presented by the students in the class/departmental seminar. **Step 4: Documentation & recording of the activity (15 Min.)** The activity will be recorded in the logbook.
Experiential-Learning Learning 15.8: Demonstration of *Irsale Alaq* in a clinical case of biotoxicity.
Total learning Hours: 3 Hours **Step-1: Assigning the case: (30 Min.)** The teacher will assign a clinical case of bio-toxicity i.e., snakebites, Scorpion / Bee/ Wasp sting, cantharides/ centipede poisoning. **Step-2: Diagnosis of the case: (1 Hr.)** The student will diagnose the toxicity and manage the case by *Irsale Alaq* along with other necessary modalities as per the teacher's instruction. **Step 3: Observation and presentation (1 Hour)** The student will observe the condition of the patient and the teacher will intervene if required. The case report will be prepared and presented by the students in the class/departmental seminar. **Step 4: Documentation & recording of the activity (30 Min.)** The activity will be recorded in the logbook.
Modular Assessment

Assessment	**Hour**
Formative Assessment: 4 Hours	4

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.

1. Viva (20 marks): The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked.

2. Practical (10 Marks): 1 Practical from units 1 or 2,3, or 4, for 10 Marks each

3. Case-Based Scenario (20 Marks): Demonstration of any one case from units 3&6.

Or

Any practical in converted form can be taken for assessment (25 Marks).and any of the experiential as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)

Module 16 : تحقیق برائے مطبی علم السموم Tahqeeq barai Matabi Ilmus Samoom (Research in Clinical Toxicology)

Module Learning Objectives

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

Describe the scope and methods of research in clinical toxicology.

Identify problems related to clinical toxicology

Unit 1 16.1 یونانی تریاقات کی افادیت اور تحفظ پر طبی تحقیق Unani Tiryaqat ki Ifadiyat aur Tahaffuz par Tibbi Tahqeeq (Clinical research on Efficacy and safety of Unani Tiryaqat)

16.1.1. Clinical research on the Efficacy and safety of Unani Tiryaqat

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO4	Discuss the scientific aspect of *Unani Tiryaqat (Mufrad* and *Murakkab)*	3	Lecture	CC	Knows-how	DIS,LS,SDL,L,TUT
CO4	Discuss the efficacy and safety of various Tiryaqat.	4	Practical16.1	CE	Shows-how	JC,REC,DIS,BS,Mnt

CO4	Demonstrate the efficacy of Unani Tiryaqat.	7	Experiential-Learning16.1	CE	Does	D-BED,CBL,PER,CD

Unit 2 16.2 ادبیات عالیہ میں تسمم پر کیس اسٹڈیز Adabiyate Aliya men Tasammum par Case Studies (Case studies of poisonings in classical literature.)

16.2.1. Case studies of poisoning in classical literature.

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO4	Describe classical cases of animal and vegetable Poisoning available in Unani Literature.	3	Lecture	CC	Knows-how	SDL,L_VC,TUT,LS,L&PPT
CO4	Demonstrate any two classical cases of animal poisoning.	4	Practical16.2	CE	Shows-how	SDL,LS,ML,D,BS
CO4	Analyze the cases of poisoning in light of classical historical cases.	7	Experiential-Learning16.2	CAN	Does	CBL,RLE,D,SDL,D-BED

Unit 3 16.3 مزاج اور تریاقات کا باہمی تعلق Mizaj aur Tiryaqat ka Bahami Ta'alluq (Correlation of Mizaj and antidotes)

16.3.1. Correlation of Mizaj and antidotes

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO4	Describe the importance of *Mizaj* and the selection of antidotes for the management of chronic poisoning cases.	2	Lecture	CC	Knows-how	L&GD,TUT
CO4	Demonstrate the correlation of *Mizaj* of poisons, and *Mizaj of* antidotes through Audiovisual/graphical aids	4	Practical16.3	PSY-SET	Shows-how	D

CO4	Demonstrate the indication of antidotes in poisoning cases according to their mizaj through Audiovisual/graphical aids	4	Practical16.4	CE	Shows-how	DL,D
CO4	Record the various antidotes and poisons according to their *Mizaj* in classical text.	6	Experiential-Learning16.3	PSY-SET	Does	LS,PER

Unit 4 16.4 مطبی علم السموم میں جدید اضافات Modern advancements in Matabi Ilmus Samoom men Jadeed Izafaat (Clinical Toxicology)

16.4.1. Modern advancements in Clinical Toxicology

References: 28,29,30,100,101

3A	3B	3C	3D	3E	3F	3G
CO4	Appraise advancements in Clinical Toxicology	2	Lecture	CC	Knows-how	L&PPT ,ML
CO4	Demonstrate various modern advancements in clinical toxicology through audiovisual/graphical aids.	4	Practical16.5	CE	Shows-how	D
CO4	Record various advancements through various Research journals.	6	Experiential-Learning16.4	PSY-SET	Does	JC,BS,CBL

Practical Training Activity

Practical Training 16.1 Journal Clubs/Group discussions/Brainstorming sessions on efficacy and safety of various Tiryaqat.

Total Learning Hours: 4 Hours

Step 1: Assignment of Paper (1 Hour)

The teacher will select and assign the research/review paper on Tiryaq.

Step 2: Journal club or Discussion (2 Hour)

The students are expected to critically analyse the paper and prepare a presentation for the Journal club/Discussion/brainstorming session

Step 3: **Paper Presentation (1 Hours)**

The students will present the paper and invite discussion from fellow research scholars.

The session will be concluded by the concerned faculties

Practical Training 16.2 Demonstration of classical cases of animal poisoning.

Total Learning Hours: 4 Hours

Step 1: Classical case of Animal poisoning (1 Hour)

The teacher will direct the student to search any Two classical cases of animal Poisoning

Step 2: **Search of Unani Literature (1 Hour)**

The student is expected to search the Unani literature and select any Two cases in consultation with teacher.

Step 3: **Critical Analysis and Preparation digital content (1 Hours)**

The student will critically analyze the cases and prepare a digital content on them

The student will focus on the diagnostic and management part of the case studies and discuss those cases in light of current scenario.

Step 4: Demonstration and Discussion of the cases (1 Hour)

The student will demonstrate the cases in the class and discuss with the students..

The teacher will give his inputs, if required.

Practical Training 16.3 Correlation of *Mizaj* of poisons, and *Mizaj of* antidotes

Total Learning Hours: 4 Hour

Step 1:Description of the Mizaj of Poison and Antidotes: (1 hour)

The teacher will describe the mizaj of poisons and mizaj of antidotes through classical letratures

Step 2: Corelation of mizaj of poison and antidotes (1 hour 30 minutes)

Students will analyze mizaj of poison and miaj of antidotes and their corelation in cotext with the managemnt

Step 3:Demonstration through audio visual graphs:(1 hour 30 minutes)

The student will demonstrate the all the things of corelation through audio visual aids.

Practical Training 16.4 indication of antidotes in poisoning cases according to their mizaj

Total Learning Hours: 4 Hour

Step 1: Explanation of the content (1 hour 30 minutes)

The teacher will explain the indication of antidotes in poisoning cases according to their Mizaj mentioned in literature

Step 2: Demonstration of Indication (1 hour 30 minutes)

Students will demonstrate the indication of antidotes in poisoning cases according to their mizaj through audio-visual/ graphical aids

Step 3: Documentation of the content (1 Hour)

Students will document all the thing in practical record book

Practical Training 16.5 modern advancements in clinical toxicology through audiovisual/graphical aids.

Total Learning Hours: 4 Hour

Step 1: Explanation of the content (1 hour 30 minutes)

the teacher will describe modern advancement in clinical toxicology through various sources

Step 2: Identification and collection (1 hour 30 minutes)

the student will search and identify modern advancement under the supervision of teacher

Step 3: Documentation of the content (1 Hour)

Students will document all the thing in practical record book

Experiential Learning Activity

Experiential-Learning Learning 16.1: Demonstration of the efficacy of Tiryaqat.

Total Learning Hours: 7 Hours

Step 1: Assignment of case of poisoning (1 Hour)

The teacher will assign the case of Poisoning to the students.

Step 2: **Selection of suitable Tiryaq (2 Hour)**

The students will select a suitable Tiryaq under the guidance of the concerned teacher for the case assigned.

Step 3: **Administration of tiryaq (2Hours)**

The students will administer the said Tiryaq and observe its efficacy in a structured scenario, adapting universal SOPs.

Step 4: Preparation of case report and presentation (2 Hour)

The students will prepare the case report and present it in the departmental seminar.

Experiential-Learning Learning 16.2: Analysis of the cases of poisoning in light of classical historical cases.

Total Learning Hours: 7 Hours

Step 1: Assignment of case of Animal/vegetable poisoning (1 Hour)

The teacher will assign a case of poisoning (animal/vegetable) to the student.

Step 2: **Diagnosis and Treatment (1 Hour)**

The student is expected to diagnose and treat the case as per current management protocol

Step 3: **Intervene the therapeutic approach (1 Hours)**

Simultaneously the student will intervene the therapeutic approach as mentioned in the classical cases discusses in theory/practical classes with the consent of the patient

Step 4: Observe the effect (2 Hour)

The student will observe the effect of intervention and compare its result with the classical cases.

Step 5: Describe and discuss the cases and record (2 Hour)

The student will describe the case in the class and discuss with the students..

The teacher will give his inputs, if required. The activity will be recorded in the log book.
Experiential-Learning Learning 16.3: various antidotes and poisons according to their *Mizaj* in classical text.
Total Learning Hours: 6 Hour **Step 1: Explanation of the content (2 hour)** the student will search various antidotes and poisons according to their mizaj in classical text. the teacher will guide **Step 2: Identification and collection (2 hour)** the student will identify and collect the antidotes and prserve for future reference **Step 3: Documentation of the content (2 Hour)** Students will document all the thing in practical record book
Experiential-Learning Learning 16.4: Advancement in Toxicology.
Total Learning Hours: 6 Hours **Step-1: Description of the Topic: (2 Hours)** The teacher will guide the various research journals related to toxicology **Step-2: searching of journals: (2 Hours)** The student will search journals and latest publications regarding advancement **Step-3: Recording of the content: (2 Hours)** The activity will be recorded in the practical record book.
Modular Assessment

Assessment	**Hour**

Formative Assessment: 4 Hours **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. **1. Viva (20 marks):** The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked. **2. Open Book Test (10 Marks):** 2 questions of 5 Marks each (1 from 3 & 4 Unit). **3. Case-Based Scenario (20 Marks):** Demonstration of any one case from units 1 & 2. Or Any practical in converted form can be taken for assessment (25 Marks). and any of the experiential activities, such as portfolio/reflections/ presentations, can be taken as an assessment (25 Marks)	4

Paper No : 3 طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology)

Semester No : 3

Module 17 : طب القانونی علم السموم کے مبادیات Tibbul Qanooni Ilmus Samoom ke Mabadiyat (Basics of Forensic Toxicology)

Module Learning Objectives

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

Describe basic concepts of Forensic Toxicology.

Enumerate Forensic drug testing, Human performance toxicology and Post-mortem toxicology

Unit 1 17.1 تعریف اور دائرہ کار Tareef aur Daira-e-kar (Definition and Scope

17.1.1. Overview

17.1.2. Importance

17.1.3. Historical Development

References:

1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,78,84,85,86,87,91,94,95,100,101,102,105,112

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Definition, overview, importance and historical development of Forensic Toxicology	1	Lecture	CC	Know	L&PPT ,PAL,SDL,REC,LS
CO1,CO2, CO3	Demonstrate literary content available on historical milestones of Forensic Toxicology.	6	Experiential-Learning17.1	AFT-VAL	Does	PL,DIS,PBL,LS,TBL

CO1,CO2, CO3	Describe Forensic drug testing, Human performance toxicology and Post-mortem toxicology.	2	Lecture	CC	Know	L&PPT ,L_VC,FC,L,SDL
CO1,CO2, CO3	Demonstrate the methods of poison detection used in ancient times.	5	Practical17.1	PSY-SET	Shows-how	L_VC,CBL,C_L,L&PPT ,PrBL

Unit 2 17.2 بنیادی تسمماتی تصورات Bunyadi Tasammumati Tasauwwurat(Basic Toxicological Concepts)

17.2.1. Unani concept

17.2.2. Modern concept

17.2.3. Categories: Forensic drug testing, Human performance toxicology and Post-mortem toxicology

References:

1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,78,84,85,86,87,91,94,95,100,101,102,105,112

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Describe the basic concepts of forensic toxicology, along with its scope and categories	2	Lecture	CC	Know	DIS,L&PPT ,L&GD,L
CO1,CO4	Demonstrate the role of a forensic toxicologist.	5	Practical17.2	PSY-SET	Shows-how	PrBL,JC,PAL,BS,PL
CO1,CO2, CO3,CO4	Perform a case study on human performance toxicology.	7	Experiential-Learning17.2	AFT-VAL	Does	CD,BS,D-BED,DIS,D

Practical Training Activity

Practical Training 17.1 Role of ancient methods in poison detection.

Total Learning Hours: 4 Hours

Step-1: Assignment of the students: (30 minutes)

The teacher will discuss the methods of detection of poisons used in ancient times.

The teacher will provide a food sample mixed with a toxic substance to the students

Step-2: Procedure activity : (02:00 Hours)

3. The students will identify the type and nature of the poison by using any method as described by the teacher/by using ancient methods
4. The procedure and the results shall be presented before the teacher,
5. The teacher will rectify and suggest the modification wherever required.
6. The students repeat the procedure as per inputs by the teacher if required

Step-3: Recording the Activity : (01:00 Hour)

7. The students shall record the entire procedure as a case file or in the logbook
8. The students may prepare the digital content

Step-4: Dissemination and presentation : (30 Min)

9. The students will upload the digital content on a dedicated official channel
10. The students will deliver the prepared content before the colleague/teacher/departmental seminar through PowerPoint or video mode.

Practical Training 17.2 Role of a forensic toxicologist in criminal investigations

Total Learning Hours: 5 Hours

Step-1: Discussion with students: (30 minutes)

The teacher will discuss the role of forensic toxicologists in various capacities with various real-time examples

Step-2: Evidence-based understanding : (03:00 Hours)

2. Students will understand the various capacities of forensic toxicologists through a rigorous literature search
3. Students shall discuss the role of forensic toxicologists through various published case studies, relevant movies and documentaries.

Step-3: Presentation or role play: (01:30 Hours)

4. students will prepare a PowerPoint presentation and deliver it in a departmental seminar or

5. Students will perform the role of forensic toxicologists emphasising

Identification/ diagnosis of a toxicological case

Collection, preservation and transportation of sample

Analyze samples to detect poison.

Preparation of a toxicological report.

Experiential Learning Activity

Experiential-Learning Learning 17.1: Digital content creation on historical milestones of Forensic Toxicology.

Total Learning Hours: 6 Hours

Step-1: Assignment of the task: (30 minutes)

The teacher will assign the task, library assessment and blueprint for collecting the relevant literature

Step-2: Literary Search/Library visit : (03:00 Hours)

2. Students will visit the library and collect the available relevant literature through rigorous search.

3. Most preferably the case history from the classical textbooks or published paper.

Step-3: Recording the Activity : (02:00 Hour)

5. Students shall write a script and develop digital content on the historical development of Forensic Toxicology.

6. Students shall present this before the teacher and the teacher shall rectify it wherever required.

Step-4: Dissemination of content/digital content: (30 minutes)

6. Students shall display and share the prepared final content by various means and shall upload it on a dedicated official channel for the record.

Experiential-Learning Learning 17.2: Case study on human performance toxicology.

Total Learning Hours: 7 Hours

Step-1: Assignment of the case: (30 minutes)

The teacher will choose and assign a case of Alcohol/drug addiction to the students for the bedside examination.

Step-2: Examination of the case : (03:00 Hours)

2. The students will examine the case and assess their behaviour and performance through interrogation
3. After a thorough examination & interrogation, the students will determine whether the patient is under the influence of Alcohol/Drugs or not.
4. Students will advise the investigation (s) required to confirm the diagnosis.

Step-3: Recording the Activity : (01:00 Hour)

5. The students will record the entire procedure as a case file, in the logbook, or

Step-4: Case presentation in the clinical classroom: (01:00 Hour)

6. The students will prepare the PowerPoint presentation and will deliver it in a clinical classroom located in hospital.

Step-5: Presenting the case : (01:30 hour)

7. The students will prepare the PowerPoint presentation and will deliver it to the class/ in a departmental seminar.

Modular Assessment

Assessment	Hour
Formative Assessment: 2 Hours **Instructions -** Conduct a structured Modular assessment. The assessment will be for 25 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. **Viva (10 marks):** The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (15 marks):**	2

The student will be given 3 Short Answer Questions from 1 and 2 units for 5 marks each. Or Any practical in converted form can be taken for assessment (25 Marks). Or Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	

Module 18 : بھاری معدنیات کی مسمومیت، شراب اور منشیات Bhari Ma'daniyat ki Masmoomiyat, Sharab aur Munashiyaat (Heavy Metals poisonings, Alcohol and Drugs of Abuse)

Module Learning Objectives

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

Describe Heavy metals, Alcohol and drugs of abuse

Enumerate the Mechanism of action, toxic effects, diagnosis, and detection methods of Heavy metals

Manage the toxic effects of heavy metals

Manage alcohol and other drug abuse

Unit 1 18.1 عمومی بھاری معدنیات Umoomi Bhari Ma'daniyaat (Common Heavy Metals)

18.1.1. Mechanism of action, toxic effects, diagnosis, detection methods, management, forensic significance and case studies of:

18.1.1.1. Sammul far (Arsenic)

18.1.1.2. Sesa (Lead)

18.1.1.3. Seemab (Mercury)

18.1.1.4. Faulad (Iron)

18.1.1.5. Nuqra (Silver)

18.1.1.6. Nuhas (Copper)

18.1.1.7. Jast (Zinc)

18.1.1.8. Surma (Antimony)etc.

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Prepare case study on the following Heavy metals- Sammul far, Sesa, Seemab and Faulad.	4	Experiential-Learning18.1	AFT-RES	Does	L_VC,L&PPT ,L&GD,PBL,PAL
CO1,CO2, CO3	Describe the characteristics and mechanism of action of the following heavy metals; Smmul Far, Sesa, Seemab, Faulad, Nuqra, Nuhas, Jast, Surma.	3	Lecture	CE	Knows-how	FC,L&GD,L,L&PPT
CO1	Demonstrate the various heavy metal poisoning through Blood, Urine and Saliva tests as well as Hair analysis	3	Practical18.1	PSY-GUD	Shows-how	LRI,PBL,PT,SDL,PL
CO1,CO2, CO3	Identify the physical and chemical properties of the following common heavy metals namely Sammul far (Arsenic), Sesa (Lead), Seemab (Mercury), Faulad (Iron), Nuqra (Silver), Nuhas (Copper), Jast (Zinc) and Surma (Antimony).	4	Practical18.2	PSY-SET	Shows-how	PAL,SDL,PL,D,PT
CO1,CO2, CO3	Prepare case study on the following Heavy metals- Nuqras, Nuhas, Jast and Surma	4	Experiential-Learning18.2	AFT-RES	Does	JC,PAL,SDL,BS,L&PPT

Unit 2 18.2 یونانی مرکبات کی بے ضرری کا تعین Unani Murakkabat ki Be Zarari ka Ta'yyun (Assessment of Safety of Unani formulations)

18.2.1. Analytical Methods for the Assessment of Safety of Unani Formulations.

18.2.1.1. Kushtajat

18.2.1.2. Sharbat

18.2.1.3. Ma’ajeen

18.2.1.4. Safoofat

18.2.1.5. Kajal

18.2.1.6. Ghaza

18.2.1.7. Marahim etc.

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO2	Describe the safety profile in terms of heavy metals in the Unani formulations like Kushtajat, Sharbat, Ma'ajeen, Safoofat, Kajal, Ghaza, Marahim, etc.	3	Lecture	CC	Knows-how	L&PPT ,TUT,L,L_VC,FC
CO2	Demonstrate the safety profile of Unani formulations like Kushtajat, Sharbat, Ma'ajeen, Safoofat, Kajal, Ghaza, Marahim, etc.	4	Practical18.3	PSY-SET	Shows-how	SDL,LRI,PAL,DL,DA
CO2	Demonstrate the classical methods of preparing Traditional reagents like Rangsazi (Colorimetry), Zahabi (Precipitation)/Takabbud, Shifae Sadura (Sedimentation)/Tarseeb, etc.	8	Experiential-Learning18.3	PSY-GUD	Does	PAL,L&GD,DL,Mnt,PER

Unit 3 18.3 الکوحل Al-cohol (Alcohols)

18.3.1. Metabolism, effects and forensic case studies of:

18.3.1.1. Ethanol

18.3.1.2. Methanol

18.3.1.3. Isopropanol

References: 84,85,97,99,100,101,102,105

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

CO2	Identify clinical features of Ethanol, Methanol and Isopropanol abuse	4	Practical18.4	PSY-SET	Shows-how	D-BED,PL,L_VC,PER,DIS
CO1,CO5	Describe the Overview of drugs of abuse, classification, their impact, effects and importance.	3	Lecture	CC	Knows-how	L&PPT,L_VC,FC,PL,PAL
CO3	Demonstrate the fatal doses, substance-related homicides, drug/alcohol-facilitated sexual assaults and impaired driving accidents	4	Experiential-Learning18.4	PSY-GUD	Does	C_L,CD,PER,CBL,L&PPT
CO3	Demonstrate Drug Abuse cases medicolegally	4	Experiential-Learning18.5	PSY-GUD	Does	PL,L_VC,CBL,D-BED,Mnt
CO2	Prepare a report on the Drunkenness (Ethanol/Methanol/Isopropanol)	4	Practical18.5	PSY-SET	Shows-how	D-BED,PAL,L_VC,PL,CBL

Unit 4 سوءاستفادہادویہ Su'e Istifada Advia (Drugs of Abuse)

18.4.1. Effects, toxicology, forensic importance, Impact, in post-mortem cases of Cocaine, Heroin and Methamphetamine

References: 24,48,59,60,61,63,78,79,84,85,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO2,CO5	Identify the principle of toxicological report analysis and learn to interpret, analyse & develop skills in identifying and communicating key findings and recommendations.	3	Experiential-Learning18.6	PSY-GUD	Shows-how	SDL,FV,RP,TBL,L&GD

CO3,CO5	Describe the forensic importance and Impact of drug abuse in post-mortem cases regarding Cocaine, Heroin and Methamphetamine	3	Lecture	CC	Knows-how	FC,SDL,L,L&PPT
CO2	Demonstarte various cases of drug abuse/Sports doping cases with interpretation of reports and Medicolegal importance	5	Practical18.6	PSY-SET	Shows-how	D-BED,L&PPT ,CBL,CD,Mnt
CO2,CO5	Analyse learning through Case Studies, Toxicological Report Analysis, Reconstruction exercises and expert testimony	4	Experiential-Learning18.7	PSY-SET	Does	DIS,L&PPT ,BS,BL,FV
CO2,CO5	Understand the principles of reconstruction exercises and testimony in forensic science Develop skills in conducting reconstruction exercises and providing testimony and Apply critical thinking and problem-solving skills in reconstructing crime scenes and interpreting evidence.	3	Experiential-Learning18.8	PSY-SET	Does	D,C_L,RP,CBL,L&GD
Unit 5 18.5 طریقہ انکشاف Tareeqa'e Inkishaf (Detection Techniques) 18.5.1. Techniques used for the detection of toxic substances in Urine, blood, breath, and hair follicles. **References:** 24,48,78,99,100,101						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO2	Describe the Detection Techniques for Alcohol Abuse	3	Lecture	CC	Knows-how	DIS,L_VC,L&PPT ,L,PL
CO2,CO5	Identify Drug Abuse through Urine, blood, breath, hair follicles, wearable TSA tests etc.	6	Practical18.7	PSY-SET	Shows-how	SDL,CD,DL,L&GD,DA

CO2	Describe the cases of Drug Abuse comprehensively	5	Experiential-Learning18.9	PSY-GUD	Does	PL,EDU,LRI,CBL,CD

Practical Training Activity

Practical Training 18.1 Detection of various heavy metal poisoning through Blood, Urine and Saliva tests as well as Hair analysis

Total Learning Hours: 3 Hours

Step 1: demonstration by teacher (1 hr):

Teachers shall instruct the students to detect heavy metal poisoning through Biological samples.

Step 2: experiment study by students (1 hr):

Students will do experiments/ various tests on biological samples to detect and diagnose the poisoning of heavy metals.

Students may be deputed to the nearby Forensic lab for detailed experiments and "hands-on training.

Step 3: group discussion and maintenance of record (1 hr):

Students shall record the procedure in a log book/practical record book and will produce the same before the faculty's concern

The concerned teacher/lab expert shall rectify (if required) and discuss the whole procedure in class/group discussion.

Practical Training 18.2 Identification of physical and chemical properties of following heavy metals like Sammul far, Sesa, Seemab, Faulad, Nuqra, Nuhas, Jast and Surma.

Total Learning Hours: 4 Hours

Step 1: demonstration by teacher (1 hr):

The teacher shall instruct and demonstrate the physical and chemical characteristics of various heavy metals.

Step 2: students' observation (1 hr):

Students shall learn the identification points of various heavy metals and their poisoning possibilities, along with their chemical characteristics.

Step 3: Preparation of record book (1 hr):

Students will record the whole procedure of identification.

Step 4: group discussion (1 hr):

After rectification from the concerned teacher/lab instructor, the whole procedure may be presented before the class for group discussion/digital content creation.

Practical Training 18.3 Demonstration of the safety profile of the various Unani formulations.

Total Learning Hours: 4 Hours

Step-1: Assignment of the case: (30 minutes)

The teacher of TQIS will direct the students to visit the Saidla/Advia lab to observe the classical methods of reagent preparation.

Step-2: Laboratory work : (03:00 Hours)

The students will visit the Saidla/Advia lab or a nearby pharmacy/Analytical lab.

The teacher/lab instructor of the concerned lab/department will help the students to choose various dosage forms/samples/formulations of Unani formulation for practical.

Students will acquainted with the machine/technique used for the detection of heavy metal.

Students will learn the process of heavy metal detection.

Step-3: Recording and presentation : (30 minutes)

Students will record the procedures in a log book/practical notebook and will present in the departmental seminar through PowerPoint or in UG practical class after ratification from the concerned teacher.

Practical Training 18.4 Identification of clinical features of Alcohol Abuse

Total Learning Hours: 4 Hours

Step-1: Assignment of the case: (30 minutes)

The teacher will help the students select the cases of alcohol abuse from the OPD/IPD/ nearest such institutions/hospitals

Step-2: Examination of the case : (02:00 Hours)

The students will examine and diagnose the case based on the features of alcohol abuse.

Step-3: Recording the Activity : (01:00 Hour)

Students will record the case and discuss it with the consultants/teacher.

The record shall be maintained in the CRP/Practical Record book or digital content.

Step-5: Dissemination and Presenting : (30 minutes)

The students will upload the digital content on a dedicated official channel, prepare the PowerPoint presentation and deliver it to the class/ in a departmental seminar.

Practical Training 18.5 Certification of Drunkeness of an individual (Ethanol, Methanol, Isopropanol)

Total Learning Hours: 4 Hours

Step-1: Assignment of the case: (30 minutes)

The teacher will choose and assign a case of Ethanol/Methanol/Isopropanol drunkenness for the examination.

Step-2: Examination of the case : (02:00 Hours)

2. The students will examine the case and assess their behaviour and performance through interrogation
3. After a thorough examination/interrogation, the students will determine whether the patient is a case of above said drunkenness or not.
4. Students may use the machine/instruments to confirm the diagnosis.

Step-3: Recording the Activity : (30 minutes)

5. The students will record the entire procedure as a case file, in the logbook, or digital content.

Step-4: Case presentation in the clinical classroom: (30 minutes)

6. The students will prepare the PowerPoint presentation and will deliver it to the class/ in a clinical classroom located in hospital

Step-5: Dissemination and Presenting : (30 minutes)

7. The students will upload the digital content on a dedicated official channel, and will prepare the PowerPoint presentation and will deliver it to the class/ in a departmental seminar.

Practical Training 18.6 Detection of Drug abuse/Doping cases.
Total Learning Hours: 5 Hours **Step-1: Assignment of the case: (30 minutes)** The teacher selects and assigns the case studies of drug abuse/sports doping cases. **Step-2: Examination of the case : (02:30 Hours)** Students will examine and detect cases of drug abuse, and doping case through various analytical techniques, such as GC-MS, LC-MS, HPLC, ELISA, and RIA. Students will prepare and interpret the toxicological reports, autopsy reports, Students will do an Autopsy Report Analysis **Step-3: Recording and presentation Activity : (02:00 Hours)** Students will prepare Assignments and will record all in a practical notebook Students will present a Case study, will do Group Discussion and Simulation Exercise Students will present the same in the departmental seminar.
Practical Training 18.7 Drug abuse identification.
Total Learning Hours: 6 Hours **Step-1: Assignment of the case: (30 minutes)** The teacher selects and assigns the case of drug abuse to dignose them through various methods . **Step-2: Examination of the case : (04:00 Hours)** Students will examine and detect cases of drug abuse, through Urine, blood, breath, hair follicles, wearable TSA tests etc. under guidance of teacher/lab instructor Students will do Urine Toxicology Screening, pH and Specific Gravity analysis, Microscopic Analysis Students will do Blood Toxicology Screening, CBC Analysis, and Blood Typing. Students will do Breath Alcohol Analysis, Volatile Organic Compound (VOC) Analysis Students will do Hair Toxicological Screening and Hair Analysis for heavy Metals.

Students will do Wearable Sensors for Biomarker Detection and TSA Tests for Explosive Detection

Step-3: Recording and presentation Activity : (01:30 Hours)

Students will record all the above tests in a practical notebook and will produce them before the teacher/lab instructor for rectification.

Students will prepare Assignments and will record all in a practical notebook

Students will present a Case study through powerpoint and will do Group Discussion.

Experiential Learning Activity

Experiential-Learning Learning 18.1: Demonstration of case studies related to common heavy metal poisoning- Sammulfar, Sesa, Seemab and Faulad.

Total Learning Hours: 4 Hours

Step 1: case study selection (1 hr):

The teacher shall help select the case studies of common heavy metal poisoning.

Step 2: group discussion (1 hr):

Students shall participate in case discussions, cross-question and group discussion of cases being discussed.

Step 3: Presentation of case (1 hr):

Students will also present the case of common heavy metal poisoning through the Journal Club or shall have a brainstorming session on such cases.

Step 4: Presentation of cases before UG students (1 hr):

Students will document the cases and may present them before the UG students under the supervision of a teacher.

Experiential-Learning Learning 18.2: Case studies on common heavy metal poisoning

Total Learning Hours: 4 Hours

Step-1: Assignment of the case: (30 minutes)

The teacher shall help to select the case studies of common heavy metal poisoning.

Step-2: Cas discussion Activity : (02:00 Hours)

Students shall participate in case discussions, cross-question and group discussion of cases being discussed.

Step-3: Recording and presentation Activity : (01:30 Hours)

Students will document the cases and may present them before the UG students under the supervision of a teacher.

Students will also present the case of common heavy metal poisoning through the Journal Club or shall have a brainstorming session on such cases.

Experiential-Learning Learning 18.3: Demonstration of the following classical/traditional methods of reagent preparation.

Total Learning Hours: 8 Hours

Step-1: Assignment of the case: (01:00 Hour)

The teacher of TQIS will direct the students to visit the Saidla/Advia lab to observe the classical methods of reagent preparation.

The teacher of Dept. of Saidla/ Ilmul Advia shall demonstrate the classical methods like Rangsazi, Zahabi, and Shifae Sadura through videos/ppt

Step-2: Preparation of Ragent : (05:30 Hours)

The students will visit the Saidla/Advia lab or a nearby pharmacy/Analytical lab

Students will get hands-on training on the above-said procedures

Students will compare these classical procedures with their recent counterparts and will try to validate the same with efforts to develop SOPs for the said procedures.

Step-3: Recording and presentation Activity : (01:30 Hours)

Students shall record the whole procedure and make digital content as well as demonstrate the same in a departmental seminar presentation through PowerPoint

The digital content will be uploaded to the dedicated official channel for dissemination purposes.

Experiential-Learning Learning 18.4: Case study on psychoactive substances intoxication

Total Learning Hours: 4 Hours

Step-1: Assignment of the case: (30 minutes)

The teacher will assign cases of Alcohol abuse/Substance-related homicides/alcohol-facilitated sexual assault/impaired driving accidents to the students for demonstration

Duties and/or visits to the nearby forensic department of the medical college may be arranged for this purpose.

Step-2: Case study : (02:00 Hours)

Students will learn to evaluate, diagnose and differentiate such cases along with management protocol.

Step-3: Documenting the case : (30 minutes)

Students will prepare case records and produce them before the concerned teacher for check/rectification

Step-4: Presentation Activity : (01:00 Hours)

The PG scholars will present the above well-documented cases in departmental seminars/UG Practicals through PowerPoint.

Experiential-Learning Learning 18.5: Demonstration and presentation of drug abuse cases

Total Learning Hours: 4 Hours

Step-1: Assignment of the case: (30 minutes)

Teachers/consultants at OPD/IPD/casualty will help the students identify and select the cases of drug abuse and instruct the basics of effective communication skills for presentation the same.

Step-2: Case discussion : (02:00 Hours)

Students will demonstrate the chosen cases among fellow researchers in the presence of the concerned faculty/ consultant.

Students will have bedside discussions on the chosen case

Step-3: Recording and presentation Activity : (01:30 Hours)

The fellow researchers shall record the demonstration (digitally too) for further use

The record book and digital content will be produced before the concerned faculty for rectification and final approval.

Students will develop critical thinking and analytical skills by presenting such cases

Students will exercise effective communication and presentation skills while presenting such cases.

Students will also present the case through the PowerPoint or shall have a brainstorming session on such cases.

The digital contend will be uploaded on the dedicated official channel for better dissemination.

Experiential-Learning Learning 18.6: Toxicological report analysis and interpretation
Total Learning Hours: 3 Hours **Step-1: Assignment of the reports: (30 minutes)** The teacher assigns the various reports to analyse. **Step-2: Report Analysis : (02:00 Hours)** The students shall analyse a series of toxicological reports related to specific case studies like chemical spills, poisoning incidents or environmental contamination. Students will do a report interpretation exercise - receive a set of toxicological reports and interpret the results, identify the key findings, limitation and note the recommendations. Students will analyze a dataset related to toxicological report analysis (e.g., blood or urine sample results) and create a visualization to communicate key findings. **Step-3: Presentation : (30 minutes)** 1. Students may participate in role-playing exercises by playing the role of toxicologist, clinician or regulator.
Experiential-Learning Learning 18.7: Understanding Toxicological reports, Reconstruction exercises and Testimony
Total Learning Hours: 4 Hours **Step 1: Introduction to Toxicological Report Analysis (1.5 hrs):** The teacher will introduce the students to case studies, Toxicological Report Analysis, Reconstruction exercises and expert testimony **Step 2: group discussion (1 hr):** Students will do a group discussion on case studies **Step 3: Submission of record book (1.5 hr):** Students will prepare the record book based on the findings and submit it before the teacher
Experiential-Learning Learning 18.8: Reconstruction of crime scenes, interpreting evidence and testimony

Total Learning Hours: 7 Hours

Step-1: Introductory remarks: (60 minutes)

The teacher will introduce the basic overview of the principles of the reconstruction of the crime scene, their exercise and problem-solving skills

Step-2: Activity execution : (4 Hours)

2. The students will participate in a mock crime scene reconstruction exercise, where they will collect and analyze evidence, and reconstruct the crime scene.

3. Students will prepare and practice the provided testimony as an expert witness, using the evidence collected during the reconstruction exercise.

4. Students will participate in a courtroom simulation, where they will provide testimony and respond to questioning from a prosecutor and defence attorney/participants.

Step-3: Recording and presentation of the Activity : (120 minutes)

5. Students will analyze a real-life case study, where they will evaluate the reconstruction exercise and testimony provided by experts/concerned teachers and record the entire procedure as a case file in the record book.

6. Students will receive feedback from peers and instructors on their performance during the reconstruction exercise and testimony.

7. The students will present the same in departmental seminars/classes through PowerPoint or discuss in groups.

Experiential-Learning Learning 18.9: Examine the Drug Abuses through various methods.

Total Learning Hours: 5 Hours

Step-1: Assignment of the case: (30 minutes)

The teacher will assign the various detection techniques of Drug abuse to the students - Concerned nearby labs may also be visited for this purpose.

Step-2: Examination of the case : (02:30 Hours)

2. The students will demonstrate/hands-on training in such techniques for the detection and examination of Drug abuse.

3. Students will record the entire procedure in a practical notebook and digitally.

Step-3: Recording and presentation Activity : (02:00 Hours)

The documented experience may be demonstrated in departmental seminars or UG practical classes.

Students will present a Case study, and will do a Group Discussion and Simulation Exercise. The digital content will be uploaded on the dedicated official channel to ensure effective dissemination.	
Modular Assessment	
Assessment	**Hour**
Formative Assessment: 6 Hours **Instructions -** Conduct a structured Modular assessment. The assessment will be for 75 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. **1. Viva/short questions (30 marks):** Viva will be conducted by the teacher, and 15 questions (2 marks each) covering all units will be asked. Or 3 short questions (5 marks each): The student will be given 3 short answer questions covering all units. **2. Practical (30 Marks):** 3 Practical from units 3, 4 & 5 for 10 Marks each **3. Experiential Learning Activity (15 Marks):** Demonstration of any one experiential learning activity from Units 6 or 7. Or Any practical in converted form can be taken for assessment (40 Marks). and any experiential work, such as portfolio/ reflections/ presentations, can be taken as an assessment (35 Marks)	6
Semester No : 4	
Module 19 : حشرات کش، جراثیم کش اور مبیدات قوارض Hasharatkush, Jaraseemkush aur Mabeedate Qawariz (Pesticides, insecticides and rodenticide)	
Module Learning Objectives (At the end of the module, the students should be able to) Describe Pesticides, insecticides and rodenticides Identify Pesticides, insecticides and rodenticides	

Examine Pesticides, insecticides and rodenticides

Unit 1 19.1 آرگینوفاسفیٹس Organophospates(Organophosphates)

19.1.1. Identification, Mechanism of Action, toxic effects, detection methods, management, forensic significance and case studies of:

19.1.1.1. Malathion,

19.1.1.2. Parathion

19.1.1.3. Diazinon

19.1.1.4. Chlorpyrifos etc.

References: 35,82,83,84,85,99,100,101,102

3A	3B	3C	3D	3E	3F	3G
CO1,CO3	Describe Organophosphates, their Identification, Mechanism of Action, toxic effects, detection methods, forensic significance and case studies of Malathion, Parathion, Diazinon, Chlorpyrifos, etc.	3	Lecture	CC	Knows-how	L,L&PPT
CO1	Demonstrate Organophosphates and their methods of identification, mechanism of action, toxic effects, detection methods, forensic significance - Parathion.	4	Practical19.1	PSY-GUD	Shows-how	PT,PER
CO1	Demonstrate Organophosphates and their methods of Identification, mechanism of action, toxic effects, detection methods, forensic significance - Diazinon, Chlorpyrifos, etc.	4	Practical19.2	AFT-REC	Shows-how	PER,PL
CO1	Prepare a case study on Organophosphates and their methods of identification, mechanism of action, toxic effects, detection methods, forensic significance,	5	Experiential-Learning19.1	AFT-RES	Does	PSM,SDL,RP

	especially organophosphate insecticides used for insect control - Malathion and Parathion.					
CO1	Prepare a case Study on Organophosphates and their methods of identification, mechanism of Action, toxic effects, detection methods, forensic significance, especially organophosphate insecticides used to control pests - Diazinon, Chlorpyrifos, etc	5	Experiential-Learning19.2	AFT-RES	Does	TBL,TPW
Unit 2 19.2 پائریتھرایڈز Pyrethrides (Pyrethroids) 19.2.1. Identification, Mechanism of Action, toxic effects, detection methods, management, forensic significance and case studies of: 19.2.1.1. Permethrin 19.2.1.2. Cypermethrin etc **References:** 35,82,83,84,85,99,100,101						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO1,CO4	Describe Pyrethroids, its Identification, Mechanism of Action, toxic effects, detection methods, forensic significance.	3	Lecture	CC	Knows-how	L&PPT ,L,L&GD
CO1,CO4	Demonstrate Pyrethroids, their types, Identification, mechanism of action, toxic effects, detection methods, forensic significance, such as Permethrin, Cypermethrin, etc.	8	Practical19.3	PSY-GUD	Shows-how	DL,D
CO1,CO4	Prepare case studies on Pyrethroid toxicity with their adverse effects and significance on human life	10	Experiential-Learning19.3	AFT-RES	Does	DIS,BL
Unit 3 19.3 مبیدات القوارض Mabeedatul Qawariz (Rodenticides)						

19.3.1. Identification, Mechanism of Action, toxic effects, detection methods, management, forensic significance and case studies of:

19.3.1.1. Warfarin

19.3.1.2. Brodifacoum etc.

References: 35,82,83,84,85,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO4	Describe the Rodenticides, their Identification, Mechanism of Action, toxic effects, detection methods and medicolegal significance	4	Lecture	CC	Knows-how	L&GD,L,L_VC
CO1,CO4	Demonstrate Rodenticides, Warfarin and Brodifacoum: their Identification, mechanism of action, toxic effects, detection methods and medico legal significance	4	Practical19.4	CAN	Shows-how	DIS,D
CO1,CO4	Conduct an observational study of rodenticides in the household, their incidental intake and preventive measures	6	Experiential-Learning19.4	AFT-VAL	Does	BS,BL

Practical Training Activity

Practical Training 19.1 Demonstration of Organophosphates - Parathion.

Total Learning Hours: 4 Hours

Step 1: Demonstration (1 Hour):

The teacher will demonstrate organophosphates and their methods of identification, mechanism of action, toxic effects, detection methods, forensic significance and case studies of malathion and parathion

Step 2: Group discussion (1 Hour):

The student's group discussion will be made on the understanding of the demonstrated organophosphates and their methods of identification, mechanism of action, toxic effects, detection methods, forensic significance and case studies of malathion and parathion

Step 3: Submission of report (1 Hour):

Students shall present the observational summary before the teacher, and the teacher shall make corrections wherever required.

The record book will be submitted to the concerned teacher/department

Step 4: Presentation (1 Hour):

The above findings shall be presented in the departmental seminar and/or UG practical classroom.

Practical Training 19.2 Demonstration of Organophosphates - Diazinon, Chlorpyrifos

Total Learning Hours - 04 Hours

Step 1: Demonstration (1 Hour):

The teacher will demonstrate organophosphates and their methods of identification, mechanism of action, toxic effects, detection methods, forensic significance and case studies of diazinon, chlorpyrifos, etc

Step 2: Group discussion (1 Hour):

Students' group discussion will be made on the understanding of the demonstrated organophosphates and their methods of identification, mechanism of action, toxic effects, detection methods, forensic significance and case studies of diazinon, chlorpyrifos, etc

Step 3: Presentation of results (1 hr):

Students shall present this understanding before the teacher, and the teacher shall make corrections wherever required

Step 4: PPT presentation and submission (1 Hour);

The record book will be submitted along with a PPT presentation in the departmental seminar and/or UG practical class by the student.

Practical Training 19.3 Demonstration of Pyrethroids, Permethrin & Cypermethrin - Identification, Mechanism of Action, toxic effects, detection methods, forensic significance, etc.

Total Learning Hours: 8 Hours

Step 1: Demonstration (2 Hours):

The teacher will demonstrate pyrethroid types, identification, mechanism of action, toxic effects, detection methods, forensic significance, such as permethrin, cypermethrin, etc

Step 2: group discussion (2 Hours):

Students' group discussion will be made on the understanding of the demonstrated pyrethroid types, identification, mechanism of action, toxic effects, detection methods, forensic significance, such as permethrin, cypermethrin, etc

Step 3: Report writing (1 Hour):

Students will prepare the report based on the findings

Step 4: Preparation of presentation (1.5 Hours):

Students shall prepare the PPT presentation

Step 5: PPT presentation and submission (1.5 Hours):

The record book will be submitted along with a PPT presentation in the departmental seminar by the student.

Practical Training 19.4 Practical demonstration of Rodenticide, Warfarin and Brodifacoum.

Total Learning Hours: 4 Hours

Step 1. Demonstration and introductory session (1 Hour):

The teacher will demonstrate rodenticides, their identification, mechanism of action, toxic effects and detection methods.

Forensic significance of warfarin and brodifacoum, etc, will also be described.

Step 2: Groups demonstration (1.5 Hours):

The PG Scholars groups will demonstrate their sub-sections using PPT

An active interaction session will be arranged among the Scholars

Step 3: Faculty review and feedback (1 Hour):

The teacher will assess and make corrections or modifications if required

Step 4: Record book submission (0.5 Hour):

A record book will be maintained for the above activity.

Experiential Learning Activity

Experiential-Learning Learning 19.1: Case Study on Organophosphates - Malathion and Parathion.

Total Learning Hours: 5 Hours

Step 1: assignment of case by teacher (1 hr):

The teacher will assign a case of organophosphates to evaluate its methods of identification, mechanism of action, toxic effects, detection methods, forensic significance, especially organophosphate insecticides used for insect control, such as malathion and parathion, to the students

Step 2: examination and evaluation of the case (1 hr)

Students will examine the case and evaluate its methods of identification, mechanism of action, toxic effects, detection methods, and forensic significance

Step 3: Preparation of report (1 hr):

Students shall prepare the case study report

Step 4: Submission of report (1 hr):

The results shall be submitted to the teacher, and the teacher will evaluate the report before finalisation.

Step 5: Report presentation (1 hr):

The student will present the report in the UG practical class / departmental seminar

Experiential-Learning Learning 19.2: Case study on Organophosphates - Diazinon, Chlorpyrifos, etc

Total Learning Hours: 5 Hours

Step 1: Assignment (1 Hour)

The teacher will assign a case of organophosphates to evaluate its methods of identification, mechanism of action, toxic effects, detection methods, forensic significance, especially organophosphate insecticides used to control pests such as diazinon, chlorpyrifos, etc, to the students

Step 2: Examination and evaluation (1 Hour)

The students will examine the case and evaluate its methods of identification, toxic effects, detection methods, and forensic significance

Step 3: Preparation of report (1 Hour):

Students shall prepare the case study report

Step 4: Report Submission (1 Hour):

The results shall be submitted to the teacher before finalising, and the teacher will evaluate the report, rectify, wherever needed.

Step 5: Report presentation (1 Hour):

The student will present the findings in the departmental seminar and/or in the UG practical class.

Experiential-Learning Learning 19.3: Case studies on Pyrethroid toxicity

Total Learning Hours: 10 Hours

Step 1: introductory case discussion (1 Hour):

The teacher will discuss the case of pyrethroids and their adverse effects

Step 2: case study distribution (1 Hour):

The teacher will provide cases of pyrethroids to evaluate their adverse effects

Step 3: research and group discussion (2 Hours):

Students will do research and discussion based on the given case studies

Step 4: observation and inference writing (2 Hours):

Students will record observations from the case study and prepare the results

Step 5: presentation of results (1 Hour):

Results will be presented before the teacher

Step 6: Assessment of results (1 Hour):

The teacher will evaluate the reports

Step 7: Display and sharing (2 Hours):

Students will display and share the evaluated content by various means and shall upload it on a dedicated official channel for the record.

Experiential-Learning Learning 19.4: Preventive measures against incidents due to Rodenticides.

Total Learning Hours: 6 Hours

Step 1: Data collection (1 hour):

The teacher will assign data from the hospital on cases of rodenticide household accidental incidents to the PG Scholars.

The PG Scholar shall study and enquire about the given case

Step 2: Hazard identification (1 hour):

The PG Scholar will list the potential dangers of accidental rodenticide incidents.

Step 3: Report writing (1.5 hours):

The PG Scholar will prepare the report highlighting the summary of collected data and the importance of safety measures in accidental rodenticide incidents

Step 4: Report submission and faculty feedback (1 hour):

The report shall be submitted to the teacher.

The teacher will rectify and provide feedback for improvement

The Scholar shall finalise the report

Step 5: Oral presentation (1 hour):

The PG Scholar will present their PPT on the same resort, emphasising on safety, awareness and public health measures.

Step 6: record maintenance (0.5 hour):

The activity will be recorded in the practical record book, or digital content may be prepared

The same content may be uploaded to the dedicated official YouTube channel

Modular Assessment

Assessment	**Hour**

Formative Assessment: 4 Hours **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. **Viva (20 marks):** The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1, 2 and 3 units for 5 marks each. **Case-Based Scenario (20 Marks):** Demonstration of any one case from units 1, 2 & 3. Or Any practical in converted form can be taken for assessment (25 Marks). and Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	4
Module 20 : خانگی سموم Khangi Samoom (Household Poisons)	
Module Learning Objectives (At the end of the module, the students should be able to) Describe Household Poisons Identify Household Poisons Examine Household Poisons	
Unit 1 20.1 تنظیفی مواد Tanzeefi Mawad (Cleaning Agents) 20.1.1. Types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of:	

20.1.1.1. Bleach (Sodium Hypochlorite)

20.1.1.2. Ammonia

20.1.1.3. Drain Cleaners: Sodium Hydroxide, Sulfuric Acid

20.1.1.4. Detergents

20.1.1.5. Antifreeze (Ethylene Glycol)

20.1.1.6. Toilet Bowl Cleaners (Hydrochloric Acid)

20.1.1.7. Air Fresheners

References: 26,28,35,40,41,42,43,44,45,46,82,83,84,85,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO1	Describe the following cleaning agents, their types, identification, mechanism of action, toxic effects, detection methods and forensic significance of Bleach (Sodium Hypochlorite), Ammonia, Drain Cleaners: Sodium Hydroxide, Sulfuric Acid; Detergents, Antifreeze (Ethylene Glycol), Toilet Bowl Cleaners (Hydrochloric Acid) and Air Fresheners	5	Lecture	CC	Knows-how	L&PPT ,L
CO1	Demonstrate detection methods and the forensic significance of chelating agents.	5	Practical20.1	CS	Shows-how	TUT,ML,SIM
CO1	Demonstrate the detection methods and forensic significance of cleaning agents like Bleach (Sodium Hypochlorite), Ammonia, Drain Cleaners: Sodium Hydroxide, Sulfuric Acid; Detergents, Antifreeze (Ethylene Glycol), Toilet Bowl Cleaners (Hydrochloric Acid) and Air Fresheners	5	Practical20.2	PSY-GUD	Shows-how	L_VC,PSM

CO1	Prepare an observational study on the Hazardous effects of Cleaning Agents	5	Experiential-Learning20.1	AFT-RES	Does	BL,SY
CO1	Present Case studies of cleaning agent hazardious effects.	5	Experiential-Learning20.2	PSY-GUD	Does	DIS,BS,IBL

Unit 2 20.2 جمال افزا اور ذاتی نگہداشت کی مصنوعات Jamal Afza aur zati nigahdasht ki masnoo'at (Cosmetics and Personal Care Products)

20.2.1. Cosmetics and Personal Care Products: Types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of:

20.2.1.1. Nail Polish Remover (Acetone)

20.2.1.2. Perfumes and Colognes (Ethanol)

20.2.1.3. Hair Dyes: Ammonia, Hydrogen Peroxide

20.2.1.4. Dusting powders

20.2.1.5. Isopropyl Alcohol (Rubbing Alcohol)

20.2.1.6. Hand Sanitizers (Ethyl Alcohol)

References: 26,28,35,41,42,43,44,45,46,82,83,84,85,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO4	Describe Cosmetics and Personal Care Products, their Types, mechanism of action, toxic effects, detection methods, forensic significance and case studies of Nail Polish Remover (Acetone), Perfumes and Colognes (Ethanol), Hair Dyes: Ammonia, Hydrogen Peroxide; Dusting powders, Isopropyl Alcohol (Rubbing Alcohol) and Hand Sanitisers (Ethyl Alcohol)	5	Lecture	CC	Knows-how	L,L&GD,L&PPT

CO1,CO4	Demonstrate the toxic effects of Cosmetics and Personal Care Products like Nail Polish Remover (Acetone), Perfumes and Colognes (Ethanol), Hair Dyes: Ammonia, Hydrogen Peroxide; Dusting powders, Isopropyl Alcohol (Rubbing Alcohol) and Hand Sanitisers (Ethyl Alcohol)	5	Practical20.3	PSY-SET	Shows-how	TBL,TPW,EDU
CO1,CO4	Demonstrate the hazards of Cosmetics and Personal Care Products, their identification, mechanism of action and their detection methods.	5	Practical20.4	PSY-SET	Shows-how	SY,TBL,PrBL
CO2,CO5	Conduct an observational study on the poisoning due to various cosmetic and personal care products.	8	Experiential-Learning20.3	PSY-SET	Does	PT,PrBL,BL,PL,RLE
CO2,CO5	Demonstrate poisoning/harmful effects due to various personal care products such as parabens, formaldehyde, and talc.	8	Experiential-Learning20.4	AFT-VAL	Does	BL,BS

Practical Training Activity

Practical Training 20.1 Demonstration of detection methods and the forensic significance of chelating agents.

Total Learning Hours: 05 Hours

Step 1: Assignment (0.5 Hour):

The teacher will describe the methods of detection and the forensic significance of chelating agents.

Step 2: Practical execution (1.5 Hours):

The students will do a group discussion on detection methods and forensic significance of various types of chelating agents by laboratory-based studies.

The students will learn and use methods to detect the chelating agents in the laboratory.

Step 3: Report preparation (1 Hour):

Students will prepare the report based on the group discussion and laboratory work.

Step 4: Submission of report (1 Hour):

The teacher will evaluate and rectify the report, followed by submission.

Step 5: Presentation (1 Hour):

The student will present the report in the UG practical class as well as in the departmental seminar

Practical Training 20.2 Demonstration of detection methods for cleaning agents

Learning Hours: 05 Hours

Step 1: Assignment (2 Hours):

The teacher will assign the practical to the students

The students will do a group discussion on cleaning agents, along with their identification, mechanism of action, toxic effects detection methods and their forensic significance

Step 2: Report preparation (1 Hour):

Students will prepare the report based on the group discussion

Step 3: Evaluation of report (1 Hour):

The teacher will evaluate the report, rectify whatever is required

Step 4: Presentation (1 Hour):

The student will present the same in the UG practical class or departmental seminar.

Practical Training 20.3 Demonstration of the Toxic Effects of Following Cosmetics and Personal Care Products; Nail Polish Remover (Acetone), Perfumes and Colognes (Ethanol), Hair Dyes: Ammonia, Hydrogen Peroxide, Dusting powders, Isopropyl Alcohol (Rubbing Alcohol) and Hand Sanitisers (Ethyl Alcohol)

Total Learning Hours: 5 Hours

Step 1: Introduction and background: (1 Hour)

The teacher will give a brief discussion on the historical use of cosmetics and personal care products, toxicity and health impacts.

Step 2: Creative output preparation (1 Hour):

The student will prepare a short clip or PPT, or poster on the historical perspective of the toxic effects of cosmetics and personal care products. **Step 3: Finalisation of content: (1 Hour)** The students will get final touch-ups from the teacher on the prepared presentation or poster, or video clip, and practice if required. **Step 4: Presentation and Feedback (2 Hours):** Presentation of poster/PPT/ short clip for appraisal of toxic effects. Reflective class discussion and a teacher feedback session will be required.
Practical Training 20.4 Demonstration on the hazards of Cosmetics and Personal Care Products
Total Learning Hours: 4 Hours **Step 1: demonstration by teacher (1 Hour)** The teacher will demonstrate the hazards of cosmetics and personal care products, their identification, the mechanism of action and their detection methods **Step 2: Group discussion (90 Min)** The student's group discussion will be made on the understanding of the demonstrated hazards of cosmetics and personal care products, their identification, the mechanism of action and their detection methods **Step 3: Ractification (2 hours):** The students shall present this understanding before the teacher, and the teacher shall make corrections wherever possible **Step 4: Record book and PPT Presentation (30Min):** The record book will be submitted along with the PPT presentation in the departmental seminar by the student
Experiential Learning Activity
Experiential-Learning Learning 20.1: Observational assesment
Learning Hours: 05 Hours **Step 1: observational study (1 hr):**

Students will do an observational study by viewing cleaning agents hazard videos

Step 2: field-based learning (1 hr):

Students will visit the cleaning agents industries/stock house/stores

step 3:report preparation (1hr):

Students will prepare the reports based on the findings

Step 4: Report evaluation: (1 hr):

The teacher will evaluate the report

Step 5: class presentation (1 hr):

The student will present the report in the class or departmental seminar

Experiential-Learning Learning 20.2: Case studies of Cleaning agents that can pose serious health hazards, with case studies highlighting issues like respiratory irritation, skin burns, and even asthma, emphasizing the importance of safe handling and product.

Total Learning Hours: 5 Hours

Step 1: Introduction and assignment of case by teacher (1 hr):

The teacher will assign a case of cleaning agents that can pose serious health hazards, with case studies highlighting issues like respiratory irritation, skin burns and even asthma, emphasising the importance of safe handling of products

Step 2: case study research and analysis (1hrs):

Students will examine the case and evaluate poses serious health hazards with case studies highlighting issues like respiratory irritation, skin burns and even asthma, emphasising the importance of safe handling of products

Step 3: report preparation (1 hr):

Students will prepare the case study report

Step 4: (1hr): result presentation and evaluation (1hr):

Students will present the results before the teacher, and the teacher will evaluate the report

Step 5: class presentation (1 hr):

Students shall present the report in the class or departmental seminar

Experiential-Learning Learning 20.3: Observational study on the poisoning due to various cosmetic and personal care products.

Total Learning Hours: 8 Hours

Step 1: Knowledge acquisition (1 hour):

The teacher will guide to search and study of lectures/videos/handouts and published papers on the observational study of poisoning due to various cosmetics and personal care products

Step 2: Group discussion:(2 hours)

The students will gain comprehension through case study analysis/ group discussion

Step 3: Simulation exercise: (2 hrs)

Applications through simulation exercise/product-level analysis, and its management.

Step 4: Presentation (1 hour):

The student groups will present a product analysis of any selected product, its ingredients, and suggest safer replacements

Step 4: Quiz and open discussion (2 hrs):

Evaluation through a quiz and open discussion on consumer safety and awareness

Experiential-Learning Learning 20.4: Demonstration of harmful effects due to personal care products.

Total Learning Hours: 8 Hours

Step 1: Orientation and objective setting (0.5 hour):

The teacher will introduce the objective – identifying harmful chemicals in personal care products, with a brief discussion including real cases

Step 2: Data collection (1.5 hours):

The PG Scholar will search extensively for the data of personal care products containing potentially harmful chemicals that can cause poisoning or adverse health effects, such as parabens, formaldehyde and talc from research papers.

Identify and list potential dangers of personal care products that contain potentially harmful chemicals.

Step 3: Brainstorming session (2 hours):

Group discussion among PG Scholars on the above findings, with emphasis on health risks and consumer awareness, along with preventive measures.

Step 4: Report writing (1.5 hours):

The PG Scholar will prepare individual reports on findings and observations, as well as safety measures to counter such poisoning.

Step 5: Report presentation and feedback (2.5 hours);

The PG Scholar will submit the report highlighting the importance of safety measures to counteract about personal care products that contain potentially harmful chemicals.

After ratification from the concerned teacher, the same will be finalised and submitted.

An effective digital content may be prepared and uploaded to the dedicated official YouTube channel.

Modular Assessment

Assessment	Hour
Formative Assessment: 4 Hours **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. **Viva (20 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1 and 2 units for 5 marks each. **Case-Based Scenario (20 Marks):** Demonstration of any one case from unit 2.	4

Or Any practical in converted form can be taken for assessment (25 Marks). and Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	

Semester No : 5

Module 21 : Pharmaceuticals and Over-the-Counter (OTC) Products

Module Learning Objectives

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

Describe Pharmaceuticals and Over-the-Counter (OTC) Products

Identify Pharmaceuticals and Over-the-Counter (OTC) Products

Unit 1 21.1 مواد افیونی Mawade Afyooni (Opioids)

21.1.1. Types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of:

21.1.1.1. Morphine

21.1.1.2. Codeine

21.1.1.3. Oxycodone

References: 26,28,29,30,35,41,42,43,44,45,46,82,83,84,85,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO5	Describe Opioids, their Types, identification, mechanism of action, toxic effects, detection methods, and forensic significance of opioids such as Morphine and Codeine.	2	Lecture	CC	Knows-how	L&PPT ,L&GD,L

CO5	Demonstrate Opioids, especially Codeine and Oxycodone, their clinical significance, mechanism of action, management and their medico-legal aspect	6	Practical21.1	PSY-SET	Shows-how	L&GD
CO5	Demonstrate Opioids, its clinical significance, mechanism of action, management and its medico legal aspect.	5	Practical21.2	PSY-SET	Shows-how	IBL,DIS
CO5	Present a case study on Opioids - Morphine	6	Experiential-Learning21.1	AFT-RES	Does	CD,D-BED,RLE,IBL,CBL
CO5	Present case studies on opioids - Codeine	6	Experiential-Learning21.2	PSY-SET	Does	CBL,DIS,CD,RLE,D-BED
CO5	Present case studies on opioids - Oxycodone	6	Experiential-Learning21.3	AFT-RES	Does	D-BED,IBL,CD,CBL,DIS

Unit 2 21.2 بینزودیازپائنز Binzudiyazpinez (Benzodiazepines)

21.2.1. Types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of:

21.2.1.1. Diazepam

21.2.1.2. Alprazolam

References: 26,28,29,30,35,41,42,43,44,45,46,82,83,84,85,86,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO3,CO5	Describe Benzodiazepines, their types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance.	2	Lecture	CC	Knows-how	L&GD,L&PPT ,L

CO5	Present case studies on the toxicty of Diazepam and Alprazolam.	3	Experiential-Learning21.4	PSY-GUD	Does	D,CBL,BS,PAL,SDL

Unit 3 21.3 البابربیٹورات Albarbiturat (Barbiturates)

21.3.1. Types, identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of:

21.3.1.1. Phenobarbital

21.3.1.2. Phenytoin

References: 26,28,29,30,35,41,42,43,44,45,46,82,83,84,85,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO3,CO5	Describe Barbiturates the ypes, identification, mechanism of action, toxic effects, detection methods, management, forensic significance.	1	Lecture	CC	Knows-how	L,L&PPT ,L&GD
CO5	Demonatrate the diagnosis and manage of the toxicity of Phenobarbital and Phenytoin and their medico-legal aspect.	6	Practical21.3	AFT-CHR	Shows-how	D,D-BED,CBL,CD

Unit 4 21.4 ادویہ بدون نسخہ Advia Bedoone Nuskha (Over-the-Counter drugs (OTC)

21.4.1. Aspirin

21.4.2. Paracetamol

21.4.3. Cough Syrups-Dextromethorphan

21.4.4. Antihistamines

References: 26,28,29,30,35,41,42,43,44,45,46,82,83,84,85,99,100,101

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

CO1,CO4	Describe an Over-the-Counter (OTC) drug such as Aspirin, Paracetamol, Cough Syrups-Dextromethorphan and Antihistamines	5	Lecture	CC	Knows-how	L&GD,L_VC,L&PPT
CO1,CO4	Demonstrate Over-the-Counter (OTC) drugs - Aspirin, Paracetamol and Cough Syrups	3	Practical21.4	PSY-GUD	Shows-how	TBL,PrBL
CO1,CO4	Prepare a case study on the use of Over-the-Counter (OTC) drugs.	5	Experiential-Learning21.5	PSY-SET	Does	IBL,PL,DA,RLE,Mnt

Practical Training Activity

Practical Training 21.1 Demonstration of Opioids and their medico-legal aspect

Total Learning Hours: 06 Hours

Step 1: Introduction (1 Hour)

The teacher will demonstrate its clinical significance, mechanism of action, management and medico-legal aspects of opioids

Step 2: Group discussion (3 Hours):

Group discussion on its clinical significance, mechanism of action, management and its medico-legal aspect

Step 3: Presentation and record keeping (2 Hours):

Information will be presented in the UG practical class or a departmental seminar, and summarised in the record book

Practical Training 21.2 Demonstration of Opioids and their medico-legal aspect.

Total Learning Hours: 05 Hours

Step 1: Introduction by teacher (1 Hour):

The teacher will demonstrate opioids, their clinical significance, mechanism of action, management and medicolegal aspects

Step 2: Group discussion and Content creation (2 Hours):

The students shall have an extensive group discussion on the above **Step 3: Presentation and record book preparation (2 Hours):** The students will present the same in the UG practical class or the departmental seminar, and prepare a record book.
Practical Training 21.3 Diagnosis and manage of the toxicity of Phenobarbital and Phenytoin
Total Learning Hours: 06 Hours **Step 1: Introduction (1 Hour)** 1. The teacher will demonstrate its clinical significance, mechanism of action, management and medico-legal aspects of Phenobarbital and Phenytoin **Step 2: Group discussion (3 Hours):** 2. Group discussion on its clinical significance, mechanism of action, management and its medico-legal aspect **Step 3: Presentation and record keeping (2 Hours):** 3. Information will be presented in the UG practical class or a departmental seminar, and summarised in the record book
Practical Training 21.4 Demonstration of OTC drugs - Aspirin, Paracetamol and Cough Syrups
Total Learning Hours: 03 Hours **Step 1: Introduction (0.5 Hour):** The teacher will demonstrate the most commonly used OTC drugs such as aspirin, paracetamol and cough syrup **Step 2: Discussion (0.5 Hour):** The teacher will demonstrate potential risks associated with improper OTC usage and explore factors influencing patient behaviour. **Step 3: Data collection (1 Hours):** Students will collect published papers on potential risks associated with improper OTC usage and explore factors influencing patient behaviour. **Step 4: Documentation (1 Hours):** Group discussion will be held, and information will be summarised in the record book

Experiential Learning Activity
Experiential-Learning Learning 21.1: Case study on Opioids - Morphine
Total Learning Hours: 06 Hours **Step 1: Introduction and drug assignment (1 Hour):** The teacher will assign a case of morphine intoxication to the students. **Step 2: Evaluation of case (2 Hours):** Various diagnostic tools may be used to diagnose the case The student will evaluate the case of morphine intoxication in detail. **Step 3: Documentation: (1 Hour) :** Students will prepare the case report (Log book) and a PPT. **Step 4: Presentation (2 Hours):`** Students will present the same in the department seminar room and/or in the UG practical class.
Experiential-Learning Learning 21.2: Case studies on Opioids - Codeine
Total Learning Hours: 06 Hours **Step 1: Introduction and drug assignment (1 Hour):** The teacher will assign a case of Codeine intoxication to the students. **Step 2: Evaluation of case clinically (2 Hours):** Various diagnostic tools may be used to diagnose the case The student will evaluate the case of morphine intoxication in detail. **Step 3: Documentation: (1 Hour) :** Students will prepare the case report (Log book) and a PPT. **Step 4: Presentation (2 Hours):`**

Students will present the same in the department seminar room and/or in the UG practical class.
Experiential-Learning Learning 21.3: Case studies on Opioids - Oxycodone
Total Learning Hours: 06 Hours **Step 1: Introduction and drug assignment (1 Hour):** The teacher will assign a case of oxycodone intoxication to the students. **Step 2: Evaluation of case clinically (2 Hours):** Various diagnostic tools may be used to diagnose the case The student will evaluate the case of morphine intoxication in detail. **Step 3: Documentation: (1 Hour) :** Students will prepare the case report (Log book) and a PPT. **Step 4: Presentation (2 Hours):`** Students will present the same in the department seminar room and/or in the UG practical class.
Experiential-Learning Learning 21.4: Toxicty of Diazepam and Alprazolam.
Total Learning Hours: 03 Hours **Step 1: Introduction and case assignment (0.5 Hour):** The teacher will assign a case of morphine intoxication to the students. **Step 2: Evaluation of case (1 Hours):** Various diagnostic tools may be used to diagnose the case The student will evaluate the case of Diazepam and Alprazolam intoxication in detail. **Step 3: Documentation: (1 Hour) :** Students will prepare the case report (Log book) and a PPT. **Step 4: Presentation (0.5 Hours):`**

Students will present the same in the department seminar room and/or in the UG practical class.

Experiential-Learning Learning 21.5: Case study on Over-the-Counter (OTC) drugs.

Total Learning Hours: 06 Hours

Step 1: Background discussion (0.5 Hour):

The teacher will introduce the concept of OTC drugs and the difference between OTC and prescription drugs, and their misuse and impact.

Step 2: Identification of common OTC categories (0.5 Hour):

The students will identify the most commonly used OTC categories like pain killers, antihistamines and antacids.

Step 3: Designing data collection tools (1 Hour):

Introduction of students to the questionnaire and other data collection methods.

The pre-tested questionnaire will be used to collect the data.

Step 4: Data collection and prevalence analysis (1 Hours):

The students collect the data to examine the prevalence of self-medication with OTC drugs among patients visiting the hospital.

Step 5: Data analysis (1 Hour):

The students will learn to analyse the data through Excel/SPSS and other means.

Step 6: Analysing risk factors and Report writing (1 Hours):

The students analyse potential risk factors associated with improper OTC usage and will explore the factors influencing patient behaviour regarding OTC medication, and write a report to disseminate it effectively.

Step 7: Presentation (1 Hour):

The students will present the main findings and methodology in the departmental seminar.

Modular Assessment

Assessment	**Hour**

Formative Assessment: 4 Hours **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. **Viva (20 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1, 2 and 4 units for 5 marks each. **Case-Based Scenario (20 Marks):** Demonstration of any one case from units 1, 2, 3 & 4. Or Any practical in converted form can be taken for assessment (25 Marks). And Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	4
Module 22 : نباتی سمین Nabati Sammeen (Plant Toxins)	
Module Learning Objectives (At the end of the module, the students should be able to) Describe Plant Toxins Identify Plant Toxins Manage the toxicity of Plant Toxins	
Unit 1 22.1 سمی نباتات Sammi Nabatat (Toxic Plants)	
22.1.1. Toxic Plants: Identification, mechanism of action, toxic effects, detection methods, management, forensic significance and case studies of:	

22.1.1.1. Cardiotoxic: Digitalis, Tambaku, Kaner, Beesh

22.1.1.2. Neurotoxics: Azaraqi, Afyun, Datura, Bhang, Cocaine, Luffah

22.1.1.3. Gastointestinal toxins: Arand, Baladur, Jamal Gota, Madar, Shehm Hanzal, Lalchitra, Sibr, Ratti

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,26,28,29,30,35,41,42,43,44,45,46,73,74,75,82,83,84,85,86,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO2	Describe the following Cardiotoxic Plants with their Identification, mechanism of action, toxic effects, and forensic significance; Digitalis, Tambaku, Kaner, Beesh.	4	Lecture	CC	Knows-how	L&GD,L&PPT
CO1,CO3	Demonstrate the toxic effects, forensic significance of the following toxic plants- Digitalis, Tambaku, Kaner and Beesh	5	Practical22.1	PSY-SET	Shows-how	SDL,PT,LRI
CO1,CO3	Demonstrate the toxic effects of the gastrotoxic plants - Arand, Baladur, Jamalgota.	5	Practical22.2	PSY-GUD	Shows-how	PT,PL,PER
CO1,CO3	Manage the case of opioid intoxication - Morphine	9	Experiential-Learning22.1	AFT-RES	Does	Mnt,L&PPT ,LRI,L&GD,CD
CO1,CO2	Describe the following neurotoxic plants with their Identification, mechanism of action, toxic effects, and forensic significance: Azaraqi, Afyun, Datura, Bhang, Cocaine, Luffah	3	Lecture	CC	Knows-how	L&PPT ,L,L&GD,L_VC
CO1,CO2	Describe the following Gastrointestinal toxins with their Identification, mechanism of action, toxic effects, and forensic significance; Arand, Baladur, Jamalgota, Madar, ShehmHanzal, Lalchitra, Sibr and Ratti	3	Lecture	CC	Knows-how	L_VC,L&GD,L,L&PPT

CO1,CO3	Demonstrate the toxic effects, forensic significance of the neurotoxic plants: Azaraqi, Datura, Bhang, Cocaine, and Luffah.	5	Practical22.3	PSY-SET	Shows-how	PER,PT,L&PPT ,D,DL
CO1,CO3	Demonstrate the toxic effects of the gastrotoxic plants - Madar, Shehm Hanzal.	5	Practical22.4	PSY-SET	Shows-how	L&PPT ,SIM,D,PT,DL
CO1,CO3	Manage the case of opioid intoxication - Codeine	9	Experiential-Learning22.2	AFT-RES	Does	C_L,CD,L&GD,LS,LRI
CO1,CO3	Manage the case of opioid intoxication - Oxycodone	8	Experiential-Learning22.3	AFT-RES	Does	Mnt,CD,LRI,L&GD,RLE

Practical Training Activity

Practical Training 22.1 Demonstration of forensic significance of cardio toxic plants - Digitalis, Tambaku, Kaner and Beesh.

Total Learning Hours: 05 Hours

Step 1: Demonstration (0.5 Hour):

The teacher will demonstrate the forensic significance and toxic effects of cardiotoxic plants

Step 2: Research and record preparation (1.5 Hours);

Students will research and prepare a record of the forensic significance of specific cardiotoxic plants

Step 3: Preparation of record file/PPT (2 Hours):

Student will prepare a record file and design a PPT presentation based on their findings

Step 4: Presentation and submission (1 Hour);

Student will submit their final record file subjected to checking

Students will present their findings through a PPT in the departmental seminar room or the UG Practical class.

Practical Training 22.2 Demonstration of gastrooxic plants - Arand, Baladur, Jamalgota
Total Learning Hours: 05 Hours **Step 1: Demonstration (0.5 Hour);** The teacher will demonstrate the effects of gastrotoxic plants and explain the mechanism and identification of the same. **Step 2: Research and record preparation (1.5 Hours);** Students will research and prepare a record of the forensic significance of specific gastrotoxic plants **Step 4:Preparation of record file/PPT (2 Hours):** Student will prepare a record file and design a PPT presentation based on their findings Step 5:**Presentation and submission (1 Hour);** Student will submit their final record file subjected to checking Students will present their findings through a PPT in the departmental seminar room or the UG Practical class.
Practical Training 22.3 Demonstration of forensic significance of neurotoxic plants - Azaraqi, Afyun, Datura, Bhang, Cocaine and Luffah
Total Learning Hours: 05 Hours **Step 1: Demonstration (0.5 Hour):** The teacher will demonstrate the forensic significance and toxic effects of neurotoxic plants - Azaraqi, Afyun, Datura, Bhang, Cocaine and Luffah **Step 2: Research and record preparation (1.5 Hours);** Students will research and prepare a record of the forensic significance of specific neurotoxic plants **Step 3: Preparation of record file/PPT (2 Hours):** Student will prepare a record file and design a PPT presentation based on their findings **Step 4: Presentation and submission (1 Hour);**

Student will submit their final record file subjected to checking

Students will present their findings through a PPT in the departmental seminar room or the UG Practical class.

Practical Training 22.4 Demonstration of gastrooxic plants - Madar, Shehm Hanzal.

Total Learning Hours: 05 Hours

Step 1: Demonstration (0.5 Hour);

The teacher will demonstrate the effects of gastrotoxic plants and explain the mechanism and identification of the same.

Step 2: Research and record preparation (1.5 Hours);

Students will research and prepare a record of the forensic significance of specific gastrotoxic plants

Step 4:Preparation of record file/PPT (2 Hours):

Student will prepare a record file and design a PPT presentation based on their findings

Step 5:**Presentation and submission (1 Hour);**

Student will submit their final record file subjected to checking

Students will present their findings through a PPT in the departmental seminar room or the UG Practical class.

Experiential Learning Activity

Experiential-Learning Learning 22.1: Case handling of opioid intoxication - Morphine,

Total Learning Hours: 09 Hours

Step 1: Introduction and case assignment (1 Hour):

The teacher will assign a case of morphine intoxication from the outpatients to the student

Step 2: Evaluation/Examination of case (3 Hours):

Student will examine the case of opioid mechanisms and monitor their effect in clinical settings,

and will take help from diagnostic means to confirm the case.

Prepare a management plan.

Step 4: Case study preparation (3 Hours):

Students will prepare the case study in detail.

The record file will be submitted after rectification

A PPT will be prepared.

Step 5: Case presentation (2 Hours);

The student will present the study in the departmental seminar and/or in the UG practical class.

Experiential-Learning Learning 22.2: Case handling of opioid intoxication - Codeine

Total Learning Hours: 09 Hours

Step 1: Introduction and case assignment (1 Hour):

The teacher will assign a case of codeine intoxication from the outpatients to the student

Step 2: Evaluation/Examination of case (3 Hours):

Student will examine the case of opioid mechanisms and monitor their effect in clinical settings,

and will take help from diagnostic means to confirm the case.

Prepare a management plan.

Step 4: Case study preparation (3 Hours):

Students will prepare the case study in detail.

The record file will be submitted after rectification

A PPT will be prepared

Step 5: Case presentation (2 Hours);

The student will present the study in the departmental seminar and/or in the UG practical class.
Experiential-Learning Learning 22.3: Case handling of opioid intoxication - Oxycodone
Total Learning Hours: 08 Hours **Step 1: Introduction and case assignment (1 Hour):** The teacher will assign a case of oxycodone intoxication from the outpatients to the student **Step 2: Evaluation/Examination of case (3 Hours):** Student will examine the case of opioid mechanisms and monitor their effect in clinical settings, and will take help from diagnostic means to confirm the case. Prepare a management plan **Step 4: Case study preparation (3 Hours):** Students will prepare the case study in detail. The record file will be submitted after rectification A PPT will be prepared. **Step 5: Case presentation (2 Hours);** The student will present the study in the departmental seminar and/or in the UG practical class.
Modular Assessment

Assessment	**Hour**
Formative Assessment: 4 Hours **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.	4

Viva (20 marks): Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from unit 1 for 5 marks. **Practical (20 Marks):** 2 Practicals from unit 1 of 10 marks each. Or Any practical in converted form can be taken for assessment (25 Marks). And Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	

Semester No : 6

Module 23 : مسمماتی حقائق کا تجزیہ وقوع پذیر رجحانات اور فنیات Musammimati Haqa'iq ka Tajziyah, Waqoo pazeer Rujhanaat aur Fanniyaat (Toxicological Data Analysis, Emerging Trends, Technologies and Pharmacovigilance

Module Learning Objectives

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

Describe various methods of data analysis

Identify the approach of forensic toxicology with biotechnology.

Discuss the challenges and future directions.

Unit 1 23.1 کمی بمقابلہ کیفی تجزیہ Kammi bamuqabilah Kaifi Tajziyah (Quantitative vs. Qualitative Analysis)

23.1.1. Importance in Legal Contexts

23.1.2. Data Collection Tools

23.1.3. Preservation Techniques

23.1.4. Interpretation and Challenges

References: 27,28,29,30,37,42,43,44,45,46,47,48,49,50,51,53,73,79,80,84,86,89,95,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO5	Appraise the descriptions of Snake and Arthropod Venoms, Identification of venomous and non-venomous snakes, mechanism of action, toxic effects, and medicolegal aspects.	5	Lecture	CC	Knows-how	L&PPT ,L&GD
CO5	Demonstrate the Snake and Arthropod Venoms and their Identification.	5	Practical23.1	PSY-GUD	Shows-how	L&PPT ,L
CO1,CO5	Conduct a visit to the Zoo or Zoology Museums to observe and identify the Snake	7	Experiential-Learning23.1	AFT-REC	Does	IBL,DIS
CO1,CO5	Conduct a visit to the Zoo or Zoology Museums to observe and identify the Arthropods.	7	Experiential-Learning23.2	AFT-REC	Does	IBL,PER,FV,DIS

Unit 2 23.2 حیاتیاتی تغیر Hayatiyati Taghayyur (Biological Variability)

23.2.1. Overview

23.2.2. Factors Affecting Drug Levels

23.2.3. Individual Responses to Toxicants

References: 27,28,29,30,37,42,43,44,45,46,47,48,49,50,51,53,73,79,80,84,86,89,95,99,100,101,102,106,112

3A	3B	3C	3D	3E	3F	3G
CO1,CO5	Describe Food poisoning, poisonous foods, the Unani concept of Sammi aghdhiya and assess acute and chronic toxicity due to poisonous foods	5	Lecture	CC	Knows-how	L&GD,L&PPT

CO1,CO5	Demonstrate Food poisoning management through the Unani Medicine	10	Practical23.2	PSY-GUD	Shows-how	BS,DIS
CO3,CO5	Conduct a case study of Food poisoning and poisonous foods and Acute and chronic toxicity due to poisonous foods	6	Experiential-Learning23.3	PSY-ADT	Does	TUT,L&GD,BS

Unit 3 23.3 Pharmacovigilance

23.3.1. Overview of Pharmacovigilance

23.3.2. Method of Pharmacovigilance of Unani Drugs

References: 54,61,62,63,64,66,67,68,70,72,75,76,77,82,84,86,88,96,97,98,99,100,101,103

3A	3B	3C	3D	3E	3F	3G
CO5	Demonstrate various components of Pharmacovigilance,	5	Practical23.3	PSY-GUD	Shows-how	DIS,PAL,D,W
CO5	Perform survey of a unani drug store or a drug manufacuring unit from the Pharmacovigilance angle.	6	Experiential-Learning23.4	PSY-GUD	Does	FV

Practical Training Activity

Practical Training 23.1 Snake and Arthropod Venoms

Total Learning hours: 5

Step 1: Demonstration by teacher (1 Hour):

The teacher will demonstrate on the basis of charts and audiovisual aids about snakes and arthropod venoms and their identification.

Step 2: Student research and record preparation (2 hrs):

Students will prepare a record of specific snakes and arthropod venoms and their identification.

Step 3: PPT preparation : (1 Hour)

Students will prepare a PPT based on the findings

Step 4: PPT presentation and submission (1 Hour):

The student will present the PPT in class and submit the record book

Practical Training 23.2 Demonstration of Food Poisoning Management in Unani Medicine

Total Learning Hours: 10 Hours

Introduction and demonstration by teacher:(1 Hour)

The teacher will demonstrate food poisoning, poisonous foods, and potential dangers of contaminated food and the importance of food safety and its management through the Unani concept

Student data collection and literature review:(4 Hours)

The student will collect other relevant data from published papers.

Report submission and Presentation (5 Hours):

The record book will be submitted along with relevant data from published papers by the student.

The same will be presented in the departmental seminar room and the UG practical class.

Practical Training 23.3 Training on execution of Pharmacovigilance

Total Learning Hours: 5 Hours

Step-1: Introduction and demonstration by teacher:(1 Hour)

The teacher will describe various components of Pharmacovigilance.

Step-2: Data collection and literature review:(2 Hours)

The student will collect other relevant data from published papers and online sources and identify the Misleading advertisements and reporting steps.

Step-3: Report submission and Presentation (2 Hours):

The report will be submitted along with relevant data from

The same will be presented in the departmental seminar room and the UG practical class.
Experiential Learning Activity
Experiential-Learning Learning 23.1: Visitation to the Zoo/Zoology Museums
Total National Lecture Hours: 7 Hours **Step 1: Pre-visit briefing (1 Hour):** The teacher will deliver a pre-visit briefing to the students. **Step 2: Zoo/museum Visit (4 Hours):** A visit to the zoo/ nearby museum will be arranged by the college to observe and identify snakes **Step 3: Data collection (1 Hours);** The students will gather the information based on neurotoxic, hemotoxic and cytotoxic poisons. Video clips and pictures will be collected based on differentiating features **Step 4: Preparation of virtual record (0.5 Hours):** Students will compile photos/ videos/PPT/report writing **Step 5: Presentation and submission of virtual record (0.5 Hour):** Students will present the virtual records and submit them for future demonstration.
Experiential-Learning Learning 23.2: Visitation to the Zoo/Zoology Museums
Total National Lecture Hours: 7 Hours **Step 1: Pre-visit briefing (1 Hour):** The teacher will deliver a pre-visit briefing to the students. **Step 2: Zoo/museum Visit (4 Hours):** A visit to the zoo/ nearby museum will be arranged by the college to observe and identify arthropods.

Step 3: Data collection (1 Hours);

The students will gather the information based on neurotoxic, hemotoxic and cytotoxic poisons.

Video clips and pictures will be collected based on differentiating features

Step 4: Preparation of virtual record (0.5 Hours):

Students will compile photos/ videos/PPT/report writing

Step 5: Presentation and submission of virtual record (0.5 Hour):

Students will present the virtual records and submit them for future demonstration

Experiential-Learning Learning 23.3: Observational case study of Food poisoning

Total Learning Hours: 6 Hours

Assignment of case (01 Hour)

The teacher will guide the students to choose the case

Collection and review of real cases (1 Hour)

The student will collect information on well-known international and national food poisoning incidents.

Identification of food hazards and contaminants (1 Hour)

Students will list the potential dangers of contaminated food revealed in international and national food poisoning incidents

Preventive strategies and public health planning:(1.5 hours)

Identify ways to prevent future outbreaks of various agents involved in food poisoning Incidents and place them on record.

Report preparation and presentation:(1.5 hours)

Students will submit the report highlighting the importance of food safety measures, international and national food poisoning incidents

Experiential-Learning Learning 23.4: Pharmacovigilance of Unani Drugs

Total National Lecture Hours: 6 Hours

Step 1: Pre-visit briefing (1 Hour):

The teacher will deliver a pre-visit briefing to the students.

Step 2: Unani drug store or a drug manufacuring unit Visit (3 Hours):

A visit to the unani drug store or a drug manufacuring unit will be arranged by the college to observe and identify arthropods.

Step 3: Data collection (1 Hours);

The students will gather the information.

Video clips and pictures will be collected.

Step 4: Preparation of virtual record (1 Hours):

Students will compile photos/ videos/PPT/report writing

Step 5: Presentation and submission of virtual record (1 Hour):

Students will present the virtual records and submit them for future demonstration

Modular Assessment

Assessment	Hour
Formative Assessment: 4 Hours **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. **Viva (20 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1, 2 and 4 units for 5 marks each. **Report writing (20 Marks):** Prepare a report on any one case from units 3 & 4.	4

Or

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

&

Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)

Module 24 : تشریح بعدالموت اور علم السموم Tashreeh Ba'd al Maut aur Ilmus Samoom (Autopsy and Toxicology)

Module Learning Objectives

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

Describe postmortem toxicology Case Studies and Courtroom Testimony

Record the postmortem toxicology

Perform Case Studies

Unit 1 24.1 علم السموم بعدالوفات Ilmus Samoom Baad al Wafat (Postmortem Toxicology)

24.1.1. Principles and procedures: Sample selection, interpretation of results

24.1.2. Role of poison in criminal cases: Homicides, suicides, accidental deaths

References: 54,61,62,63,64,66,67,68,70,72,75,76,77,80,81,82,84,86,88,89,96,97,98,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO3,CO5	Describe Postmortem Toxicology: Its Principles and procedures, Sample selection, interpretation of results and Role of poison in criminal cases: Homicides, suicides, accidental deaths	5	Lecture	CC	Knows-how	L&GD,L&PPT ,L
CO2,CO3, CO5	Demonstrate Postmortem Toxicology, its Principles and procedures: Sample selection, interpretation of results, and the Role of poison in criminal cases - Homicides	6	Practical24.1	PSY-SET	Shows-how	D-M,DIS,SIM,D

CO2,CO3, CO5	Asses the postmortem cases in the mortuary or through virtual means.	10	Experiential-Learning24.1	AFT-VAL	Does	ML,DIS,BS
CO5	Demonstrate Postmortem Toxicology, its Principles and procedures: Sample selection, interpretation of results, and the Role of poison in criminal cases - suicides, accidental deaths.	7	Practical24.2	PSY-SET	Shows-how	DL,D-M,DIS,SIM,D
CO2,CO3, CO5	Asses the postmortem cases through virtual means.	6	Experiential-Learning24.2	AFT-VAL	Does	PAL,L_VC,DIS,SIM, DL

Unit 2 24.2 مطالعہ موردی اور عدالتی شہادت (Mutala'e Mauredi aur Adalati Shahadat(Case Studies and Courtroom Testimony

24.2.1. Analysis of forensic cases: Real-world examples and discussions

24.2.2. Expert testimony: Presentation of toxicological findings in court

References: 54,61,62,63,64,66,67,68,70,72,75,76,77,80,81,82,84,86,88,89,96,97,98,99,100,101,106

3A	3B	3C	3D	3E	3F	3G
CO3,CO5	Describe the Case Studies / Courtroom Testimony, and Analysis of forensic cases in Real-world examples.	5	Lecture	CC	Knows-how	CBL,PrBL
CO2,CO3, CO5	Demonstrate the Case Studies, Courtroom Testimony and Analysis of forensic cases through Real-world examples.	7	Practical24.3	PSY-SET	Shows-how	IBL,TBL,L_VC
CO2,CO3, CO5	Conduct Courtroom/expert testimony of the presentation of toxicological findings in court and their assessment.	10	Experiential-Learning24.3	PSY-GUD	Does	PrBL,PBL,BS

Practical Training Activity

Practical Training 24.1

Demonstration of Postmortem Toxicology and the Role of poison in criminal cases: Homicides.
Total Learning Hours: 05 Hours **Step 1: Demonstration (1 Hour):** The teacher will demonstrate postmortem toxicology, its principles and procedures, sample selection, interpretation of results and the role of poison in criminal cases- homicides. **Step 2: Group discussion (1 Hour):** Students will divide into groups and discuss the principles and procedures, sample selection, interpretation of results, and role of poison - homicides. **Step 3: Presentation of observational summary (2 Hours):** Students will present their observational summary after the detailed description to the teacher / within the group. **Step 4: Record preparation and submission (1 Hour):** The student will prepare and submit the record file of the same to the teacher/lab in charge.
Practical Training 24.2 Demonstration of Postmortem Toxicology and the Role of poison in criminal cases
Total Learning Hours: 07 Hours **Step 1: Demonstration (1 Hour):** The teacher will demonstrate postmortem toxicology, its principles and procedures, sample selection, interpretation of results and the role of poison in criminal cases- suicides and accidental deaths **Step 2: Group discussion (2 Hours):** Students will divide into groups and discuss the principles and procedures, sample selection, interpretation of results, role of poison, homicides, suicides and accidental death **Step 3: Presentation of observational summary (2 Hours):** Students will present their observational summary after the detailed description to the teacher / within the group. **Step 4: Record preparation and submission (2 Hours):**

The student will prepare and submit the record file of the same to the teacher/lab in charge.
Practical Training 24.3 Demonstration of the Case Studies / Courtroom Testimony and Analysis of Forensic Cases
Total Learning Hours: 5 Hours **Step 1: Demonstration of case studies and courtroom testimony (1.5 Hours):** The teacher will demonstrate the case studies and courtroom testimony, and analysis of forensic cases through real-world examples **Step 2: Record preparation (1.5 Hours):** Students will prepare a record of the case studies and courtroom testimony, Submit to the teacher for ratification before final submission. **Step 3: Presentation of case (2 Hours):** The student will present the inference drawn by him on a specific poison through a PPT presentation
Experiential Learning Activity
Experiential-Learning Learning 24.1: Postmortem case assessment
Total Learning Hours: 10 Hours **Step 1: Selection and arrangement of Mortuary visit (1 Hour):** The teacher will discuss, coordinate, facilitate and arrange visits to the nearby postmortem facilities or arrange virtual facilities for the same. **Step 2: Mortuary Visit (3 Hours):** The students will visit the pre-assigned mortuary, or virtual post-mortem procedures will be displayed. **Step 3: Examination of the deceased body (2 Hours):** The student will go through the examination of the deceased's body **Step 4: Collection of post-mortem findings (2 Hours):** Students will collect the information, including detailed internal and external post-mortem findings

Step 5: Determination of cause, manner and nature of death (1 Hour):

Presumptive inference will be drawn, determining the cause, manner and particularly nature of death and any contributing factors.

Step 6: Preparation and submission of report (1 Hour):

The report will be submitted (after ratification from the teacher) for group discussion, departmental seminar and UG practical classroom.

Experiential-Learning Learning 24.2: Postmortem case assessment virtually

Total Learning Hours: 06 Hours

Step 1: Selection and arrangement of Virtual tools/simulation (1 Hour):

The teacher will discuss, coordinate, facilitate and arrange virtual facilities/simulation lab.

Step 2: Virtual Demonstration (1 Hours):

The students will do a virtual post-mortem on the simulator, or procedures will be displayed and learn through video demonstration.

Step 3: Examination of the deceased body (1 Hours):

The student will learn how to examine the deceased's body

Step 4: Collection of post-mortem findings (1 Hours):

Students will collect the information, including detailed internal and external post-mortem findings

Step 5: Determination of cause, manner and nature of death (1 Hour):

Presumptive inference will be drawn, determining the cause, manner and particularly nature of death and any contributing factors.

Step 6: Preparation and submission of report (1 Hour):

The report will be submitted (after ratification from the teacher) for group discussion, departmental seminar and UG practical classroom.

Experiential-Learning Learning 24.3: Courtroom/expert testimony of toxicological findings in court.

Total Learning Hours: 10 Hours

Step-1: Assignment of the task: (01 hour)

The teacher will assign a particular task and coordinate local court visits.

Step 2: Courtroom visit by students (4 hours):

Students will visit the courtroom, especially during the submission of the toxicological report.

Students shall watch/listen to the process of courtroom testimony of presentation.

Step 3: Collection of data/ opinions from toxicological experts (2 hours):

Students will collect the database of opinions and inferences from the toxicological report, and record the procedure.

Step 4: Study and submission of 3 different cases (1 hour):

Students will identify and read, and summarise case studies involving toxicological reports and submit the cases

Step 5: Report writing and presentation (1 hour):

Students will prepare the report based on the findings and present it to the teacher for ratification.

Step 6: report submission (1 hour):

Students will submit the report and present at the departmental seminar and/or in the UG classroom teaching.

Modular Assessment

Assessment	Hour
Formative Assessment: 4 Hours **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. **Viva (20 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **2. Case-Based Scenario (15 Marks):** Demonstration of any one case from unit 2. 3. **Experiential Learning Activity (20 Marks):**	4

Demonstration of any one experiential learning activity from Units 1 or 2. Or Any practical in converted form can be taken for assessment (25 Marks). and Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	

Paper No : 4 ماحولیاتی وتجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom (Environmental and Analytical Toxicology)

Semester No : 3

Module 25 : ماحولیاتی علم السموم کے مبادیات اوران کا ظہور Mahauliyati Ilmus Samoom ke Mabadiyat, Mahauliyati Musammimat ke Makhaz aur unka Zahoor (Basics of Environmental Toxicology, Sources & Exposure of Environmental Toxicants

Module Learning Objectives

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

Describe the basic concept of Environmental Toxicology

Describe the Sources & Exposure of Environmental Toxicants

Identify Environmental Toxicants

Identify Sources & Exposure of Environmental Toxicants

Unit 1 25.1 تعارف Ta'aruf (Introduction)

25.1.1. Definitions and concepts

25.1.2. History, Evolution and Development

References: 34,99,100,101,112

3A	3B	3C	3D	3E	3F	3G
CO1	Define environmental toxicology and describe its concept, history, evolution and development.	2	Lecture	CC	Know	L&GD,L,L&PPT ,BS
CO1	Describe history, evolution and deveopment of environmental toxicology.	3	Practical25.1	AFT-VAL	Shows-how	LS,DIS,L&PPT ,BS,D

Unit 2 25.2 جائزہ Jay'zah (Overview)

25.2.1. Scope and significance

25.2.2. Interdisciplinary approach

References: 34,99,100,101,106,112

3A	3B	3C	3D	3E	3F	3G
CO1,CO5	Describe the scope, significance and interdisciplinary approach of environmental toxicology.	2	Lecture	CC	Knows-how	L,L&PPT ,BL
CO1	Apply Unani concept of environmetal toxicology in terms of *Ghair Tabayi Taghayyurat of Hawae Muheet* and interdisciploinary approach.	4	Practical25.2	CE	Shows-how	D,BL,L&PPT ,BS,PER

Unit 3 25.3 ماحولیاتی علم السموم کا یونانی نظریہ Mahauliyati Ilmus Samoom ka Unani Nazariyah (Unani concept of environmental Toxicology

25.3.1. Unani concept of Toxic air & Water

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO1	Describe the Unani concept of Ufoonat in the Environment.	1	Lecture	CC	Knows-how	L
CO1	Demonstrate the environmental toxicity based on the parameters explained in classical literature.	3	Practical25.3	AFT-RES	Shows-how	PL,LS,D,DIS,PER
CO1	Evaluate the ecological impacts of environmental toxicants.	5	Experiential-Learning25.1	AFT-RES	Does	FV,DIS,BL,D

CO1	Collect data of Air, Water, and Soil toxicity.	3	Experiential-Learning25.2	AFT-RES	Does	L&PPT ,D,BL,DIS,FV
CO1	Interpret the data of air, water, and soil toxicity with Unani concept.	5	Experiential-Learning25.3	AFT-SET	Does	L&PPT ,DIS,LS,D,BS

Unit 4 25.4 ذرائع Zara'e (Sources)

25.4.1. Air pollution

25.4.2. Water pollution

25.4.3. Soil contamination

25.4.4. Industrial

25.4.5. Noise

References: 34,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO5	Discuss the sources of various environmental toxicants.	2	Lecture	CC	Know	L,L&PPT
CO1	Demonstrate the sources of environmental toxicants.	4	Practical25.4	CS	Shows-how	L&PPT ,DIS,BS
CO1	Analyse the sources of environmental toxicants.	6	Experiential-Learning25.4	CAP	Knows-how	FV

Unit 5 25.5 طریقہ تعارض Tareeqa'e Ta'aruz (Exposure Pathways)

25.5.1. Inhalation, ingestion, and contact

25.5.2. Environmental transport and transformation pollution

25.5.3. Occupational exposure

References: 34,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO5	Describe various exposure pathways of environmental toxicants with special reference to the occupation.	3	Lecture	CC	Know	L&PPT
CO1	Identify the exposure pathways of environmental toxicants.	6	Practical25.5	AFT-RES	Shows-how	CBL,CD,RLE,DIS
CO1	Demonstrate the exposure graveness of various cases of environmental toxicity.	7	Experiential-Learning25.5	CAN	Does	CD,PER,SDL,D,CBL

Practical Training Activity

Practical Training 25.1 Environmental toxicology in Greek, Arab and Indian periodical classical texts.

Total learning hours: 03

Step-1: Discussion on the topic: (30 Min.)

The teacher will discuss and allot an assigned to the students about history, evolution and development of environmental toxicants. (30 minutes)

Step-2:

Activity-1: Library session: (01 Hr.)

Student will search from the classical ancient literature regarding environmental toxicology.

Activity-2: Preparation of Digital content: (1 Hour)

Students will prepare and present audio-visual and pictorial/graphical presentations on history evolution, and development.

The teacher will give the feedback to the students regarding any rectification and remedial measures.

Step-3: Recording the Activity: (30 Min)

The students will record activity in the record book.

Practical Training 25.2 Basic knowledge of Unani concept of environmetal toxicology with special refference to *Taghayyurate Hawa* (air changes) and its interdiciplinary approach with Preventive and Social Mediciene, clinical medicine and environmental Sciences.

Total learning hours: 4

Step-1: Discussion on the topic: (30 Min.)

The teacher will describe to the students about Unani concept of environmental toxicology in terms of *Ghair Tabayi Taghayyurate* of *Hawae Muheet*.

Activity-2: Library session: (1 hour)

Student will search from the classical ancient literature regarding *the changes of Air.*

Students will do comparative study of air changes from different disciplines. (30 minutes)

Activity-2: Preparation of Digital content: (2 Hour)

Students will prepare audio-visual and pictorial/graphical/power point presentations on Ghair Tabayi Taghayyurate of *Hawae Muheet* with interdisciplinary approach. (90 minutes)

The teacher will give the feedback to the students regarding any rectification and remedial measures.

Step-3: Recording the Activity: (30 Min)

The students will record activity in the record book.

Practical Training 25.3 Knowledge of the Qualities of Toxic air and water and their explanation based on classical Literature.

Total learning hours: 3

Step-1: Discussion on the topic: (30 Min.) The teacher will discuss the methods of assessment of a sample of Air and Water.

Step-2: Demonstration: (1 hour) Thestudent will demonstrate the sample based on the parameters defined in Classical literature.

Step 4: Preparation of the report: (1 Hr minutes) Studentswill prepare a report.

Step-5: Recording the Activity: (30 Min): Students will record the activity in a record book with Geo-tagged photographs.

Practical Training 25.4 Identification of sources of Envirenmental Toxicants.

Total learning hours: 4

Step-1: Study of the topic: (30 Min.) The students will study about the sources of Environmental Toxicants.

Step-2: Class presentation: (2 hours)The studnet will prepare a power point presentation on the sources of Environmental Toxicants and present it in the class.

Step-3: Rectification and suggestion by the teacher: (1 hours) The teacher will check the facts and rectify them, if required will give the suggestions.

Step-4: Recording the Activity: (30 Min) The student will record the activity in record book.

Practical Training 25.5 Identifcation of exposure pathways of environmental toxicants.

Total learning hours: 6

Step-1: Discussion on the topic: (1 hour)

The teacher will demonstrate the various exposure pathways of environmental toxicants.

Step-2: Case selection and recording of detailed history:

Activity 01: History taking and clinical examination: (2 Hr. 30 min)

The student will select a case affected with environmental toxicity.

The student will record the detailed/specific history of the case.

The student will clinically examine the case and necessary investigations will be done.

Activity 02: Identification of the exposure pathways: (1 Hr. 30 min)

The student will try to identify the exposure pathway i.e.

Inhalation: Breathing in airborne toxicants, such as gases, vapours, or particulate matter.

Ingestion: Consuming contaminated food or water, leading to gastrointestinal absorption of toxicants.

Dermal Contact: Absorption of toxicants through the skin from contaminated surfaces, chemicals, or products.

Injection: Exposure through medical procedures or accidental punctures that introduce toxicants directly into the bloodstream.

Step-3: Recording the Activity: (1 Hr.)

The student will record in the record book.

Experiential Learning Activity

Experiential-Learning Learning 25.1: Ecological impacts of environmental toxicants.

Total learning hours: 5

Step-1: Allotment of the field for visitation: (30 Min.)

Teacher will suggest area for field visit and organize a field trip to a local site (e.g., landfill, waste water treatment plant) to observe the effects of toxicants in real life or Collaborate with local environmental organizations for community clean-up events. (30 minutes)

Step-2: Field Visit: (01 Hr. 30 min.)

The students will travel from college to field and field to college.

Step-3: Observation, preparation and presentation by the students. (01 Hr. 30 min.)

The students will observe the sources, effects on health and the environment, and prepare a short presentation (5-10 minutes) to share their findings.

Step-3: Rectification by the teacher: (1 hour)

The teacher will orient and rectify the student about the ecological impacts of environmental toxicants.

Following questions may be kept in mind to be answered by the student:

What surprised you about the effects of toxicants?

How do human activities contribute to environmental toxicants?

What can be done to reduce exposure to toxicants in our communities?

The student will visit to the nearby Pollution monitoring Board/authority. (2 hours)

Step-3: Recording the Activity: (30 Min)

The students will record activity in the record book.

Experiential-Learning Learning 25.2: The unit is composed of the acquisition of knowledge methods of collection of Data of Air, Water, and Soil toxicity.

Total learning hours: 3

Step-1: Discussion on the topic: (30 Min.)

The teacher will discuss about the sources of collection of Data about the toxicity of Air, Water, and Soil.(30 minutes)

Step-2: Field visit: (1 Hr. 30 min)

The student will visit the nearby water purification unit, pollution control board and soil testing facility and collect the data regarding Air, water, and soil toxicity published in different Newspapers, reports, journals, etc.

Step-3: presentation and Recording the Activity: (1 hour)

The student will present the collected data in class through class presentation/PPT.

Students will record data in the record book (Physical & Digital)

Experiential-Learning Learning 25.3: The unit is based upon the interpretation of data of Air, Water, and soil toxicty in terms of Unani Concepts. This experiential learning activity combines data interpretation with traditional knowledge, fostering a holistic understanding of health and environment.

Total learning hours: 5

Step-1: Discussion briefing of the topic: (30 Min.)

The teacher will brief the overview of Hawa e Muheet and Taghayyurate Hawa in terms of environmental toxicity and discuss the current state of environmental health and its implications for human health. (30 minutes)

Step-2: Library sessions: (1Hr. 30 Min.)

The teacher will encourage the student to think about how integrating traditional medicine concepts with modern environmental science can enhance community health initiatives.

The students will go and search the Unani data about the Hawa e Muheet and Taghayyurate Hawa in terms of environmental toxicity.

Step-3: Compilation, Preparation and interpretation of data: (1Hr. 30 Min.)

The student will compare, interpret the data and prepare and some digital content on the comparative analysis of previously collected data in terms of Unani concept of environmental toxicity.

Step-4: Presentation and Recording the data: (1Hr. 30 Min.)

The student will present the data in the class.

Record the activity in record book.

Experiential-Learning Learning 25.4: Analysis of the sources of environmental toxicants in nearby areas.

Total Activity hour: (6 hour)

Step-1: Discussion on the topic: (30 Min.)

The teacher will assign the site/area with potential environmental concerns (industrial sites, agricultural lands, near highways, etc.)

Step-2: Field visit:

Activity 01: (2 Hr.)

The student will visit the assigned area and gather the data on local industries, agricultural practices and historical pollution records.

Activity 01: (1 Hr.30 min)

The student will prepare the notes focusing on the following points:

Conduct Visual Inspections.

Look for signs of pollution: waste disposal sites, chemical storage areas, runoff from roads, and vegetation health.

Capture photographs of specific sites or signs of pollution.

If conditions permit, they can collect soil or water samples for later analysis. Ensure they label the samples clearly.

Step-3: Class presentation: (1 Hr.)

The students will present the compiled data in class.

Step-3: Recording the Activity: (1 Hr.)

The students will record it in the record book.
Experiential-Learning Learning 25.5: Demonstration of exposure graveness of various cases of environmental toxicity.
Total learning hours: 7 **Step-1: Discussion on the topic: (1 hour)** The teacher will explain to the student about the graveness of environmental toxicity. **Step-2: Case selection and recording the details: (2 Hr.)** The student will select a case affected with environmental toxicity. The student will record the detailed/specific history of the case. **Step-3: Assessment of the case: (2 Hr.)** The student will assess the case on the basis of clinical and laboratory investigations. **Step-3: Identification of the severity: (1 Hr.)** The student will try to identify the severity of exposure of environmental Toxicity. **Step-3: Identification of the severity: (1 Hr.)** The student will record in the record book.
Modular Assessment

Assessment	**Hour**
Formative Assessment: 4 Hours **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. **Viva (20 marks):**	4

Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1, 2 and 4 units for 5 marks each. **Open Book Test (20 Marks)** 4 questions of 5 Marks each 2 from Unit 3 & 5). Or Any practical in converted form can be taken for assessment (25 Marks). & Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	

Module 26 : ماحولیاتی مسمات کے درجات Mahauliyati Musammimat ke Darajaat (Classes of Environmental Toxicants)

Module Learning Objectives

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

Describe Environmental Toxicants

Classify Environmental Toxicant

Unit 1 26.1 طبعی مسمات Tabayi Musammimat (Physical Toxicants)

26.1.1. Particulate matter

26.1.2. Asbestos and other fibrous materials

References: 28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,86,87,91,94,95,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1	Describe various physical toxicants with special reference to Particulate matter (PM 2.5 & PM 10), nanoparticles, asbestos and other fibrous materials.	2	Lecture	CC	Knows-how	L&PPT ,L,BS,L&GD

CO1	Identify various physical toxicants on the basis of their physical properties and other identifying features through samples and photos/videos.	4	Practical26.1	PSY-GUD	Shows-how	DIS,D,TBL,L&PPT
CO1	Evaluate Air Quality Index (AQI) in various zones.	5	Experiential-Learning26.1	AFT-SET	Does	BS,D,BL,DIS

Unit 2 26.2 کیمیاوی مسمات Kimiyawi Musammimat (Chemical Toxicants)

26.2.1. Introductory part of

26.2.1.1. Heavy metals (e.g., lead, mercury, arsenic)

26.2.1.2. Industrial chemicals (e.g., PCBs, dioxins, solvents)

26.2.1.3. Pesticides and herbicides

26.2.1.4. Carcinogens

26.2.1.5. Chemical warfare

References: 28,29,30,34,42,43,44,45,46,50,51,52,54,59,63,65,72,73,75,76,77,84,85,86,87,91,94,95,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1,CO5	Describe the industrial chemicals (PCBs, dioxins, solvents), pesticides, herbicides, carcinogens and chemical warfare.	3	Lecture	CC	Knows-how	L&PPT ,L&GD,BS,L_VC
CO1	Identify various chemical toxicants on the basis of their properties and other identifying features through specimen/photos/videos.	5	Practical26.2	PSY-GUD	Shows-how	DIS,L&PPT ,D,BL
CO1	Interprete the chemical toxicants through visit to the nearest chemical laboratory.	6	Experiential-Learning26.2	CE	Does	FV,DIS,D,BL

Unit 3 26.3 حیاتیاتی مسمات Hayatiyati Musammimat (Biological Toxicants)

26.3.1. Pathogens (e.g., bacteria, viruses, protozoa)

26.3.2. Mycotoxins and allergens

References: 28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,86,87,91,94,95,99,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1,CO5	Describe the characteristics of biological toxicants, i.e pathogens (bacteria, viruses, protozoa, fungi, algae), mycotoxins with special reference to aflatoxins, allergens and microorganisms of biological warfare.	3	Lecture	CC	Knows-how	L&PPT
CO1	Identify bacteria acting as biological toxicants.	3	Practical26.3	PSY-GUD	Shows-how	DIS,BL,D,SDL
CO1	Identify the various bacterial biological toxicants affecting human health.	5	Experiential-Learning26.3	AFT-SET	Does	BS,D,L,PER,DL
CO1	Identify viruses acting as biological toxicants.	2	Practical26.4	PSY-GUD	Shows-how	BL,BS,PL,DIS
CO1	Identify different protozoa, fungi, algae, mycotoxins with special reference to aflatoxins, allergens and microorganism of biological warfare. acting as biological toxicants.	2	Practical26.5	PSY-GUD	Shows-how	PT,D,DIS,BS
CO1	Identify the various fungal toxicants affecting human health	5	Experiential-Learning26.4	AFT-RES	Does	DL,FV,BS,BL,PT

Unit 4 26.4 مطفرات Mutaffirat (Mutagens)

26.4.1. Physical

26.4.2. Chemical

26.4.3. Biological

References: 28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,86,87,91,94,95,100,101

3A	3B	3C	3D	3E	3F	3G
CO1,CO5	Discuss various types of physical, chemical and biological mutagens	2	Lecture	CC	Knows-how	L&GD,L,L&PPT
CO1,CO5	Identify the physical, chemical and biological mutagens	4	Practical26.6	PSY-SET	Shows-how	D,PL,PT,BS,L&PPT
CO1	Analyze physical, chemical and biological mutagens with their properties.	5	Experiential-Learning26.5	AFT-SET	Does	D,DIS,JC,BS,BL

Practical Training Activity

Practical Training 26.1 Identification of various physical toxicants on the basis of their properties.

Total learning hours: 4

Step-1: Discussion on the topic: (30 Min)

The teacher will demonstrate the properties of physical toxicants.

Step-2: Collection of the data or original samples: (1 hour)

The student will collect photos, videos or original samples of physical toxicants.

Step-3: Identification of the physical toxicants: (30 Min)

The student will attempt to identify the physical toxicants on the basis of their various identifying features.

Step-4: Group discussion and presentation and rectification by the teacher: (1 Hr. 30 Min.)

The student will present the results with the help of power point presentation (PPT). (30 minutes)

The group discussion will be done in the class.

Necessary suggestions/rectification will be done by the teacher as required.

Step-5: Recording of the activity: (30 Min.)

The activity will be recorded in the activity book.

Practical Training 26.2 Identifcation of various chemical toxicants on the basis of their properties.

Total learning hours: 4

Step-1: Discussion on the topic: (30 Min.)

The teacher will demonstrate the properties of chemical toxicants.

Step-2: Collection of the data or original samples: (1 hour)

The student will collect photos, videos or original samples of chemical toxicants.

Step-3: Identification of the chemical toxicants: (1 hour)

The student will attempt to identify the chemical toxicants on the basis of their various identifying features.

Step-4: Group discussion and presentation and rectification by the teacher: (1 hour))

The student will present the results with the help of power point presentation (PPT). (30 minutes)

The group discussion will be done in the class.

Necessary suggestions/rectification will be done by the teacher as required.

Step-5: Recording of the activity: (30 Min.)

The activity will be recorded in the activity book.

Practical Training 26.3 Identification of bacteria acting as biological toxicants.

Total learning hours: 3

Step-1: Demonstration of the topic: (30 Min.)

The teacher will demonstrate the identification of bacteria acting as biological toxicants and their properties.

Step-2: Compilation of Digital content: (01 Hr.) The student will search and compile different photographs, videos, pictorals of those bacteria (30 minutes) The student will prepare a digital content (short videos/digital chart) about the bacteria acting as biological toxicants (30 minutes) **Step-3: Presentation and rectification: (01 Hr.)** The student will present the above material in the class. The teacher will rectify as required. **Step-4: Recording the Activity: (30 Min)** The activity will be recorded in the log book.
Practical Training 26.4 Identify viruses acting as biological toxicants.
Total learning hours: 2 **Step-1: Preparation (1 hour)** The student will study about the identification of viruses acting as biological toxicants and their properties. The student will search and compile differenet photographs, videos, pictorals of those viruses The student will prepare a digital content (short videos/digital chart) about the viruses acting as biological toxicants **Step-2: Presenatation (30 Min.)** The student will present the above material in the class. The teacher will rectify as required. **Step-2: Presenatation (30min.)** The activity will be recorded in the log book.
Practical Training 26.5 Identification of different protozoa, fungi, algae, mycotoxins with special reference to aflatoxins, allergens and microorganism of biological warfare. acting as biological toxicants.
Total learning hours: 2

Step-1: Preparation (1 hour)

The student will study about the identification of different protozoa, fungi, algae, mycotoxins acting as biological toxicants and their properties.

The student will search and compile differenet photographs, videos, pictorals of those biological toxicants.

The student will prepare a digital content (short videos/digital chart) about those biological toxicants.

Step-2: Presentation (30 Min)

The student will present the above material in the class.

The teacher will rectify as required.

Step-4: Recording the Activity: (30 Min)

The activity will be recorded in the log book.

Practical Training 26.6 Identification of mutagens.

Total learning hours: 4 Hours

Step-1: Demonstration on the topic: (30 Min.)

The teacher will demonstrate various physical, chemical and biological mutagens and their properties.

Step-2: Blended learning session: (2 Hours)

The student will collect photos, videos and other digital material of different mutagens

The student will attempt to identify the mutagens based on their identifying features.

Step-2: Class presentation and group discussion: (1 hour)

The student will present the results with the help of power PowerPoint presentation (PPT).

The group discussion will be done in class. If required, suggestions/rectification will be done by the teacher.

Step-5: Recording the Activity: (30 Min)

The activity will be recorded in the activity book.

Experiential Learning Activity

Experiential-Learning Learning 26.1: Evaluation of Air Quality Index (AQI).

Total learning hours: 5

Step-1: Demonstration of the topic: (30 Min)

The teacher will demonstrate to the student about air pollutants (e.g., PM2.5, PM10, CO, SO2, NO2, O3) their measures, health implications and tools to assess the AQI's with teacher.

Step-2: Library sessions/Blended Learning: (1 Hr.)

The student will study thoroughly about the available tools in the laboratory and its handling for the evaluation of AQI. (1 hour)

Step-3: Field Visit: (2 Hr.)

The student will evaluate the Air Quality of at least 5 different places and associated factors responsible for the derangement of air Quality.

Step-4: Presentation and rectification by the teacher: (1 Hr.)

The student will prepare a power point presentation and present in the class in which the results of AQI will be discussed in terms of associated factors.

The teacher will intervene and rectify the association, if required.

Step-5: Recording the Activity: (30 Min)

The activity will be recorded the logbook.

Experiential-Learning Learning 26.2: Identification of chemical toxicants.

Total learning hours: 6

Step-1: Demonstration of the topic: (30 Min)

The teacher will identify nearby chemical laboratory and communicate with it for visit and schedule the visit.

Step-2: Field Visit: (2 Hr.)

The student will visit the nearby chemical laboratory.

Step-3: Engagement in the activities such as:

Activity 01: Sampling, Analysis and Documentation. (2Hr.30 Min.)

Sampling: Collect samples of various substances (e.g., soil, water, air) to test for toxicants.

Analysis: Use laboratory equipment (e.g., spectrophotometer, gas chromatograph) to analyze samples for specific toxicants.

Documentation: Record observations, measurements, and data in their notebooks.

Activity 04: Class Presentation; (1 hour)

Presentation: The student will present the finding in the class and discuss the toxicants, their identifiable features, sources, health effects and will suggest the mitigation strategies.

Experiential-Learning Learning 26.3: Identification of various bacterial biological toxicants affecting human health.

Total learning hours: 5

Step-1: Demonstration of the topic: (30 Min.)

The teacher will demonstrate to the students about the biological toxicants.

Step-2: Field visit: (2hr. 30 Min.)

The student will go to the microbiology laboratory for the observation and analysis of the biological toxicants.

The microbiologist will demonstrate different slides of biological toxicants to the student.

The student will carry the material compiled by him in practical classes and compare it with the slides in the lab.

Step-2: Class presentation and preparation of the report: (1hr. 30 Min.)

The student will prepare a report and present in the class in front of his teacher and share his experience.

Step-5: Recording the Activity: (30 Min)

The whole activity will be recorded in the record book.

Experiential-Learning Learning 26.4: Identification of various fungal toxicants affecting human health.

Total learning hours: 5

Step-1: Demonstration of the topic: (30 Min.)

The teacher will demonstrate to the students about the fungal toxicants.

Step-2: Field visit: (2hr. 30 Min.)

The student will go to the microbiology laboratory for the observation and analysis of the fungal toxicants.

The microbiologist will demonstrate different slides of fungal toxicants to the student.

The student will carry the material compiled by him in practical classes and compare it with the slides in the lab.

Step-2: Class presentation and preparation of the report: (1hr. 30 Min.)

The student will prepare a report and present in the class in front of his teacher and share his experience.

Step-5: Recording the Activity: (30 Min)

The whole activity will be recorded in the record book.

Experiential-Learning Learning 26.5: Analysis of physical, chemical and biological mutagens with their properties.

Total learning hours: 5

Step-1: Brain storming and blended learning session: (1 Hr.)

After consulting with the teacher the student will search a paper on mutagens published in a peer reviewed journal.

Step-2: Group discussion/ Journal Club: (1 hour 30 min.)

The student will critically analyze the paper and point out the mutagens and their properties (if any) mentioned in said paper. (1 hour 30 minutes)

Step-3: Group discussion/ Journal Club: (2 hour.)

The student will prepare a power point presentation including the key points about the mutagens and their properties.

The student will present in the class focusing on the identification of mutagens on the basis of their properties.

Group discussion will be done in the class. Necessary suggestions/rectification will be done by the teacher as required.

Step-4: Recording the Activity: (30 Min)

The activity will be recorded in the activity book.	
Modular Assessment	
Assessment	**Hour**
Formative Assessment: 4 Hours **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. **Viva (20 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks): The** student will be given 2 Short Answer Questions from 2, 3 and 4 units for 5 marks each. **Case-Based Scenario (20 Marks):** Demonstration of any one case from unit 1. Or Any practical in converted form can be taken for assessment (25 Marks).and Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	4
Semester No : 4	
Module 27 : ماحولیاتی مسمات کے اثرات اور ممکنہ خطرات کا تعین Mahauliyati Musammimat ke asarat aur Mumkinah khatrat ka Ta'ayyun (Effects of Environmental Toxicants and Environmental Risk Assessment)	
Module Learning Objectives (At the end of the module, the students should be able to) Describe the Effects of Environmental Toxicants Assess the Environmental Risk due to toxicants Identify the factors affecting the toxicity of Environmental toxicants.	

Unit 1 27.1 حادمسمومیت Haad Masmoomiyat (Acute Toxicity)

27.1.1. Mechanism of Action

27.1.2. Clinical manifestations

27.1.3. Case studies of acute poisoning

References: 24,25,26,27,31,32

3A	3B	3C	3D	3E	3F	3G
CO1,CO2	Describe the mechanism of action (MoA) and clinical manifestations of acute toxicity of environmental toxicants.	1	Lecture	CC	Knows-how	CBL,L&GD,BS,L&PPT ,L
CO1,CO2	Demonstrate the dianosis of case of acute environmental toxicity.	2	Practical27.1	PSY-SET	Shows-how	CBL,CD,L&PPT ,D
CO1,CO2	Prepare a case report on acute environmental toxicity.	3	Experiential-Learning27.1	AFT-RES	Does	D,L&PPT ,CBL,CD

Unit 2 27.2 مزمن مسمومیت Muzmin Masmoomiyat (Chronic Toxicity)

27.2.1. Long-term health effects (e.g., cancer, neurological effects)

27.2.2. Case studies of chronic exposure

References: 34,35,36,37,49,50

3A	3B	3C	3D	3E	3F	3G
CO1,CO2	Describe the Mechanism of Action and clinical manifestation of chronic toxicity of environmental toxicants.	1	Lecture	CC	Knows-how	CBL

CO1,CO2	Demonstare the diagnosis of chronic cases of environmental toxicity keeping in view of circumstantial evidences, assessment of *Mizaj*, examination of *Qaroora*, and through *Muaina i Nabz.*	2	Practical27.2	CE	Shows-how	D,CD,CBL
CO1,CO2	Diagnose the chronic cases of environmental toxicity and prepare the case reports	3	Experiential-Learning27.2	CAN	Does	CD,D,CBL

Unit 3 27.3 مخصوص جمیعت Makhsoos Jamee'at (Special Populations)

27.3.1. Vulnerable groups (e.g., children, pregnant women& elderly)

27.3.2. Specific health concerns for different populations (e.g. Health Professionals, industrial workers, etc.)

References:

3A	3B	3C	3D	3E	3F	3G
CO1,CO2	Discuss vulnerable groups/population and their risk factors.	3	Lecture	CC	Knows-how	CBL
CO1,CO2	Demonstrate the external and internal risks of environmental pollutants on vulnerable groups.	6	Practical27.3	PSY-SET	Shows-how	CD,BS,BL
CO1,CO2	Screen the vulnerable groups through KAP studies and its dissemination.	8	Experiential-Learning27.3	AFT-SET	Does	FV,CBL,BL,D

Unit 4 27.4 خطراتی تشخیص کا ڈھانچہ Khatrati Tashkhees ka Dhancha (Risk Assessment Framework)

27.4.1. Hazard identification

27.4.2. Dose-response assessment

27.4.3. Exposure assessment

27.4.4. Risk characterisation

References:						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO1,CO2	Describe the environmental risk assessment framework, including risk characterisation, hazard identification and dose-response	3	Lecture	CC	Knows-how	L&GD
CO1,CO2	Prepare the IEC material for the identification and assessment of potential environmental risks.	6	Practical27.4	PSY-SET	Shows-how	L&PPT ,BL,C_L,EDU,DIS
CO1,CO2	Conduct screening of vulnerable groups/suspected cases and patients for the assessment of environmental toxicity.	8	Experiential-Learning27.4	AFT-SET	Does	IBL,FV
Unit 5 27.5 خطراتی آگاہی Khatrati Aagahi (Risk Communication) 27.5.1. Communicating risk to the public 27.5.2. Strategies for effective risk communication **References:** 35,36,37						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO1	Discuss various strategies of effective communication of risk factors of environmental toxicity in the population at risk..	2	Lecture	CC	Knows-how	L&GD
CO1	Prepare the IEC material for the communication of risk factors of environmental toxicity.	4	Practical27.5	PSY-SET	Shows-how	D,PER,BS,BL
CO1	Communicate the risk of environmental toxicity among the population at risk.	4	Experiential-Learning27.5	PSY-SET	Does	FV

Practical Training Activity
Practical Training 27.1 Demonstration of case of acute environmental toxicity keeping in view of circumstantial evidences.
Total learning hours: 2 **Step-1: Demonstration on the topic: (30 Min.)** The teacher will demonstrate the acute toxicity of environmental toxicants. **Step-2: Case study: (30 Min.)** The student will collect photos, videos of cases of acute environmental toxicity. **Step-3: Class presentation and group discussion (45 Min.)** The group discussion will be done in the class. Necessary suggestions/rectification will be done by the teacher as required. **Step-4: Recording the Activity: (15 Min.)** The activity will be recorded in the activity book.
Practical Training 27.2 Diagnosis of chronic cases of environmental toxicity keeping in view of circumstantial evidences, assessment of *Mizaj*, examination of *Qaroora*, and through *Muaina i Nabz.*
Total learning hours: 2 **Step-1: Demonstration on the topic: (30 Min.)** In OPD of Ilmul Samoom teacher will demonstrate the examination of cases of environmental toxicity on the basis of Unani principles. **Step-2: Assessment and and examination: (30 Min.)** **Activity: 01, Assessment** Students will assess their Mizaj through Ajnase Ashra **Activity: 02, Examination**

Students will examine their Qaroora as per the Unani principles described by Unani physicians.

Students will examine their pulse on Unani parameters.

Step-3: Recording the Activity & Follow-up of the case: (1 Hr.)

All the observations will be recorded in the record book.

After the cure of their toxicity the students will repeat all above examination in follow up and record in the record book and compare the changes of Mizaj, Qaroora and Nabz during toxicity and after the cure.

Practical Training 27.3 Demonstration of external and internal risks of environmental pollutants on vulnerable groups.

Total learning hours: 6

Step-1: Description of the topic: (2 hour.)

Teacher will describe the external and internal risks of environmental pollutants on vulnerable groups attending the Ilmul Samoom OPD.

Step-2: Blended learning session: (1 Hr. 30 min.)

The students will search about the external and internal risks of environmental pollutants on vulnerable groups through library sessions and digital survey.

Step-3: Demonstration on the topic: (2 hour)

The student will demonstrate the possible internal and external pollutants and their risks on vulnerable groups.

Students will preserve the laboratory tests done by cases and analyse them for internal risks

Step-4: Recording the Activity: (30 Min)

Students will record the activity in record book.

Practical Training 27.4 Preparation the IEC material for the identification and assessment of potential environmental risks.

Total learning hours: 6

Step-1: Demonstration on the topic: (1 Hr.)

The teacher will demonstrate the identification and assessment of potential environmental risks to the students.

Step-2: Blended learning session: (2 Hr.)

Students will prepare IEC (Information Education & Communication) material for the identification and assessment of potential environmental risks.

Step-3: Class presentation: (2 Hr.)

Students will present the IEC material to the students in presence of teacher.

Teacher will rectify if necessary (30 minutes)

Step-5: Recording the Activity: (30 Min)

The students will record the activity in record book. (30 minutes)

Practical Training 27.5 Communication of risk factors of environmental toxicity.

Total learning hours: 4

Step-1: Demonstration on the topic: (1 Hr.)

Teacher will demonstrate the risk factors of environmental toxicity and its communication.

Step-2: Field Visit:

Activity: 01, Identification (30 Min.)

The students will identify the locality and the population at risk of industrial toxicity with the help of newspaper and web search.

Activity: 02, Collection (30 Min.)

Students will collect the material such as photos etc. from web search.

Activity: 03, Preparation of IEC Material (30 Min.)

Students will prepare the IEC accordingly under the guidance of concerned teacher.

Step-3: Class Presentation: (1 Hr.)

Present the prepared IEC material.

Step-4: Recording the Activity: (30 Min.)

Record the activity in record book.

Experiential Learning Activity

Experiential-Learning Learning 27.1: Preparation of case report on acute environmental toxicity.
Total learning hours: 3 **Step-1: Identification of the case: (30 Min.)** The teacher will select and assign a case of acute toxicity due to environmental toxicants in OPD/IPD. **Step-2: Preparation and presentation of the case: (2 Hr.)** The student will prepare a Clinical Report Format (CRF) of the case. The student will present the case in IPD/OPD in front of teacher and teacher rectify as required. **Step-3: Recording the Activity: (30 Min.)** Students will record the activity in record book. (30 minutes)
Experiential-Learning Learning 27.2: Diagnosis of chronic cases of environmental toxicity and prepare the case reports
Total learning hours: 3 **Step-1: Diagnosis of the case: (1 Hr.)** In the OPD of Ilmul samoom students will diagnose the chronic cases of environmental toxicity in presence of teacher. (1 hour) **Step-2: Demonstration of the case: (1 Hr. 30 Min.)** Then students will demonstrate the chronic cases of environmental toxicity to other students in OPD in presence of teacher. (1 hour 30 minutes) **Step-3: Recording the Activity: (30 Min.)** The students will prepare the case report of above mentioned cases and keep the record in record book.(30 minutes)
Experiential-Learning Learning 27.3: Screening of the vulnerable groups through KAP studies.
Total learning hours: 8 **Step-1: Identification of the area: (30 Min.)** The teacher will assign the areas of the vulnerable groups to visit for the students.

Step-2: Field Visit: (2 hour)

The student will visit the vulnerable areas to screen the vulnerable groups.

Step-2: Preparation of the proforma: (2 hour)

The students will prepare the peroforma for screening through KAP of different vulnerable groups.

Step-2: Screening of the vulnerable groups: (2 hour)

Students will screen different vulnerable groups with the help of prepared KAP proforma.

Step-2: Collection and presentation: (1 hour)

Students will analyse the collected data of KAP and present the data, teacher will rectify if needed. (1 hour 30 minutes)

Step-5: Recording the Activity: (30 Min)

All the records will be kept in record book.(30 minutes)

Experiential-Learning Learning 27.4: Conduct screening of vulnerable groups/suspected cases and patients for the assessment of environmental toxicity.

Total learning hours: 8

Step-1: Identification of the area: (1 Hr.)

The teacher will identify and assign the area for field visit for screening of vulnerable groups/suspected cases and patients for the assessment of environmental toxicity and schedule the field visit (1 hour)

Step-2: Field Visit: (2 Hr.)

Activity: 01 (3 Hr.)

Students will screen and assess vulnerable groups in the field using the prepared IEC material.

Activity: 02 (1 Hr. 30 Min.)

Students will analyse the collected data of screening and assessment.

Step-3: Recording the Activity: (30 Min.)

All the records will be kept in record book. (30 minutes)

Experiential-Learning Learning 27.5: Communication of risk of environmentl toxicity.	
Total learning hours: 4 **Step-1: Identification of the area: (30 Min.)** The teacher will identify and assign the area for field visit. **Step-2: Field Visit:(1 Hr. 30 Min.)** The student will visit the assigned area under the guidance of concerned teacher The student will observe, collect and prepare the IEC material. **Step-3: Dissemination of the information: (2 Hr.)** Communicate the risk of environmental toxicity and its preventive measures to population at risk through the prepared IEC material.	
Modular Assessment	
Assessment	**Hour**
Formative Assessment: 4 Hours **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. **Viva (20 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1, 3 and 4 units for 5 marks each. **Case-Based Scenario (20 Marks):** Demonstration of any one case from unit 2. Or	4

Any practical in converted form can be taken for assessment (25 Marks). and Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	

Module 28 : ماحولیاتی مسمومیت کا یونانی علاج Mahauliyati Masmoomiyat ka Unani Ilaj (Unani Management of Environmental) Toxicity)

Module Learning Objectives

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

Describe Unani Management of Environmental Toxicity

Identify Unani Formulation for the management of Environmental Toxicity

Unit 1 28.1 حاد مسمومیت کا بندوبست Haad Masmoomiyat ka Bandobast (Management of Acute Toxicity)

28.1.1. Management of Acute Toxicity

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Differentiate fatal and non-fatal cases of acute toxicity.	3	Lecture	CC	Knows-how	L&GD
CO1,CO2, CO3	Discuss the usoole ilaj of acute toxicity in non-fatal cases of poisoning.	6	Practical28.1	PSY-GUD	Shows-how	D,DIS,CBL,PER
CO1,CO2, CO3	Manage the acute toxicity with Unani formulations in non-fatal case of poisoning and prepare the reports.	7	Experiential-Learning28.1	AFT-RES	Does	D,SDL,CD,CBL,PBL

Unit 2 28.2 مزمن مسمومیت کا بندوبست Muzmin Masmoomiyat ka Bandobast (Management of Chronic Toxicity)

28.2.1. Management of Chronic Toxicity

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Describe the cases of chronic environmental toxicity.	3	Lecture	CC	Knows-how	L_VC
CO1,CO2, CO3	Discuss the usoole ilaj of chronic toxicity.	6	Practical28.2	CE	Shows-how	PBL,CBL,PER
CO1,CO2, CO3	Manage the chronic toxicity with Unani formulations and prepare the reports.Manage the chronic toxicity with Unani formulations and prepare the reports.	6	Experiential-Learning28.2	PSY-SET	Does	CBL

Unit 3 28.3 ازالہ سمیت کا طریقہ کار اور تدابیر Izalaye Sammiyat ka Tareeqaye kar aur Tadabeer (Detoxification Procedures & Regimens)

28.3.1. Detoxification Procedures & Regimens

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Describe various detoxification procedures and regimens like *Qai, Ishaal, Idrar, Ta'reeq, Hammam, Fasd, Hijama, Irsaale Alaq, Tadheen, Dal'k, Atoosat, Pashoya, bukhoor, nashooq.*	2	Lecture	CC	Knows-how	L&PPT
CO1,CO2, CO3	Demonstrate various detoxification procedures and regimens.	4	Practical28.3	PSY-SET	Shows-how	CBL,D
CO1,CO2, CO3	Practice detoxification procedures and regimens.	8	Experiential-Learning28.3	PSY-ADT	Does	LRI,CBL

Unit 4 28.4 بندوبست عوارضات Bando Baste Awarezaat (Management of complications)

28.4.1. Management of complications

References: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21

3A	3B	3C	3D	3E	3F	3G
CO1,CO2, CO3	Discuss the complications of various environmental toxicities	2	Lecture	CC	Knows-how	CBL
CO1,CO2, CO3	Diagnose complications of environmental toxicities and formulate their *Usoole ilaj*.	4	Practical28.4	PSY-SET	Shows-how	D,RLE,CBL,CD
CO1,CO2, CO3	Manage the complications of environmental toxicities.	5	Experiential-Learning28.4	PSY-MEC	Does	CBL

Practical Training Activity

Practical Training 28.1 Discussion of Usoole ilaj of Acute Toxicity of non fatal cases.

Total learning hours: 6

Step-1: Discuss of the Usoole Ilaj: (1 Hr.)

The teacher will discuss with students, the Usoole Ilaj of a case of Non-fatal acute toxicity in hospital.

Step-2: Observation and assisting the case: (3 Hr.)

Activity: 01, (1 Hr.30 Min.)

The student will observe and assist the modern physician for management of Non-fatal acute toxicity in hospital.

Activity: 02, (1 Hr.30 Min.)

Observe and assist the Unani physician for management of Non-fatal Acute toxicity in hospital.

Step-3: Presentation of the case: (1 Hr.30 Min.)

The student will present the modern and Unani management of Non-fatal Acute toxicity.

The teacher will rectify and suggest, if any needed.

Step-4: Recording the Activity: (30 Min.)

Record the management in record book.

Practical Training 28.2 Discussion of the Usoole ilaj of chronic toxicity.

Total learning hours: 6

Step-1: Discuss of the Usoole Ilaj: (1 Hr.)

The teacher will discuss with students, the Usoole Ilaj of a case of chronic toxicity in hospital.

Step-2: Observation and assisting the case: (3 Hr.)

Activity: 01, (1 Hr.30 Min.)

The student will observe and assist the modern physician for management of chronic toxicity in hospital.

Activity: 02, (1 Hr.30 Min.)

Observe and assist the Unani physician for management of chronic toxicity in hospital.

Step-3: Presentation of the case: (1 Hr.30 Min.)

The student will present the modern and Unani management of chronic toxicity.

The teacher will rectify and suggest, if any needed.

Step-4: Recording the Activity: (30 Min.)

Record the management in record book.

Practical Training 28.3 Detoxification through Unani regimens.

Total learning hours: 4

Step-1: Demonstration of the regimens: (1 Hr.)

The students will be posted in Ilaj bitt Tadbeer department.

The teacher will demonstrate the regimens used for detoxification in hospital.

Step-2: Application and Observation of the cases: (2 Hr. 30 Min.)

The student will observe the detoxification effects of the regimens administered on the patients.

Step-3: Recording the Activity: (30 Min.)

Students will record the case reports, laboratory reports and condition of patients in follow up in record book.

Practical Training 28.4 Diagnosis of complications of Environmental toxicity and formulation of the *Usoole ilaj*.

Total learning hours: 4

Step-1: Demonstration of the case: (1 Hr.)

The teacher will demonstrate a case of complications of environmental toxicity in the hospital to the student.

The teacher will instruct the student about making the Usoole Ilaj of the case.

Step-2: Observation and assistance: (2 Hr.)

The student will observe and assist the teacher in management of cases of complications of environmental toxicity in hospital.

The student will try to make the usoole Ilaj, the teacher will rectify in needed.

Step-3: Recording the Activity: (1 Hr.)

Keep the record in record book (4 hours)

Experiential Learning Activity

Experiential-Learning Learning 28.1: Management of non fatal acute toxicity through Unani fdrugs.

Total learning hours: 7

Step-1: Identification of the Case: (1 Hr.)

The student will identify the case of non-fatal acute toxicity in OPD.

Step-2: Management of the Case: (3Hr.)

The student will manage the cases of non-fatal toxicity with drugs in hospital.

Record the condition of patients in record book.

Step-3: Referral of the Case: (2 Hr.)

If there is no improvement in condition of patient, refer the patient to modern physician for management.

Step-4: Recording the Activity: (1 Hr.)

Record the activity in record book with Geotag images, attach the photocopy of relevant laboratory test done for diagnosis and in the follow up of cases of non-fatal acute toxicity.

Experiential-Learning Learning 28.2: Management of Chronic toxicity throuh Unani drugs

Total learning hours: 6

Step-1: Identification of the Case: (1 Hr.)

The student will identify the case of Chronic toxicity in OPD.

Step-2: Management of the Case: (2Hr.)

The student will manage the cases of Chronic toxicity with drugs in hospital.

Record the condition of patients in record book.

Step-3: Referral of the Case: (2 Hr.)

If there is no improvement in condition of patient, refer the patient to modern physician for management.

Step-4: Recording the Activity: (1 Hr.)

Record the activity in record book with Geotag images, attach the photocopy of relevant laboratory test done for diagnosis and in the follow up of cases of Chronic toxicity.

Experiential-Learning Learning 28.3: Detoxification through Unani regimns.

Total learning hours: 8

Step-1: Identification of the Case: (1 Hr.)

The teacher will assign a case of toxicity to the student available in the hospital and refer the patient to the Ilaj bit Tadbeer Unit for the Ilaj bit Tadabeer procedure.

Student will check all the safety parameters and necessary blood tests required for the appropriate IBT procedures.

Step-2: Application of regimens: (6 Hr.)

Activity: 01, Pre-procedure

Students will do all the required pre-procedural preparation in Ilaj bit Tadabeer unit appropriate regimen.

Activity: 02, During Procedure

Students will perform the suitable regimen in aseptic conditions for *Tanqiya* (detoxification) to the case of chronic toxicity.

Activity: 03, Post-Procedure

Student will keep the patient under observation and will discharge the patient in stable condition. After discharge, Student will keep the patient in follow-up for further assessment.

Step-3: Recording the Activity: (1 Hr.)

The student will keep the case sheets, laboratory reports and other supportive documents of diagnosis and prognosis of case in follow up in the record book.

Experiential-Learning Learning 28.4: Mangement of complications of environmental toxicities.

Total learning hours: 5

Step-1: Assigning the case: (30 Min.)

The teacher will assign the case of the complications with environmental toxicity to the student.

Step-2: Diagnosing the case: (2 hour)

The student will try to diagnose the cases of complications of environmental toxicities assigned by the teacher from OPD/IPD.

Step-3: Prescribing the drugs: (2 hour)

The student will prescribe the Unani drugs and regimens to the cases of environmental toxicities.

Step-4: Documentation: (30 Min.)

The student will record the condition of patient in follow up.

The student will keep the case reports, laboratory reports and relevant documents of cases of complication of environmental toxicities in record book.

Modular Assessment

Assessment	Hour
Formative Assessment: 4 Hours **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. **Viva (20 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1, 2, 3 and 4 units for 5 marks each. **Case-Based Scenario (20 Marks):** Demonstration of any one case from unit 1 or 4. Or Any practical in converted form can be taken for assessment (25 Marks). and Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	4

Semester No : 5

Module 29 : ماحولیاتی علم السموم کا عملی اطلاق، قانونی اور اخلاقی امور اور رجحانات Mahauliyati Ilmus Samoom ka Amali Itlaq, Qanooni aur Akhlaqi Umoor aur Rujhanaat (Practical Applications, Regulatory & Ethical Issues and Emerging trends of Environmental Toxicology

Module Learning Objectives

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

Describe the Regulatory & Ethical Issues and Emerging Trends of Environmental Toxicology

Demonstrate the Practical Applications

Unit 1 29.1 مطالعات موردی Mutaleat Moordi (Case Studies)

29.1.1. Historical and recent case studies of environmental toxicology

29.1.2. Analysis of specific toxicant incidents (e.g., Minamata disease, Love Canal)

29.1.3. Occupational case studies

References: 28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,86,87,91,94,95,99,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1,CO5	Discuss the Historical and recent case studies of environmental toxicology.	2	Lecture	CC	Knows-how	L&GD
2,3,5	Describe the case studies on environmental toxicity incidents like Bhopal Gas Tragedy, Minamata disease, Iraq grain disaster, Great Smog of London, Love Canal, Chernobyl disaster, deep water horizon oil spill.	2	Practical29.1	CE	Knows-how	LS,DIS
1,2,3,5	Perform Mock drill for any incident of various environmental toxicities e.g. (Bhopal Gas Tragedy, Love canal, Chernobyl nuclear disaster)	5	Experiential-Learning29.1	PSY-GUD	Does	RP,SIM
CO1,CO2, CO3,CO5	Discuss the preventive measures of environmental toxicants through case studies. e.g. Great smog of London/Pollution in Delhi.	3	Experiential-Learning29.2	PSY-SET	Does	D,BL,PER,JC

Unit 2 29.2 عملی اطلاقات Amali İtlaqat(Practical Applications)

29.2.1. Hands-on training in sampling and analysis

29.2.2. Interpretation of toxicological data

29.2.3. Communication with health authorities

References: 28,29,30,34,42,43,44,45,46,50,52,54,59,63,65,72,73,75,76,77,84,85,86,87,91,94,95,99,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1,CO4	Describe Clinical samples and sampling guidelines for their collection.	2	Lecture	CC	Knows-how	L&PPT
CO1,CO5	Collect and Prepare samples and demonstrate its methods of preparation.	4	Practical29.2	PSY-GUD	Shows-how	CD,BL,PT,LRI
CO1,CO5	Collect the samples through various techniques of sample collection.	3	Experiential-Learning29.3	PSY-GUD	Does	D,PT
CO1,CO5	Apply techniques of storage and transport of collected samples of polluted air, water and soil.	3	Experiential-Learning29.4	PSY-MEC	Does	D,CBL,FV

Unit 3 29.3 ضوابطی ڈھانچہ Zawabiti Dhancha (Regulatory Framework)

29.3.1. Environmental laws and regulations (e.g., EPA, OSHA)

29.3.2. Role of the Pollution Control Board

29.3.3. International agreements and standards

References: 28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,86,87,91,92,93,94,95,99,100,101,102,105

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

CO1,CO5	Describe the roles, responsibilities, powers and functions of the regulatory bodies responsible for the monitoring of environmental toxicity	2	Lecture	CC	Knows-how	L&GD,L
CO1,CO5	Evaluate the application of laws, by-laws (e.g., EPA, OSHA, NGT Act, 2010; Water P&C Act, 1974; Biological diversity act, 2002) and regulation & ethical issues related to environmental toxicity.	5	Practical29.3	CE	Shows-how	L&PPT ,BL,LS,C_L,DIS
CO1,CO5	Assess the functioning of international regulatory bodies and their standards.	4	Experiential-Learning29.5	CE	Does	PER,ML,LS

Unit 4 29.4 اخلاقی ملاحظات Akhlaqui Mulahezat (Ethical Considerations)

29.4.1. Ethical issues in toxicological research and practice

29.4.2. Public health implications and policy considerations

References: 28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,86,87,91,94,95,99,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1,CO5	Discuss various ethical issues of environmental toxicity concerned with medical practice.	2	Lecture	CC	Knows-how	L,FC
CO1,CO5	Identify and conduct group discussion on the ethical issues of environmental toxicity observed in medical practice.	5	Practical29.4	CE	Shows-how	BL,PL,L&PPT ,DIS,C_L
CO1,CO5	Identify public health issues of commercial/industrial interest.	4	Experiential-Learning29.6	PSY-MEC	Does	DIS,C_L,FV,BL
CO1,CO5	Conduct awareness programs through various methods to the population at risk of intoxication due to industry.	5	Experiential-Learning29.7	AFT-VAL	Does	ML,FV

Unit 5 29.5 صادراتی ملوثات Saderati Mulavvisat (Emerging Contaminants)

29.5.1. New and novel toxicants (e.g., microplastics, endocrine disruptors)

References: 28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,86,87,91,94,95,99,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1	Describe New and novel emerging environmental toxicants, their classification, sources and impacts.	3	Lecture	CC	Knows-how	ML,L
CO1	Discuss the sources of nano-materials, micro-plastics, non-stick cookware utensils and recycled/ refurbished/orphaned products of toxicological importance.	3	Practical29.5	CAN	Shows-how	LS,ML,BS
CO1	Discuss the effects of nano-materials, micro-plastics, non-stick cookware utensils and recycled/ refurbished/orphaned products of toxicological importance.	3	Practical29.6	CE	Shows-how	JC,D
CO1	Recognise the presence of emerging toxicants in the environment through various methods, software and analytical tools.	6	Experiential-Learning29.8	PSY-ADT	Does	DIS,D,BS,JC

Unit 6 29.6 ماحولیاتی علم السموم میں پیش رفت Mahauliyati Ilmul Samoom men Peshraft (Advances in environmental Toxicology)

29.6.1. Innovations in detection and risk assessment

29.6.2. Future trends in environmental toxicology

References: 28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,61,63,65,72,73,75,76,77,84,85,86,87,91,94,95,99,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1	Discuss Future trends in environmental toxicology	4	Lecture	CC	Knows-how	L_VC
CO1	Apply the Artificial Intelligence (AI) for the detection of environmental toxicity	8	Practical29.7	PSY-ADT	Shows-how	PBL,BS,D

CO1	Identify the locality at risk of environmental toxicity and assess the risks due to environmental toxicants.	6	Experiential-Learning29.9	PSY-GUD	Does	L&PPT ,BS,FV,D,PER

Practical Training Activity

Practical Training 29.1 Case studies on environmental toxicities.

Total learning hours: 2

Step-1: Searching of comprehensive reports on famous toxicity disaster incidents and study (1 hour)

Obtain comprehensive reports on significant toxicity disaster incidents. Assign students to review these case studies prior to class, then

Step-2: Discussion (1 hour)

lead a discussion covering: Background, Causes, Effects, Consequences, Legal proceedings such as investigations, liability, compensations, etc.; Emergency response practices, Prevention, Future preparedness, etc.

Practical Training 29.2 Collection and preparation of samples in Environmental Toxicity.

Total learning hours: 4

Step-1: Demonstration on the topic: (30 Min.)

The teacher will demonstrate the methods of the sample collection and preparation to the student.

Step-2: Collection and preparation of samples (3 hours)

The student will attempt to collect and prepare the sample of polluted air, polluted water and polluted soil.

The teacher will suggest and rectify if needed.

Step-3: Recording in the record book (30 Min.)

Record the activities in the record book.

Practical Training 29.3 Evalaution of laws and by-laws related to environmental toxicity

Total learning hours: 5

Step-1: Study and discussion (1 Hr.)

The teacher will discuss with the students about the laws and bylaws like; EPA, OSHA, NGT Act, 2010; Water P&C Act, 1974; Biological diversity act, 2002, and regulation and ethical issues related to environmental toxicity.

Step-2: Blended learning: (2 Hr. 30 Min.)

The student will study, discuss and compile**,** laws, by laws, regulations and ethical issues related to environmental toxicity like EPA, OSHA, NGT Act, 2010; Water P&C Act, 1974; Biological diversity act, 2002.

Step-3: Presentation: (1 Hr.)

The student will present the laws, by laws, regulations and ethical issues related to environmental toxicity like EPA, OSHA, NGT Act, 2010; Water P&C Act, 1974; Biological diversity act, 2002.

The teacher will rectify and suggest if any needed.

Step-4: Recording in the record book (30 Min.)

Record the activity in the record book mentioning the complete discussion step by step.

Practical Training 29.4 Identification and group discussion on the ethical issues related to healthcare sector.

Total learning hours: 5

Step-1: Demonstration on the topic: (30 Min.)

The teacher will demonstrate to the student about the ethical issues of environmental toxicity observed in medical practice.

Step-2: Blended learning session: (2 Hr.)

Student will study the ethical issues of environmental toxicity observed in medical practice and will try to identify same in their area/city.

Teacher will ask them to do the group study in library on the topic.

Step-3: Group discussion sessions: At least two to three sessions (2 Hr.)

Teacher will arrange them in groups and assign them a related topic for group discussion.

Every student in the group will write a report based on group discussion, teacher will rectify if needed.

Step-4: Recording the Activity: (30 Min.)

The activity will be recorded in the record book.

Practical Training 29.5 Sources of emerging contaminants.

Total learning hours: 3

Step-1: Demonstration on the topic: (30 Min.)

The teacher will demonstrate to the students about the sources of emerging contaminants.

Step-2: Library session/ blended learning (1 Hr.)

Student will study the about the sources of emerging contaminants through their mobile/other internet source/library

Step-3: Group discussion and interaction (1 Hr.)

Student will interact and do group discussion to find out a solution to eliminate the sources of emerging contaminants and record them.

Teacher will rectify and suggest if needed.

Step-54: Recording the Activity: (30 Min.)

The activity will be recorded in the record book.

Practical Training 29.6 Dicussion about the effects of emerging toxicants.

Total learning hours: 3

Step-1: Demonstration on the topic: (30 Min.)

The teacher will demonstrate about the effects of emerging toxicants.

Step-2: Blended learning/ Library sessions (1 Hr.)

Student will study the effects of emerging toxicants and search the original research articles on the related topic.

Teacher will assign the research paper to the study for presentation in journal club.

Step-3: Conduct journal club (1 Hr.)

Conduct journal club and then subject the topic for open discussion.

The teacher will intervene, give expert comments and suggest if any appropriate rectification.

Step-4: Recording the Activity: (30 Min.)

The student will record the activity in the record book.

Practical Training 29.7

Experiential Learning Activity

Experiential-Learning Learning 29.1: Mock drill for the management of toxicological disasters

Total learning hours: 5

Step-1: Study and discussion (2 hours)

Students are already supposed to have knowledge about famous toxicity accidents.

Teacher will discuss about the mock drills for toxicity accidents.

Step-2: Preparation and conduction of mock drills (3 hours)

Conduct emergency response simulation drill for Bhopal Gas Tragedy

Conduct emergency response simulation drill for Chernobyl Nuclear Disaster

Conduct emergency response simulation drill for Love Canal

Experiential-Learning Learning 29.2: Discussion about the preventive measures of environmental toxicants.

Total learning hours: 3

Step-1: assignment of the scenario: (30 Min.)

The teacher will assign the scenario of the environmental toxicity case of the past events.

Step-2: Study and Preparation of presentation (1 Hr.)

The students will study the case studies of famous environmental toxicity events.

The students will prepare the presentations on preventive measures.

Step-3: Seminar presentation (1 Hr.)

The student will present preventive measures for different environmental disaster-Great Smog of London.

The student will give presentation on preventive measures for different environmental disasters- Pollution in Delhi.

Step-4: Recording the Activity: (30 Min.)

The student will record the activity in the record book.

Experiential-Learning Learning 29.3: Methods of sampl collection.

Total Hour: 3 Hours

Step-1: Assigning the area: (30 Min.)

The teacher will assign the area for the sample collection.

Step-2: Collection of the samples: (2 Hr.)

The student will use appropriate sample techniques for the sample collectin.

The student will collect the samples of polluted air, water, soil as per the guideline.

The teacher will rectify if needed.

Step-3: Recording the Activity: (30 Min.)

Record the activity in record book with Geotag images.

Experiential-Learning Learning 29.4: Exploration of different techniques of sample storage and transportation.

Total learning hours: 3 Hours

Step-1: Assigning the topic: (30 Minutes)

The teacher will instruct the students about the collection and transportation of the collected samples.

Step-2: Hands-on training (2 Hours)

Students will be provided with hands-on training in the storage and transportation of collected samples of polluted air, water, and soil as per guidelines.

The students will prepare and transport the collected samples as per the guidelines.

Step-3: Recording in the record book (30 Minutes)

Students will record the activity in a record book with geo-tagged images

Experiential-Learning Learning 29.5: Functioning of International regulatory bodies.

Total learning hours: 4 Hours

Step-1: Assigning the topic: (30 Minutes)

The teacher will assign the topic to the student to study and compile the literature.

Step-2: Library session (3 Hours)

The student will collect the literature related to the functioning of IUAPPA (International Union of Air Pollution Prevention and Environmental Protection Associations).

The student will collect the literature related to the functioning of SETAC (Society of Environmental Toxicology and Chemistry).

The student will collect the literature related to the functioning of UNEP (United Nations Environment Program).

Step-3: Recording in the record book. (30 Minutes)

Preserve the collected literature and attach it to the record book.

Experiential-Learning Learning 29.6: Identification of Public health issues of commercial/industrial interest.

Total learning hours: 4

Step-1: Assigning the topic: (30 Min.)

The teacher will assign the topic related to public health issues of commercial/industrial interest to the student.

Step-2: Blended learning (1 Hr.)

Students are supposed to search and study the topic.

Teacher will conduct a discussion session on public health issues of commercial/industrial interest.

Step-3: Field visit (2 Hr.)

Teacher and students together will complete the required pre-requisites, such as permissions from Head of the institution, industry, transportation, etc.

Visit various industries such as chemical industry, construction industry, and pharmaceutical industry; and identify public health issues arising.

Step-5: Recording the Activity: (30 Min.)

Record the activity with Geo tagged images in the record book.

Experiential-Learning Learning 29.7: Awareness programs for the prevention of industrial toxicity.

Total learning hours: 5

Step-1: Identification of population at risk: (30 Min.)

The teacher will identify the area of population at risk and assign to the student.

Step-2: Preparation of IEC (Information, Education, and Communication) material (2 Hr.)

Teacher will make group of students for the preparation of IEC (Information, Education, and Communication) material and assign them a particular industry.

Students will prepare IEC material for the workers of any particular industry.

Teacher will rectify and do required corrections.

Step-3: Field visit (2 hours)

Necessary permissions from the industry and the institute as well will be taken.

The student will make the field visit of the assigned area if population at risk and conduct the awareness programme through the prepared IEC material.

The student will prepare a report of the visit. Include the geo-tagged images of your visit in the report.

Step-4: Recording the Activity: (30 Min.)

The activity will be recorded in the record book.

Experiential-Learning Learning 29.8: Analyse the presence of emerging toxicants in the environment through various methods, software and analytical tools.

Total learning hours: 3 Hours

Step-1: Demonstration on the topic: (30 Minutes)

The teacher will demonstrate and instruct the students about recognition of the emerging toxicants in the environment through various methods, software and analytical tool.

Step-2: Blended learning/ Library sessions (1 Hour)

Student will study about the recognition of the emerging toxicants in the environment through various methods, software and analytical tool and search the original research articles on the related topic.

Teacher will suggest the research paper/ articles related to the recognition of the emerging toxicants in the environment through various methods, software and analytical tool.

Step-3: Conduct journal club (1 Hour)

The teacher will conduct a journal club and then discuss the topic for open discussion.

The teacher will intervene, give expert comments and suggest if any appropriate rectification.

Step-4: Recording the Activity: (30 Minutes)

The student will record the activity in the record book.

Experiential-Learning Learning 29.9: Identifying the risk of environmental toxicity

Total learning hours: 6 Hours

Step-1: Identification of the area: (1 Hour)

The teacher will identify the area with potential environmental toxicity through various resources like articles, news, social media, visiting industrial areas, etc.

The teacher then assigns the areas with potential environmental toxicity.

Step-2: Blended learning/ Library sessions (2 Hours)

Students will study potential sources of pollution.

Students will identify potential sources of pollution, analyse the types of toxicants present, and evaluate the potential impacts on human health and the environment.

Step-3: Compilation and presentation (2 Hours) The student will compile the data and present it, and the teacher will give expert comments and rectify if needed. **Step-4: Recording the Activity: (1 Hour)** The student will record the activity in the record book.	
Modular Assessment	
Assessment	**Hour**
Formative Assessment: 6 Hours **Instructions -** Conduct a structured Modular assessment. The assessment will be for 75 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. **Viva/short questions (30 marks):** Viva will be conducted by the teacher, and 15 questions (2 marks each) covering all units will be asked. Or 3 short questions (5 marks each): The student will be given 3 short answer questions covering all units. **Practical/ open book test (30 Marks):** 3 Practical/ questions from units 3, 4 & 5 for 10 Marks each **Experiential Learning Activity (15 Marks):** Demonstration of any one experiential learning activity from Units 1 or 2. or Any practical in converted form can be taken for assessment (40 Marks). and	6

Any experiential work, such as portfolio/ reflections/ presentations, can be taken as an assessment (35 Marks)	

Module 30 : تجزیاتی علم السموم اور اس کی تجربہ گاہ Tajziyati Ilmus Samoom aur uski Tajurba gah (Analytical Toxicology and its laboratory)

Module Learning Objectives

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

Describe Analytical Toxicology

Identify the tools used in the laboratory

Apply the tools

Unit 1 30.1 تجزیاتی علم السموم کا تعارف اور اس کا تاریخی ارتقا Tajziyati Ilmul Samoom ka Ta'aruf aur uska Tareekhi Irtiqa (Introduction and Historical development of Tajziyati Ilmul Samoom)

30.1.1. Introduction and Historical Development of Tajziyati Ilmul Samoom

References:

1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,28,29,30,34,41,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,86,87,91,94,95,99,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1	Describe the concept of Tajziyati Ilmul Samoom and its historical developments.	1	Lecture	CC	Knows-how	L,L&PPT
CO1	Prepare audio-visual and pictorial/graphical presentations on the scope of Tajziyati Ilmul Samoom	2	Practical30.1	CE	Shows-how	LS,L&PPT ,BS,BL

Unit 2 30.2 تجزیاتی علم السموم کا طلاق Tajziyati Ilmul Samoom ka Itlaq (Application of Analytical Toxicology)

30.2.1. Application of Analytical Toxicology

References: 28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,63,64,65,72,73,75,76,77,84,85,86,87,91,94,95,99,100,101

3A	3B	3C	3D	3E	3F	3G
CO1	Describe various Methods for the analysis of toxic metals in biological materials	2	Lecture	CC	Knows-how	L&GD,L&PPT
CO1	Integrate various analytical applications in toxicology.	4	Practical30.2	PSY-MEC	Shows-how	LRI,L_VC,D,CBL,C_L
CO1	Apply analytical toxicology in different situations.	7	Experiential-Learning30.1	PSY-MEC	Does	PBL,ML

Unit 3 30.3 تجزیاتی معمل میں مستعمل سازوسامان Tajziyati Ma'mal me musta'mal sazo samant(Equipment used in analytical laboratory

30.3.1. Equipment used in the analytical laboratory

References: 28,29,30,34,41,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,86,87,91,92,93,94,95,99,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1	Describe the major and minor equipment used in analytical laboratory	2	Lecture	CC	Knows-how	L&PPT ,L_VC
CO1	Demonstrate the operating procedure or various steps of analysis of poison in equipment.	4	Practical30.3	PSY-GUD	Shows-how	D,L_VC,D-M
CO1	Apply Good Laboratory practices.	6	Experiential-Learning30.2	PSY-ORG	Does	TUT,DL,FC,C_L,D

Practical Training Activity

Practical Training 30.1 Preparation of audio-visual and pictorial/graphical presentations on the scope of T*ajziyati Ilmul Samoom*.

Total learning hours: 2

Step-1: Explanation by teacher (30 Min.)

Teacher will explain the scope of Tajziyati Ilmul Samoom.

Step-2: Blended learning/ Presentation. (1 Hr.)

Students will compile the material of Tajzinyati Ilmul Samoom through bleeded learning.

Students will prepare the audio-visual and pictorial/graphical presentations using the compiled material.

Students will give PPT (Power point) presentation in the presence of teacher.

Step-3: Recording the Activity: (30 Min.)

The student will record the activity in the record book.

Practical Training 30.2 Integrate various analytical applications in toxicology.

Total learning hours: 4 Hours

Step-1: Demonstration on the topic: (30 Minutes)

The teacher will demonstrate the analytic techniques in Advanced Analytic Laboratory, such as Chromatographic Techniques, Mass Spectrometry, Spectroscopic Methods, to find the environmental toxic substances in biological materials such as urine, blood, etc.

Step-2: Practical performance by students (3 Hours)

The student will observe and then perform the analytical techniques, such as Chromatographic Techniques, Mass Spectrometry, and Spectroscopic Methods.

The teacher will observe and help, and rectify if needed.

Step-3: Recording the Activity: (30 Minutes)

The student will record the activity in the record book.

Practical Training 30.3 Demonstration of the operating procedure or various steps of analysis of poison in equipment.

Total learning hours: 4

Step-1: Demonstration of minor equipment (1 Hr.)

Teacher and Laboratory technician will demonstrate the following instruments and their operating procedures to the students: Minor Equipment (Sample Preparation Equipment, Sample Storage and Handling Equipment, General Laboratory equipment.

Step-2: Demonstration of major equipment (1 Hr.30 Min.)

Teacher and Laboratory technician will demonstrate the following instruments and their operating procedures to the students: Major equipment (Chromatographic Instruments, Mass Spectrometers, Spectroscopic Instruments) used in detection of toxic substances in biological materials such as blood, urine saliva etc.

Step-3: Performance by the student (1 Hr.)

The student will observe and perform the operating procedures of the minor and major equipment.

The teacher will observe and rectify if needed.

Step-4: Recording the Activity: (30 Min.)

5. Students are supposed to record the activity in the record book with geo-tagged images.

Experiential Learning Activity

Experiential-Learning Learning 30.1: Apply analytical toxicology in different situations.

Total learning hours: 7

Step-1: Assigning the different scenarios (1 Hr. 30 Min.)

Teacher will assign different scenarios to students and ask the name of suitable analytic technique for that situation.

Students will answer the teacher with proper explanation of the technique.

Step-2: Practical performance (5 hours)

The teacher will give hands on training to the students of the appropriate analytic technique.

The Student will observe and perform the suitable analytical techniques and do analysis of the biological materials, in laboratory.

Step-3: Recording the Activity: (30 Min.)

The student will record the activity in the record book.

Experiential-Learning Learning 30.2: Application of Good Laboratory practices.

Total learning hours: 5

Step-1: Explanation assigning the handling of Laboratory (1 Hr.) Teacher or Laboratory technician will explain the Good Laboratory practices and assign. **Step-2: Observation and practice (3 Hr.)** Students will observe different analytic technique in laboratory and compare the analytic technique with Good Laboratory practices. Students will perform the analytic technique as per Good Laboratory practices. **Step-3: Recording the Activity: (1 Hr.)** Students will record at least two complete analytic techniques in record book.	
Modular Assessment	
Assessment	**Hour**
Formative Assessment: 2 Hours **Instructions -** Conduct a structured Modular assessment. The assessment will be for 25 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. **Viva (10 marks):** Viva will be conducted by the teacher, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (05 marks):** The student will be given 1 Short Answer Question from 1, 2 and 4 units for 5 marks. **Practical (10 marks)** The student will be given one practical from Units 2 or 3. Or Any practical in converted form can be taken for assessment (25 Marks). Or	2

Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	

Semester No : 6

Module 31 : انکشافات اور تجزیے کے طریقے Inkeshafat wa Tajziye ke Tareeqe (Methods of Detection and Analysis)

Module Learning Objectives

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

Describe commonly used Analytical Tests and their interpretation, factors affecting analytical reports, Case studies, Forensic Biology and serology

Identify commonly used Analytical Tests and their interpretation, factors affecting analytical reports, Case studies, Forensic Biology and serology

Examine commonly used Analytical Tests and their interpretation, factors affecting analytical reports, Case studies, Forensic Biology and serology

Unit 1 31.1 فنیات نمونہ بندی Funniyate Namoona Bandi (Sampling Techniques)

31.1.1. Human sampling

31.1.2. Environmental sampling, i.e. Air, water, soil, and biological samples

31.1.3. Field collection and preservation

References: 26,28,29,30,34,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,86,87,91,94,95,99,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1	Describe various Human and environmental sampling, i.e. Air, water, soil, and biological samples and its collection, preservation and transport	5	Lecture	CC	Knows-how	L&PPT ,TUT
CO1	Demonstrate collection, preservation of Human samples in pathological laboratories and field collection of Air, water, soil, and biological samples.	10	Practical31.1	PSY-MEC	Shows-how	FV,D,DL

CO1	Collect and preserve the human sample in a pathological laboratory.	8	Experiential-Learning31.1	PSY-MEC	Does	D-M,D,DL
CO1	Collect the sample Air, water, soil, and biological samples from the field and preserve them for analysis.	10	Experiential-Learning31.2	PSY-MEC	Does	DL,D-M

Unit 2 31.2 تجزیاتی فنیات Tajziyati Fanniyat (Analytical Techniques)

31.2.1. Spectroscopy (e.g., atomic absorption, mass spectrometry)

31.2.2. Chromatography (e.g., gas chromatography, liquid chromatography)

31.2.3. Biological assays (e.g., bioassays, molecular assays)

References: 26,28,29,30,34,41,42,43,44,45,46,50,51,52,53,54,59,63,65,72,73,75,76,77,84,85,86,87,91,94,95,99,100,101,102,105

3A	3B	3C	3D	3E	3F	3G
CO1	Describe Spectroscopy (e.g., atomic absorption, mass spectrometry), Chromatography (e.g., gas chromatography, liquid chromatography), Biological assays (e.g., bioassays, molecular assays)	5	Lecture	CC	Knows-how	FC,SIM,L&PPT
CO1	Demonstrate analytical techniques of Spectroscopy (e.g., atomic absorption, mass spectrometry) and chromatography (e.g., gas chromatography, liquid chromatography) in analytical laboratory.	5	Practical31.2	PSY-MEC	Shows-how	DL,TUT,PT
CO1	Identify an environmental toxicant by using any one of the above techniques and prepare a report.	8	Experiential-Learning31.3	PSY-MEC	Does	DL,D
CO1	Demonstrate analytical techniques of Biological assays (e.g., bioassays, molecular assays) in analytical laboratory.	5	Practical31.3	PSY-MEC	Shows-how	DL

Practical Training Activity
Practical Training 31.1 Demonstration of collection, preservation of Human samples in pathological laboratories and field collection of Air, water, soil, and biological samples.
Total learning hours: 10 **Step-1: Demonstration methods of collection of biological samples: (1 Hr.)** The teacher or laboratory technician will demonstrate the method of collection of different biological materials such as blood, urine, saliva etc. to the students. **Step-2: Collection and preservation of human samples: (2 Hr.)** Students will perform the method of collection of different biological material such as blood, urine, saliva etc. under the supervision of a teacher or laboratory technician (2 hours) **Step 3: Field Visit for collection of Air, water, soil, and biological samples: (6 Hr.)** The teacher will identify the nearby area for collection of Air, water, and soil. The teacher or technician will demonstrate the method of collection of Air, water, and soil for analysis. Students will collect the samples of air, water and soil under the supervision of a teacher. **Step-4: Recording the Activity: (1 Hr.)** Students will record all the activities in the record book with geo-tagged images.
Practical Training 31.2 Demonstration of analytical techniques of Spectroscopy (e.g., atomic absorption, mass spectrometry) and chromatography (e.g., gas chromatography, liquid chromatography) in analytical laboratory.
Total learning hours: 5 **Step-1: Assigning the duties of the student: (30 Min.)** Students will be posted in the Analytical Laboratory. **Step-2: Demonstration of the analytical techniques: (3 Hr. 30 Min.)**

The teacher or technician will demonstrate the following analytical techniques in the analytic laboratory. e.g. Spectroscopy (e.g., UV-visible spectroscopy, Fourier Transform Infrared Spectroscopy atomic absorption, mass spectrometry), and Chromatography (e.g., gas chromatography, liquid chromatography, High-Performance Liquid Chromatography) (3 hours.) **Step 3: Recording in the record book: (1 Hr.)** The student will record the activity in the record book with geo-tagged images. Teacher will rectify if needed.
Practical Training 31.3 Demonstration of hte analytical techniques of Biological assays (e.g., bioassays, molecular assays) in analytical laboratory.
Total learning hours: 5 **Step-1: Assigning the duties of the student: (30 Min.)** Students will be posted in the Analytical Laboratory. **Step-2: Demonstration of the analytical techniques: (2 Hr.)** The teacher or technician will demonstrate the analytical techniques of Biological assays (e.g., bioassays, and molecular assays). **Step 3: Practical performance by students. (2 Hr.)** Students will perform the Biological assays (e.g., bioassays, molecular assays) under the supervision of a teacher or technician. **Step 4: Recording in the record book: (30 Min.)** The student will record the activity in the record book with geo-tagged images. Teacher will rectify if needed.
Experiential Learning Activity
Experiential-Learning Learning 31.1: Collection and preservation of the human sample in a pathological laboratory.
Total learning hours: 8 **Step-1: Demonstration on the topic: (1 Hr.)**

The teacher will demonstrate about the sample collection in the lab.

Step-2: Assigning the duties in the Laboratory: (1 Hr.)

The teacher will assign the duties of the student in the laboratory.

Step-3: Collection of the samples: (5 Hr.)

Students will collect and preserve the following samples in the pathological laboratory: Blood, Urine, Hair, Nails, Saliva, Breath, CSF

Step-4: Recording the Activity: (1 Hr.)

Students will record all the activities in the record book with geo-tagged images.

Experiential-Learning Learning 31.2: Collection of the samples of Air, water, soil, and biological samples from the field and preservation of them for analysis.

Total learning hours: 10

Step-2: Identifying and assigning the area: (2 Hr.)

The teacher will identify the nearby area for collection of sample Air, water, soil, and biological samples and schedule a field visit.

The teacher will get the required permissions, means of transportation, etc. for a field visit.

Step 2: Collection and Preservation of samples (6 Hr.)

Students will collect and preserve the following samples from the field.

Air, Water, Soil

Step 3: Recording in the record book: (2 Hr.)

The student will record the activity in the record book with geo-tagged images.

Teacher will rectify if needed.

Experiential-Learning Learning 31.3: Identification of an environmental toxicant by using any one of the above techniques and preparation of a report.

Total learning hours: 8

Step-1: Assigning the duties of the student: (1 Hr.)

Students will be posted in the Analytical Laboratory.

Laboratory technicians will provide the available biological samples for analysis to the students **Step-2: Performing the suitable analytical techniques: (6 Hr.)** Students will perform the suitable analytical technique on the biological sample detect the toxicants in it and verify from the teacher or laboratory technician. The teacher will rectify if needed. **Step 3: Recording in the record book: (1 Hr.)** 5. Students will record the method and result in the record book.	
Modular Assessment	
Assessment	**Hour**
Formative Assessment: 4 Hours **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. **Viva (20 marks):** The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1, 2 and 4 units for 5 marks each. **Practical (20 marks):** The student will be given two practicals from Units 1 and 2, each of 10 marks. Or Any practical in converted form can be taken for assessment (25 Marks). and Any of the experiential activities, such as portfolio/ reflections/ presentations, can be taken as an assessment (25 Marks)	4

Module 32 : تجزیاتی امتحانات اور ان کی روداد کی تاویل، طب القانونی حیاتیات اور مصلیات Tajziyati Imtehanaat aur unki roodadi Taveel, Tibbul Qanooni Hayatiyaat aur Masliyaat (Analytical Tests and Interpretation of their reports, Forensic Biology and Serology)

Module Learning Objectives

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

Describe commonly used Analytical Tests and their interpretation, factors affecting analytical reports, Case studies, Forensic Biology and serology

Identify commonly used Analytical Tests and their interpretation, factors affecting analytical reports, Case studies, Forensic Biology and serology

Examine commonly used Analytical Tests and their interpretation, factors affecting analytical reports, Case studies, Forensic Biology and serology

Unit 1 32.1 دموی ترکیب Damavi Tarkeeb (Blood-Composition)s, Functions, and examination of blood evidences

32.1.1. Damavi Tarkeeb (Blood-Compositions,

32.1.2. Functions and examination of blood evidence

References: 24,48,78,99,100,101,109

3A	3B	3C	3D	3E	3F	3G
CO3,CO5	Discuss blood compositions, Functions, and the importance of blood as evidence.	3	Lecture	CC	Knows-how	L&PPT
CO3,CO5	Demonstrate the collection of various natures of blood evidence	2	Practical32.1	PSY-MEC	Shows-how	DL
CO3,CO5	Collect various natures of blood evidence from different places/articles.	4	Experiential-Learning32.1	PSY-MEC	Does	RLE,CD
CO3,CO5	Perform various confirmatory tests on blood samples	4	Experiential-Learning32.2	PSY-MEC	Does	CBL

CO3,CO5	Perform various Blood grouping tests for forensic evidence	3	Experiential-Learning32.3	PSY-MEC	Does	CBL
CO3,CO5	Evaluate blood based on its composition under varying conditions.	4	Practical32.2	PSY-MEC	Shows-how	DG,DL

Unit 2 32.2 منوی ساخت، ترکیب اور منوی دھبوں کا امتحان Manavi sakht, Tarkeeb aur Manavi dhabbon ka Imtihan (Semen-Nature, composition, Examination of semen stains

32.2.1. Semen-Nature, composition, Examination of semen stains

References: 24,48,78,99,100,101,108

3A	3B	3C	3D	3E	3F	3G
CO3,CO5	Describe the Nature, composition, and importance of semen stains	2	Lecture	CC	Knows-how	L_VC
CO3,CO5	Examine semen stains as forensic evidence.	4	Practical32.3	PSY-MEC	Shows-how	DL
CO3,CO5	Examine semen stains as forensic evidence in real-life situations/simulations.	4	Experiential-Learning32.4	PSY-ADT	Does	RLE,DL

Unit 3 32.3 بالوں کی شناخت اور موازنہ Balon ki shanakht aur Muwazena (Identification and comparison of Hair

32.3.1. Identification and comparison of Hair

References: 24,48,78,99,100,101,108

3A	3B	3C	3D	3E	3F	3G
CO3,CO5	Describe the nature and importance of hair.	2	Lecture	CC	Knows-how	L&PPT ,L

CO3,CO5	Demonstrate the collection and evaluation of a hair sample as forensic evidence.	4	Practical32.4	PSY-GUD	Shows-how	DL
CO3,CO5	Conduct various collection and evaluation procedures on different hair samples from multiple sites/places.	4	Experiential-Learning32.5	CE	Does	CBL
Unit 4 32.4 بول وبراز Baul wa Baraz (Urine and Faeces) 32.4.1. Urine and Faeces **References:** 24,48,78,99,100,101,108						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO3,CO5	Describe the nature and importance of urine	1	Lecture	CC	Knows-how	L&PPT ,L
CO3,CO5	Conduct general Urine tests	2	Practical32.5	PSY-GUD	Shows-how	DL
CO3,CO5	Conduct presumptive tests and urine alcohol tests.	3	Experiential-Learning32.6	PSY-MEC	Does	DL,SIM,CBL
Unit 5 32.5 لعاب دہن اور انفی رطوبات Luabe Dahan aur Anafi Ratoobaat(Saliva and Nasal secretions) 32.5.1. Saliva and Nasal Secretions **References:** 24,48,78,99,100,101,108						
3A	**3B**	**3C**	**3D**	**3E**	**3F**	**3G**
CO3,CO5	Describe the nature and importance of Saliva	1	Lecture	CC	Knows-how	L&PPT ,L

CO3,CO5	Collect samples of saliva from stains and human subjects (suspects).	2	Practical32.6	PSY-GUD	Shows-how	DL
CO3,CO5	Conduct presumptive tests on samples of saliva.	2	Experiential-Learning32.7	PSY-MEC	Does	RLE,CBL,SIM,DL

Unit 6 32.6 پسینہ،آنسواور شیرانساں Paseena, Ansoo aur Sheere Insa'n (Sweat, Tears, and human milk)

32.6.1. Sweat, Tears, and Human Milk

References: 24,48,78,99,100,101,108

3A	3B	3C	3D	3E	3F	3G
CO3,CO5	Describe the nature and importance of sweat and faeces	1	Lecture	CC	Knows-how	L,L&PPT
CO3,CO5	Discuss various methods of forensic investigation considering sweat and faeces.	2	Practical32.7	PSY-GUD	Shows-how	DL
CO3,CO5	Consider the conducting of forensic tests on sweat and faeces.	2	Experiential-Learning32.8	PSY-MEC	Does	JC,CBL

Practical Training Activity

Practical Training 32.1 Collection of various natures of blood evidence.

Total learning hours: 2

Step-1: Brief description and Provision of samples: (30 Min.)

The teacher will briefly describe and provide Liquid blood, wet stains, dry stains, and washed blood samples to the students in the lab, and ask them to identify the nature of blood evidence.

Step 2: Collection and Preservation by students (1 Hr.)

Students will collect them as forensic evidence under the guidance of a teacher.

Step-3: Recording the Activity: (30 Min.)

Record the activity in the record book with images.

Practical Training 32.2 Evaluation of blood based on it's composition under varying conditions.

Total learning hours: 4

Step-1: Demonstration on the topic: (1 Hr.30 Min.)

The teacher will demonstrate the evaluation of blood samples on the following basis through various blood samples:

Cell structure

Haemoglobin

Enzymatic activity

Antigen (ABO, Rh, M-N)

Antibodies

Step-2: Performing the practical by the student: (1 Hr.30 Min.)

The student will perform the evaluation of blood samples on the following basis through various blood samples:

Cell structure

Haemoglobin

Enzymatic activity

Antigen (ABO, Rh, M-N)

Antibodies

Step-3: Recording the Activity: (1 Hr.)

Record the activity in the record book with images.

Practical Training 32.3 Examination of semen stains as forensic evidence.

Total learning hours: 4 **Step-1: Preparation of kit. (1 Hr.)** Students are expected to prepare a Rape Investigation Kit. The teacher/lab technician will provide samples. **Step 2: Practical performance (2 Hr.)** Students will perform presumptive tests, and confirmatory tests under the supervision of a teacher/lab technician. **Step-5: Recording the Activity: (1 Hr.)** Record the activity in the record book
Practical Training 32.4 Collection and evaluation of a hair sample as forensic evidence.
Total learning hours: 4 **Step-1: Study of the topic: (30 Min.)** The student is expected to study the Collection and evaluation procedures of hair samples. **Step 2: Demonstration of collection procedures. (1 Hr. 30 Min.)** The teacher will demonstrate the following collection procedures: i) Hand picking ii) Tweezers picking iii) Article collection iv) Brushing v) Combing vi) Tape lifting vii)Vaccuming viii) Solvent action ix)Pulling x) Clipping **Step 3: Demonstration of evaluation procedures. (1 Hr. 30 Min.)** The teacher will demonstrate the following evaluation procedures: i) Visual examination ii) Microscopy iii) Microtomy iv) Scale count v) Density vi) Refractive index. **Step-4: Recording the Activity: (30 Min.)** The activity will be recorded in the record book.
Practical Training 32.5 General urine tests
Total learning hours: 2 **Step-1: Brief description and provision of samples (30 minutes)**

Students will be provided with at least 3 urine samples.

Step 2: Practical performance: (1 Hr.15 Min.)

The student will perform the following general tests on Urine: i) Color ii) Clarity iii) Odour iv) Specific gravity v) pH vi) Protein vii) Ketones viii) Microscopic analysis

Students will record the activity in the record book with images.

Step-3: Recording the Activity: (15 Min.)

The activity will be recorded in the record book.

Practical Training 32.6 Collection of Saliva samples from stains and human subjects (suspects).

Total learning hours: 2

Step-1: Demonstration on the topic: (30 Min.)

The teacher will demonstrate the methods of collecting the saliva

Step-2: Practice the sample collection: (1 Hr.)

Students will practice effectively collecting saliva samples from stains, and at least 3 human subjects in the supervision of a teacher/lab technician. (2 hours)

Step-3: Recording the Activity: (30 Min.)

Students will record the activity in the record book with images.

Practical Training 32.7 Consideration of sweat and faeces in forensic investigations.

Total learning hours: 2

Step-1: Literature search and study (1 Hr.)

The teacher will help students in searching and selecting a related case study/research paper.

Step 2: Group discussion (1 Hr.)

The teacher will conduct a group discussion in the class to discuss the forensic use of sweat and faeces for forensic investigation

The student will write a brief report based on their discussion

Experiential Learning Activity
Experiential-Learning Learning 32.1: Collection of various natures of blood evidence from different places/articles
Total learning hours: 4 **Step-1: Assigning the scenario: (30 Min.)** The teacher/lab technician will provide scenarios of various natures of evidence. **Step-2: Pre-requisites: (1 Hr.)** The student is expected to know the procedure of collection of blood evidence of various natures. The teacher/lab technician will provide scenarios of various natures of evidence **Step 3: Collection and preservation (2 Hr.)** Students will collect and preserve them as forensic evidence. **Step-4: Recording the Activity: (30 Min.)** Students will record the procedure and keep the geo-tagged photographs in the record book.
Experiential-Learning Learning 32.2: Blood grouping test for forensic evidence
Total learning hours: 3 **Step1: Identification of blood groups (1 Hr.30 Min.)** Students will be provided with at least 5 different bloods (with different natures) samples. They will identify the blood group using various techniques: ABO, Rh, M-N **Step 2: Identification of Foetal and menstrual blood (30 Min.)** Students will also identify the following: Foetal blood, menstrual blood. **Step-3: Recording the Activity: (1 Hour)** Record the activity in the record book with images.

Experiential-Learning Learning 32.3: Confirmatory tests of blood.
Total learning hours: 3 **Step-1: Pre-requisites (30 Min.)** Students will be provided with at least 5 different samples of human blood/blood of any other species (Dog, cat, cattle, rat, rabbit, etc.)/resembling fluid. **Step 2: Practical performance. (2 Hr.)** Students will perform the following: Colour tests: Benzidine test, Leucomalachite Green test, Phenolphthalein test Crystal Test: Teichmann Test, Takayama Test The Precipitin test **Step-3: Recording the Activity: (30 Min.)** Record the activity in the record book with images.
Experiential-Learning Learning 32.4: Examination of semen stains as forensic evidence
Total learning hours: 4 **Step-1: Provision of a scenario: (1 Hr.)** A Scenario of a rape incident will be provided to students and they will perform the following: Collect the evidences, Presumptive tests, Confirmatory tests. Or observe by video clip **Step 2: Practical performance (2 Hr.)** Students will collect the evidences; do presumptive tests, and confirmatory tests. **Step-5: Recording the Activity: (1 Hr.)** Record the activity in the record book
Experiential-Learning Learning 32.5: Collection and evaluation procedures on different hair samples from multiple sites/places.

Total learning hours: 4

Step-1: Pre-requisites (30 minutes)

The student is expected to study the Collection and evaluation procedures of hair samples.

The teacher will provide various hair samples and scenarios to the students.

Step 2: Performance by students (3 hours)

Students will perform the following collection procedures: i) Hand picking ii) Tweezers picking iii) Article collection iv) Brushing v) Combing vi) Tape lifting vii)Vaccuming viii) Solvent action ix)Pulling x) Clipping

Students will perform the following evaluation procedures: i) Visual examination ii) Microscopy iii) Microtomy iv) Scale count v) Density vi) Refractive index

Students will record the activity in the record book with geo-tagged images

Step-3: Recording the Activity: (30 Min.)

The activity will be recorded in the record book.

Experiential-Learning Learning 32.6: Presumptive test on urine and alcohol urine test.

Total learning hours: 3

Step-1: Provision of samples: (30 Min.)

The teacher/lab technician will briefly describe and provide the students with five real/simulated urine samples.

Step 2: Practical performance by students: (1 Hr.30 Min.)

Students will perform Presumptive substance testing.

Student will perform Urine alcohol test i.e., EtG test, EtOH test, Iodoform test

Students will record the activity in a record book with images.

Step-3: Recording the Activity: (1 Hr.)

Experiential-Learning Learning 32.7: Presumptive tests on samples of saliva.

Total learning hours: 2

Step-1: Pre-requisites (30 Min.)

The teacher/lab technician will provide samples of saliva.

Step 2: Practical : (1 Hr.)

Students will perform the presumptive test (Phadebas test) on at least three samples of saliva.

Students will record the activity in a record book with images.

Step-3: Recording the Activity: (30 Min.)

Students will record the activity in the record book with images.

Experiential-Learning Learning 32.8: Forensic tests on sweat and faeces.

Total learning hours: 2

Step-1: Selection of research paper and allotment to students (30 Min.)

The teacher will assign research papers to students to present in the journal club.

Step 2: Presentation and discussion (1Hr.15 Min.)

Conduct journal club and discuss the case studies of forensic cases where sweat and faeces were considered as evidence.

Step-3: Recording the Activity: (15 Min.)

The student will record the activity in the record book.

Modular Assessment

Assessment	Hour
Formative Assessment: 4 Hours **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.	4

Viva (20 marks): The teacher will conduct a viva, and 10 questions (2 marks each) covering all units will be asked. **Short Answer Questions (10 marks):** The student will be given 2 Short Answer Questions from 1, 2 and 4 units for 5 marks each. **Practical (20 marks):** The student will be given two practicals from Units 3, 4, 5 and 6. Or Any practical in converted form can be taken for assessment (25 Marks). & any of the experiential activities, such as portfolio/ 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	Prepare medico-legal report	3
1.2	Collection of Forensic Evidence	4
1.3	Demonstration of the Chain of custody of Forensic evidence.	3
1.4	Mechanical Injuries.	4
1.5	Determination of Age and Nature of Mechanical Injuries based on Stages of Wound Healing.	3
1.6	Role of Imaging technique in identification of mechanical Injuries.	3
2.1	Demonstration of thermal Injuries.	3
2.2	Assessment of the severity of Burn	3
2.3	Identification of firearm used for an injury..	4
2.4	First-aid technique for the management of Electric Injuries	3
2.5	First-aid technique for management of chemical injuries	3
2.6	Firearms and injuries	4
3.1	Demonstration of child abuse and neglect	5
3.2	Demonstration of a case of elderly abuse and neglect	5
3.3	Screening of the risk factors of domestic violence.	5
3.4	Demonstrate collection, preservation and handling of forensic evidences from the victim of sexual offence.	5
3.5	MTP Act, 1971 and its amendments.	5
3.6	Surgical abortion Techniques.	5
4.1	Evolution of forensic pathology	2

4.2	Role of forensic pathology in the investigation of death	4
4.3	Analysis of the tissue samples for histopathological examination in forensic cases.	4
5.1	Autopsy procedure.	5
5.2	Autopsy examination	5
5.3	Internal organ examination	5
5.4	Special autopsy on decomposed, exhumated or burned bodies.	5
6.1	Postmortem Interval Estimation	5
6.2	Rigor Mortis	5
6.3	Phases of decomposition.	5
6.4	Taches Noires.	5
7.1	Laboratory Tools in Forensic Analysis.	5
7.2	Digital tools in forensic medicine.	5
7.3	Molecular forensic pathology.	5
7.4	Forensic investigation.	5
8.1	Clinical understanding of forensic psychiatric disorders.	5
8.2	The Diagnosis and Management of Mood Disorders.	5
8.3	Demonstration of Risk factors and behavioral markers associated with violence, self-harm, and harm to others.	5
8.4	Application of standardized risk assessment tools.	5
9.1	Journey of poison and poisoning in human history.	4
9.2	Importance of clinical toxicology in public heath.	5
9.3	Preparation of case sheets of poisoning.	5
9.4	Demonstration of Routes of administration of poisons.	6

9.5	Demonstration of the mechanism of action and routes of elimination in 2 hospitalized cases of different types of poisoning.	5
9.6	FDA and their roles.	5
10.1	Preparation of Herbarium.	5
10.2	Moden and Unani Classification.	5
11.1	Identify the Poisons from various sources and demonstrate their exposure.	6
11.2	Demonstration of effect of various poisonings like irritant, neurological,GI,cardiac etc.	6
11.3	Adverse Drug Reactions.of over-the-counter drugs.	8
12.1	Demonstration of cases of poisoning.	5
12.2	Imtehane Qaroora in case of sammiyat and correlation with the changes in mizaj.	5
12.3	Practical demonstration of toxicological laboratory analysis of blood.	5
12.4	Demonstration of the role of urine analysis in diagnosis of poisoning.	5
13.1	Practicing Gastric lavage.	5
13.2	Decontamination of contact toxicants.	5
13.3	Use of specific antidotes in clinical toxicology.	5
13.4	Preparation, of the Universal Antidote.	5
13.5	Airway management and respiratory support in poisoning management.	5
13.6	Evaluation of the research study through journal club.	5
14.1	Practical demonstration on various forms of Tiryaqate Mufrada.	4
14.2	Preparation of any Two Murakkab Tiryaqat used in various cases of poisoning.	4
14.3	Demonstration of the benefits and application of Unani antidotes in various cses of poisoninig.	2
15.1	Life cycle of Snakes, Scorpion, Canthrides, Bee, Wasp and Centipede.	5
15.2	Demonstration the features of venoms/stings/toxic substances of Snake, Scorpion, Bee, Wasp, Cantharide, Centipede.	3

15.3	Clinical demonstration of the toxicological effects of poisonings of Snake bite, Scorpion/Bee/wasp stings, cantharide/centipede toxicity.	3
15.4	Preparation of topically used murakkabat for the management of Snakebite, Scorpion/Bee/wasp stings, cantharides/centipede toxins.	4
15.5	Demonstration of Qai, Ishal, Idrar, Takmeed and Dalk.	5
16.1	Journal Clubs/Group discussions/Brainstorming sessions on efficacy and safety of various Tiryaqat.	4
16.2	Demonstration of classical cases of animal poisoning.	4
16.3	Correlation of Mizaj of poisons, and Mizaj of antidotes	4
16.4	indication of antidotes in poisoning cases according to their mizaj	4
16.5	modern advancements in clinical toxicology through audiovisual/graphical aids.	4
17.1	Role of ancient methods in poison detection.	5
17.2	Role of a forensic toxicologist in criminal investigations	5
18.1	Detection of various heavy metal poisoning through Blood, Urine and Saliva tests as well as Hair analysis	3
18.2	Identification of physical and chemical properties of following heavy metals like Sammul far, Sesa, Seemab, Faulad, Nuqra, Nuhas, Jast and Surma.	4
18.3	Demonstration of the safety profile of the various Unani formulations.	4
18.4	Identification of clinical features of Alcohol Abuse	4
18.5	Certification of Drunkeness of an individual (Ethanol, Methanol, Isopropanol)	4
18.6	Detection of Drug abuse/Doping cases.	5
18.7	Drug abuse identification.	6
19.1	Demonstration of Organophosphates - Parathion.	4
19.2	Demonstration of Organophosphates - Diazinon, Chlorpyrifos	4

19.3	Demonstration of Pyrethroids, Permethrin & Cypermethrin - Identification, Mechanism of Action, toxic effects, detection methods, forensic significance, etc.	8
19.4	Practical demonstration of Rodenticide, Warfarin and Brodifacoum.	4
20.1	Demonstration of detection methods and the forensic significance of chelating agents.	5
20.2	Demonstration of detection methods for cleaning agents	5
20.3	Demonstration of the Toxic Effects of Following Cosmetics and Personal Care Products; Nail Polish Remover (Acetone), Perfumes and Colognes (Ethanol), Hair Dyes: Ammonia, Hydrogen Peroxide, Dusting powders, Isopropyl Alcohol (Rubbing Alcohol) and Hand Sanitisers (Ethyl Alcohol)	5
20.4	Demonstration on the hazards of Cosmetics and Personal Care Products	5
21.1	Demonstration of Opioids and their medico-legal aspect	6
21.2	Demonstration of Opioids and their medico-legal aspect.	5
21.3	Diagnosis and manage of the toxicity of Phenobarbital and Phenytoin	6
21.4	Demonstration of OTC drugs - Aspirin, Paracetamol and Cough Syrups	3
22.1	Demonstration of forensic significance of cardio toxic plants - Digitalis, Tambaku, Kaner and Beesh.	5
22.2	Demonstration of gastrooxic plants - Arand, Baladur, Jamalgota	5
22.3	Demonstration of forensic significance of neurotoxic plants - Azaraqi, Afyun, Datura, Bhang, Cocaine and Luffah	5
22.4	Demonstration of gastrooxic plants - Madar, Shehm Hanzal.	5
23.1	Snake and Arthropod Venoms	5
23.2	Demonstration of Food Poisoning Management in Unani Medicine	10
23.3	Training on execution of Pharmacovigilance	5
24.1	Demonstration of Postmortem Toxicology and the Role of poison in criminal cases: Homicides.	6
24.2	Demonstration of Postmortem Toxicology and the Role of poison in criminal cases	7
24.3	Demonstration of the Case Studies / Courtroom Testimony and Analysis of Forensic Cases	7

25.1	Environmental toxicology in Greek, Arab and Indian periodical classical texts.	3
25.2	Basic knowledge of Unani concept of environmetal toxicology with special refference to Taghayyurate Hawa (air changes) and its interdiciplinary approach with Preventive and Social Mediciene, clinical medicine and environmental Sciences.	4
25.3	Knowledge of the Qualities of Toxic air and water and their explanation based on classical Literature.	3
25.4	Identification of sources of Envirenmental Toxicants.	4
25.5	Identifcation of exposure pathways of environmental toxicants.	6
26.1	Identification of various physical toxicants on the basis of their properties.	4
26.2	Identifcation of various chemical toxicants on the basis of their properties.	5
26.3	Identification of bacteria acting as biological toxicants.	3
26.4	Identify viruses acting as biological toxicants.	2
26.5	Identification of different protozoa, fungi, algae, mycotoxins with special reference to aflatoxins, allergens and microorganism of biological warfare. acting as biological toxicants.	2
26.6	Identification of mutagens.	4
27.1	Demonstration of case of acute environmental toxicity keeping in view of circumstantial evidences.	2
27.2	Diagnosis of chronic cases of environmental toxicity keeping in view of circumstantial evidences, assessment of Mizaj, examination of Qaroora, and through Muaina i Nabz.	2
27.3	Demonstration of external and internal risks of environmental pollutants on vulnerable groups.	6
27.4	Preparation the IEC material for the identification and assessment of potential environmental risks.	6
27.5	Communication of risk factors of environmental toxicity.	4
28.1	Discussion of Usoole ilaj of Acute Toxicity of non fatal cases.	6
28.2	Discussion of the Usoole ilaj of chronic toxicity.	6
28.3	Detoxification through Unani regimens.	4
28.4	Diagnosis of complications of Environmental toxicity and formulation of the Usoole ilaj.	4

29.1	Case studies on environmental toxicities.	2
29.2	Collection and preparation of samples in Environmental Toxicity.	4
29.3	Evalaution of laws and by-laws related to environmental toxicity	5
29.4	Identification and group discussion on the ethical issues related to healthcare sector.	5
29.5	Sources of emerging contaminants.	3
29.6	Dicussion about the effects of emerging toxicants.	3
29.7		8
30.1	Preparation of audio-visual and pictorial/graphical presentations on the scope of Tajziyati Ilmul Samoom.	2
30.2	Integrate various analytical applications in toxicology.	4
30.3	Demonstration of the operating procedure or various steps of analysis of poison in equipment.	4
31.1	Demonstration of collection, preservation of Human samples in pathological laboratories and field collection of Air, water, soil, and biological samples.	10
31.2	Demonstration of analytical techniques of Spectroscopy (e.g., atomic absorption, mass spectrometry) and chromatography (e.g., gas chromatography, liquid chromatography) in analytical laboratory.	5
31.3	Demonstration of hte analytical techniques of Biological assays (e.g., bioassays, molecular assays) in analytical laboratory.	5
32.1	Collection of various natures of blood evidence.	2
32.2	Evaluation of blood based on it's composition under varying conditions.	4
32.3	Examination of semen stains as forensic evidence.	4
32.4	Collection and evaluation of a hair sample as forensic evidence.	4
32.5	General urine tests	2
32.6	Collection of Saliva samples from stains and human subjects (suspects).	2

32.7	Consideration of sweat and faeces in forensic investigations.	2

Table 5 : Experiential learning Activity

(*Refer table 3 of similar activity number)

Experiential learning No*	Experiential name	Hours
1.1	Historical medicolegal case.	4
1.2	Identify forensic photographs	4
1.3	Forensic evidence.	4
1.4	Medicolegal Aspect of Injury	5
1.5	Ante-mortem injuries	4
1.6	Post-mortem injuries.	5
2.1	Diagnosis and management of burn.	4
2.2	Case study on Uani Management of burns and scalds.	4
2.3	Importance of safety equipments in prevention of Electric injuries	6
2.4	Diagnosis and management of chemical injury.	4
2.5	Chemical injuries case studies	4
2.6	Estimate the range of fire arm injury	4
3.1	Therapeutic approach for child abuse.	5
3.2	Indicators of child abuse and neglect	4
3.3	Analysis of the psychological dimension of elderly people.	5
3.4	Assesment of the psychology of the survivor(s) of the domestic violence.	5
3.5	Interviewing a victim of domestic violence.	5
3.6	Community awareness program on sensitization about the sexual offences.	5
3.7	Identification of forensic evidence in a case of sexual offence.	5

3.8	Various techniques of Medical Termination of Pregnancy	5
4.1	Responsibilities of forensic pathologists in conducting autopsies, interpreting injuries, and correlating findings with clinical aspects.	4
4.2	Role of Forensic Pathlogist in Crime scene Investigation	4
4.3	Discuss the role of forensic pathology in identification of injuries.	5
5.1	An interdisciplinary approach to post-mortem investigation	7
5.2	Virtual autopsy.	6
5.3	Autopsy report writing.	5
5.4	Autopsy Case Study Review.	3
5.5	Legal and ethical dilemmas in special autopsies	5
6.1	Phases of the rigor mortis.	5
6.2	Post-mortem lividity (livor mortis).	5
6.3	Mummification.	5
6.4	Adipocere process.	6
6.5	Marbling (marbilism) in post-mortem decomposition.	5
7.1	Forensic Genetics.	5
7.2	DNA fingerprinting and STR (short tandem repeat).	5
7.3	Forensic 3D imaging	5
7.4	MRI in forensic	5
7.5	Bioinformatics in forensic	6
8.1	Establishment of Relationship between mental illness and criminal behavior.	5
8.2	Diagnosis and management of Psychotic disorders.	6
8.3	Diagnosing, and managing impulse control disorders (ICDs).	5

8.4	Role of mental health professionals in the investigation of cases involving violence.	5
8.5	Investigation of the role of mental disorders in violent criminal behavior.	5
9.1	Role play or video case on Thallium Murder case.	5
9.2	Role play or video case on Napoleon Bonaparte cases of poisoning.	5
9.3	Role play or video case on Umbrella murder case of poisoning.	5
9.4	Factors modifying the action of poison.	4
9.5	Preparation of Case studies of clinical toxicology.	4
9.6	Poison control centres and their functions.	5
9.7	FSSAI and their roles.	5
9.8	Visit to various agencies, control centres, and appreciate their services and functioning.	6
10.1	Poisons and their morphological features.	6
10.2	Various 7 cases of different types of poisoning based on the clinical feature.	7
11.1	Assess the practices of preventive measures adopted by the personnel involved in industries and agricultural fields to combat with the toxicological effects.	4
11.2	Case study on the domestic exposure of toxicants.	3
11.3	Case study on the occupational exposure of toxicant.	3
11.4	Case study on the industrial exposure of toxicant.	4
11.5	Case study on the agricultural expsure of toxicant.	4
11.6	Case study on the accidental exposure of toxicant.	4
11.7	Preparation of case records of Adverse Drug Reactions.	4
12.1	Diagnosis of poisoning on the basis of Nazariyae Akhlat (humoral theory).	5
12.2	Circumstantial evidence in the diagnosis of poisoning.	5
12.3	Systematic approach to the clinical examination of suspected poisoning cases.	5

12.4	Visit to the Forensic Science Laboratory.	6
12.5	Demostration of Muaina i Nabz in case of sammiyat and corelate them with the changes vital functions of the body.	5
13.1	Decontamination for inhaled toxicants.	6
13.2	Management of Mucosal Toxicant Exposure.	6
13.3	Decontamination of injected poison.	7
13.4	Fluid imbalance and the patient's hydration status in the case of poisoning.	6
13.5	Case studies of household and occupational poisoning cases.	7
13.6	Awareness and surveillance programs of preventive strategies regarding common poisonings.	7
14.1	Administration of a Mufrad Tiryaq in a case of poisoning.	5
14.2	Preparation of Tiryaq for a case of irritant poisoning case.	5
14.3	Presentation on Tiryaqat (Mufrad & Murakkab) used for the management of poisoning.	3
15.1	Toxicological importance of Snakes, Scorpion, Canthrides, Bee, Wasp and Centipede.	4
15.2	Identification of the venoms/stings/toxins of Snake, Scorpion, Bee, Wasp, Cantharide, Centipede.	4
15.3	Clinical diagnosis of toxicological effects of poisonings of Snake bite, Scorpion/Bee/wasp stings, cantharide/centipede toxicity.	5
15.4	Management of Biotoxicity.	4
15.5	Demonstration of Hijamah in a clinical case of biotoxicity.	2
15.6	Demonstration of Fasd in a clinical case of biotoxicity.	2
15.7	Demonstration of Amale Kai in a clinical case of biotoxicity.	2
15.8	Demonstration of Irsale Alaq in a clinical case of biotoxicity.	3
16.1	Demonstration of the efficacy of Tiryaqat.	7
16.2	Analysis of the cases of poisoning in light of classical historical cases.	7
16.3	various antidotes and poisons according to their Mizaj in classical text.	6

16.4	Advancement in Toxicology.	6
17.1	Digital content creation on historical milestones of Forensic Toxicology.	6
17.2	Case study on human performance toxicology.	7
18.1	Demonstration of case studies related to common heavy metal poisoning- Sammulfar, Sesa, Seemab and Faulad.	4
18.2	Case studies on common heavy metal poisoning	4
18.3	Demonstration of the following classical/traditional methods of reagent preparation.	8
18.4	Case study on psychoactive substances intoxication	4
18.5	Demonstration and presentation of drug abuse cases	4
18.6	Toxicological report analysis and interpretation	3
18.7	Understanding Toxicological reports, Reconstruction exercises and Testimony	4
18.8	Reconstruction of crime scenes, interpreting evidence and testimony	3
18.9	Examine the Drug Abuses through various methods.	5
19.1	Case Study on Organophosphates - Malathion and Parathion.	5
19.2	Case study on Organophosphates - Diazinon, Chlorpyrifos, etc	5
19.3	Case studies on Pyrethroid toxicity	10
19.4	Preventive measures against incidents due to Rodenticides.	6
20.1	Observational assesment	5
20.2	Case studies of Cleaning agents that can pose serious health hazards, with case studies highlighting issues like respiratory irritation, skin burns, and even asthma, emphasizing the importance of safe handling and product.	5
20.3	Observational study on the poisoning due to various cosmetic and personal care products.	8
20.4	Demonstration of harmful effects due to personal care products.	8
21.1	Case study on Opioids - Morphine	6

21.2	Case studies on Opioids - Codeine	6
21.3	Case studies on Opioids - Oxycodone	6
21.4	Toxicty of Diazepam and Alprazolam.	3
21.5	Case study on Over-the-Counter (OTC) drugs.	5
22.1	Case handling of opioid intoxication - Morphine,	9
22.2	Case handling of opioid intoxication - Codeine	9
22.3	Case handling of opioid intoxication - Oxycodone	8
23.1	Visitation to the Zoo/Zoology Museums	7
23.2	Visitation to the Zoo/Zoology Museums	7
23.3	Observational case study of Food poisoning	6
23.4	Pharmacovigilance of Unani Drugs	6
24.1	Postmortem case assessment	10
24.2	Postmortem case assessment virtually	6
24.3	Courtroom/expert testimony of toxicological findings in court.	10
25.1	Ecological impacts of environmental toxicants.	5
25.2	The unit is composed of the acquisition of knowledge methods of collection of Data of Air, Water, and Soil toxicity.	3
25.3	The unit is based upon the interpretation of data of Air, Water, and soil toxicty in terms of Unani Concepts. This experiential learning activity combines data interpretation with traditional knowledge, fostering a holistic understanding of health and environment.	5
25.4	Analysis of the sources of environmental toxicants in nearby areas.	6
25.5	Demonstration of exposure graveness of various cases of environmental toxicity.	7
26.1	Evaluation of Air Quality Index (AQI).	5
26.2	Identification of chemical toxicants.	6

26.3	Identification of various bacterial biological toxicants affecting human health.	5
26.4	Identification of various fungal toxicants affecting human health.	5
26.5	Analysis of physical, chemical and biological mutagens with their properties.	5
27.1	Preparation of case report on acute environmental toxicity.	3
27.2	Diagnosis of chronic cases of environmental toxicity and prepare the case reports	3
27.3	Screening of the vulnerable groups through KAP studies.	8
27.4	Conduct screening of vulnerable groups/suspected cases and patients for the assessment of environmental toxicity.	8
27.5	Communication of risk of environmentl toxicity.	4
28.1	Management of non fatal acute toxicity through Unani fdrugs.	7
28.2	Management of Chronic toxicity throuh Unani drugs	6
28.3	Detoxification through Unani regimns.	8
28.4	Mangement of complications of environmental toxicities.	5
29.1	Mock drill for the management of toxicological disasters	5
29.2	Discussion about the preventive measures of environmental toxicants.	3
29.3	Methods of sampl collection.	3
29.4	Exploration of different techniques of sample storage and transportation.	3
29.5	Functioning of International regulatory bodies.	4
29.6	Identification of Public health issues of commercial/industrial interest.	4
29.7	Awareness programs for the prevention of industrial toxicity.	5
29.8	Analyse the presence of emerging toxicants in the environment through various methods, software and analytical tools.	6
29.9	Identifying the risk of environmental toxicity	6
30.1	Apply analytical toxicology in different situations.	7

30.2	Application of Good Laboratory practices.	6
31.1	Collection and preservation of the human sample in a pathological laboratory.	8
31.2	Collection of the samples of Air, water, soil, and biological samples from the field and preservation of them for analysis.	10
31.3	Identification of an environmental toxicant by using any one of the above techniques and preparation of a report.	8
32.1	Collection of various natures of blood evidence from different places/articles	4
32.2	Blood grouping test for forensic evidence	3
32.3	Confirmatory tests of blood.	4
32.4	Examination of semen stains as forensic evidence	4
32.5	Collection and evaluation procedures on different hair samples from multiple sites/places.	4
32.6	Presumptive test on urine and alcohol urine test.	3
32.7	Presumptive tests on samples of saliva.	2
32.8	Forensic tests on sweat and faeces.	2

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-TQS	4	100 x 4 Papers = 400	400	800

6 B : Scheme of Assessment (Formative and Summative Assessment)

Credit frame work

UNIPG-TQS 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 (مطبی و ماہیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine))						
M 1 مطبی علم السموم اور جسمانی جروح Matabi Ilmus Samoom aur Jismani Jurooh (Clinical Forensic Medicine & Physical injuries)	2	60		50		
M 2 حرارتی، برقی، کیمیاوی اور آتشی اسلحہ جاتی جروح کا طریقہ امتحان Haraarti, Barqi, kimyawi aur aatishi aslahajati jurooh ka tareeqa-e-Imtehan (Examination Techniques of Thermal, Electric, Chemical & Fire Arm injuries)	2	60		50		
Paper No : 2 (مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology))						
M 9 مطبی علم السموم کے بنیادی اصول Matabi Ilmus Samoom ke bunyadi Usool (Fundamentals of Clinical Toxicology)	3	90		75		
M 10 سموم کی تقسیم Samoom ki Taqseem (Classification of Poisons)	1	30		25		
Paper No : 3 (طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology))						
M 17 طب القانونی علم السموم کے مبادیات Tibbul Qanooni Ilmus Samoom ke Mabadiyat (Basics of Forensic Toxicology)	1	30		25		
M 18 بھاری معدنیات کی مسمومیت، شراب اور منشیات Bhari Ma'daniyat ki Masmoomiyat, Sharab aur Munashiyaat (Heavy Metals poisonings, Alcohol and Drugs of Abuse)	3	90		75		
Paper No : 4 (ماحولیاتی و تجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom Environmental and Analytical Toxicology)						
M 25 ماحولیاتی علم السموم کے مبادیات اور ان کا ظہور Mahauliyati Ilmus Samoom ke Mabadiyat, Mahauliyati Musammimat ke Makhaz aur unka Zahoor (Basics of Environmental	2	60		50		

Toxicology, Sources & Exposure of Environmental Toxicants						
M 26 ماحولیاتی مسممات کے درجات Mahauliyati Musammimat ke Darajaat (Classes of Environmental Toxicants)	2	60		50		
	16	480		400		
Semester No : 4						
Paper No : 1 (مطبی ومابیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine))						
M 3 مطبی طب القانون میں بدفعلی، تشدد اور جنسی جرائم کا امتحان Matabi Tibbul Qanoon men Badfe'li, Tashaddud aur Jinsi jara'im ka Imtehan (Abuse and Violence in Clinical Forensic Medicine & Examination of Sexual Crimes)	3	90		75		
M 4 مابیتی طب القانون Mahiyati Tibbul Qanoon (Forensic Pathology)	1	30		25		
Paper No : 2 (مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology))						
M 11 مسمات کا تعارض اور ان کے اثرات Musammimat ka Ta'aruz aur Asarat (Exposure and effects of Toxicants))	2	60		50		
M 12 تشخیص سمیت Tashkhees e Sammiyat (Diagnosis of poisoning)	2	60		50		
Paper No : 3 (طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology))						
M 19 حشرات کش، جراثیم کش اور مبیدات قوارض Hasharatkush, Jaraseemkush aur Mabeedate Qawariz (Pesticides, insecticides and rodenticide)	2	60		50		
M 20 خانگی سموم Khangi Samoom (Household Poisons)	2	60		50		
Paper No : 4 (ماحولیاتی وتجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom Environmental and Analytical Toxicology)						
M 27 ماحولیاتی مسمات کے اثرات اور ممکنہ خطرات کا تعین Mahauliyati Musammimat ke asarat aur Mumkinah khatrat ka Ta'ayyun (Effects of Environmental Toxicants and Environmental Risk Assessment)	2	60		50		
M 28 ماحولیاتی مسمومیت کا یونانی علاج Mahauliyati Masmoomiyat ka Unani Ilaj (Unani Management of Environmental) Toxicity)	2	60		50		

	16	480		400		
Semester No : 5						
Paper No : 1 (مطبی و ماہیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine))						
M 5 امتحان تشریح بعد الموت کی تکنیک Imtehan Tashreeh Ba'dul maut ki takneek (Post-Mortem Examination Techniques)	2	60		50		
M 6 پس مرگ ہونے والی ماہیتی تبدیلیاں Pase Marg hone wali Mahiyati Tabdiliya'n (Pathological Changes in Death)	2	60		50		
Paper No : 2 (مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology))						
M 13 مسمماتی ہنگامیت کا بندوبست Musammimati Hangamiyat ka Bandobast aur Tafreet Miqdariyat (Management of Toxicological Emergencies and Overdose Scenarios	3	90		75		
M 14 یونانی تریاقات Unani Tiryaqaat (Unani Antidotes)	1	30		25		
Paper No : 3 (طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology))						
M 21 Pharmaceuticals and Over-the-Counter (OTC) Products	2	60		50		
M 22 نباتی سمین Nabati Sammeen (Plant Toxins)	2	60		50		
Paper No : 4 (ماحولیاتی و تجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom Environmental and Analytical Toxicology)						
M 29 ماحولیاتی علم السموم کا عملی اطلاق، قانونی اور اخلاقی امور اور رجحانات Mahauliyati Ilmus Samoom ka Amali Itlaq, Qanooni aur Akhlaqi Umoor aur Rujhanaat (Practical Applications, Regulatory & Ethical Issues and Emerging trends of Environmental Toxicology	3	90		75		
M 30 تجزیاتی علم السموم اور اس کی تجربہ گاہ Tajziyati Ilmus Samoom aur uski Tajurba gah (Analytical Toxicology and its laboratory)	1	30		25		
	16	480		400		
Semester No : 6						
Paper No : 1 (مطبی و ماہیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine))						
M 7 ماحولیاتی طب القانون میں جدید اضافات Mahiyati Tibbul Qanoon me Jadeed Izafaat (Recent advances in Forensic Pathology)	2	60		50		

M 8 نفسیاتی طب القانون Nafsiyati Tibbul Qanoon (Forensic Psychiatry)	2	60		50		
Paper No : 2 (مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology))						
M 15 حیاتیاتی سمیت Hayatityati Sammiyat (Bio-toxicity)	2	60		50		
M 16 تحقیق برائے مطبی علم السموم Tahqeeq barai Matabi Ilmus Samoom (Research in Clinical Toxicology)	2	60		50		
Paper No : 3 (طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology))						
M 23 مسمماتی حقائق کا تجزیہ وقوع پذیر رجحانات اور فنیات Musammimati Haqa'iq ka Tajziyah, Waqoo pazeer Rujhanaat aur Fanniyaat (Toxicological Data Analysis, Emerging Trends, Technologies and Pharmacovigilance	2	60		50		
M 24 تشریح بعد الموت اور علم السموم Tashreeh Ba'd al Maut aur Ilmus Samoom (Autopsy and Toxicology)	2	60		50		
Paper No : 4 (ماحولیاتی و تجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom Environmental and Analytical Toxicology)						
M 31 انکشافات اور تجزیے کے طریقے Inkeshafat wa Tajziye ke Tareeqe (Methods of Detection and Analysis)	2	60		50		
M 32 تجزیاتی امتحانات اور ان کی روداد کی تاویل، طب القانونی حیاتیات اور مصلیات Tajziyati Imtehanaat aur unki roodadi Taveel, Tibbul Qanooni Hayatiyaat aur Masliyaat (Analytical Tests and Interpretation of their reports, Forensic Biology and Serology)	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 مطبی ومابیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine)		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
1	M1. مطبی علم السموم اور جسمانی جروح Matabi Ilmus Samoom aur Jismani Jurooh (Clinical Forensic Medicine & Physical injuries)	C 1
2	M2. حرارتی، برقی، کیمیاوی اور آتشی اسلحہ جاتی جروح کا طریقہ امتحان Haraarti, Barqi, kimyawi aur aatishi aslahajati jurooh ka tareeqa-e-Imtehan (Examination Techniques of Thermal, Electric, Chemical & Fire Arm injuries)	C 2
Paper No : 2 مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology)		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
3	M9. مطبی علم السموم کے بنیادی اصول Matabi Ilmus Samoom ke bunyadi Usool (Fundamentals of Clinical Toxicology)	C 3
4	M10. سموم کی تقسیم Samoom ki Taqseem (Classification of Poisons)	C 4
Paper No : 3 طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology)		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
5	M17. طب القانونی علم السموم کے مبادیات Tibbul Qanooni Ilmus Samoom ke Mabadiyat (Basics of Forensic Toxicology)	C 5

6	M18. بھاری معدنیات کی مسمومیت، شراب اور منشیات Bhari Ma'daniyat ki Masmoomiyat, Sharab aur Munashiyaat (Heavy Metals poisonings, Alcohol and Drugs of Abuse)	C 6
Paper No : 4 ماحولیاتی و تجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom Environmental and Analytical Toxicology		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
7	M25. ماحولیاتی علم السموم کے مبادیات اور ان کا ظہور Mahauliyati Ilmus Samoom ke Mabadiyat, Mahauliyati Musammimat ke Makhaz aur unka Zahoor (Basics of Environmental Toxicology, Sources & Exposure of Environmental Toxicants	C 7
8	M26. ماحولیاتی مسمّمات کے درجات Mahauliyati Musammimat ke Darajaat (Classes of Environmental Toxicants)	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 مطبی و ماہیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine)		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
1	M3. مطبی طب القانون میں بدفعلی، تشدد اور جنسی جرائم کا امتحان Matabi Tibbul Qanoon men Badfe'li, Tashaddud aur Jinsi jara'im ka Imtehan (Abuse and Violence in Clinical Forensic Medicine & Examination of Sexual Crimes)	C 1
2	M4. ماہیتی طب القانون Mahiyati Tibbul Qanoon (Forensic Pathology)	C 2
Paper No : 2 مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology)		
A **S.No**	**B** **Module number and Name**	**C** **MGP**

3	M11. مسممات کا تعارض اور ان کے اثرات Musammimat ka Ta'aruz aur Asarat (Exposure and effects of Toxicants))	C 3
4	M12. تشخیص سمیت Tashkhees e Sammiyat (Diagnosis of poisoning)	C 4
Paper No : 3 طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology)		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
5	M19. حشرات کش، جراثیم کش اور مبیدات قوارض Hasharatkush, Jaraseemkush aur Mabeedate Qawariz (Pesticides, insecticides and rodenticide)	C 5
6	M20. خانگی سموم Khangi Samoom (Household Poisons)	C 6
Paper No : 4 ماحولیاتی و تجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom Environmental and Analytical Toxicology		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
7	M27. ماحولیاتی مسمات کے اثرات اور ممکنہ خطرات کا تعین Mahauliyati Musammimat ke asarat aur Mumkinah khatrat ka Ta'ayyun (Effects of Environmental Toxicants and Environmental Risk Assessment)	C 7
8	M28. ماحولیاتی مسمومیت کا یونانی علاج Mahauliyati Masmoomiyat ka Unani Ilaj (Unani Management of Environmental) Toxicity)	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 مطبی و ماہیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine)		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
1	M5. امتحان تشریح بعد الموت کی تکنیک Imtehan Tashreeh Ba'dul maut ki takneek (Post-Mortem Examination Techniques)	C 1

2	M6.پس مرگ ہونے والی ماہیتی تبدیلیاں Pase Marg hone wali Mahiyati Tabdiliya'n (Pathological Changes in Death)	C 2
Paper No : 2 مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology)		
A S.No	B Module number and Name	C MGP
3	M13.مسمماتی ہنگامیت کا بندوبست Musammimati Hangamiyat ka Bandobast aur Tafreet Miqdariyat (Management of Toxicological Emergencies and Overdose Scenarios	C 3
4	M14.یونانی تریاقات Unani Tiryaqaat (Unani Antidotes)	C 4
Paper No : 3 طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology)		
A S.No	B Module number and Name	C MGP
5	M21.Pharmaceuticals and Over-the-Counter (OTC) Products	C 5
6	M22. نباتی سمین Nabati Sammeen (Plant Toxins)	C 6
Paper No : 4 ماحولیاتی و تجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom Environmental and Analytical Toxicology		
A S.No	B Module number and Name	C MGP
7	M29. ماحولیاتی علم السموم کا عملی اطلاق، قانونی اور اخلاقی امور اور رجحانات Mahauliyati Ilmus Samoom ka Amali Itlaq, Qanooni aur Akhlaqi Umoor aur Rujhanaat (Practical Applications, Regulatory & Ethical Issues and Emerging trends of Environmental Toxicology	C 7
8	M30. تجزیاتی علم السموم اور اس کی تجربہ گاہ Tajziyati Ilmus Samoom aur uski Tajurba gah (Analytical Toxicology and its laboratory)	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 مطبی وماہیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine)		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
1	M7. ماحولیاتی طب القانون میں جدید اضافات Mahiyati Tibbul Qanoon me Jadeed Izafaat (Recent advances in Forensic Pathology)	C 1
2	M8. نفسیاتی طب القانون Nafsiyati Tibbul Qanoon (Forensic Psychiatry)	C 2
Paper No : 2 مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology)		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
3	M15. حیاتیاتی سمیت Hayatityati Sammiyat (Bio-toxicity)	C 3
4	M16. تحقیق برائے مطبی علم السموم Tahqeeq barai Matabi Ilmus Samoom (Research in Clinical Toxicology)	C 4
Paper No : 3 طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology)		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
5	M23. مسمماتی حقائق کا تجزیہ وقوع پذیر رجحانات اور فنیات Musammimati Haqa'iq ka Tajziyah, Waqoo pazeer Rujhanaat aur Fanniyaat (Toxicological Data Analysis, Emerging Trends, Technologies and Pharmacovigilance	C 5
6	M24. تشریح بعد الموت اور علم السموم Tashreeh Ba'd al Maut aur Ilmus Samoom (Autopsy and Toxicology)	C 6
Paper No : 4 ماحولیاتی وتجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom Environmental and Analytical Toxicology		
A **S.No**	**B** **Module number and Name**	**C** **MGP**
7	M31. انکشافات اور تجزیے کے طریقے Inkeshafat wa Tajziye ke Tareeqe (Methods of Detection and Analysis)	C 7

8	M32.تجزیاتی امتحانات اور ان کی روداد کی تاویل، طب القانونی حیاتیات اور مصلیات Tajziyati Imtehanaat aur unki roodadi Taveel, Tibbul Qanooni Hayatiyaat aur Masliyaat (Analytical Tests and Interpretation of their reports, Forensic Biology and Serology)	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-TQS

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 (مطبی ومابیتی طب القانون Matabi wa Mahiyati Tibbul Qanoon (Clinical & Pathological Forensic Medicine))				
(M-1) مطبی علم السموم اور جسمانی جروح Matabi Ilmus Samoom aur Jismani Jurooh (Clinical Forensic Medicine & Physical injuries) (Marks: Range 5-15)				
1	**(U-1)** 1.1 مطبی طب القانون کا جائزہ Matabi Tibbul Qanoon ka Jay' izah (Overview of Clinical Forensic Medicine)	No	Yes	Yes
2	**(U-2)** 1.2 نظام قانونی کے ساتھ تعامل Nizame Qanooni ke sath Ta'amul (Interactions with Legal System)	No	Yes	Yes
3	**(U-3)** 1.3 تشریفات امتحان طب القانونی Tashreefat Imtihane Tibbul Qanooni (Forensic Medical Examination Protocols)	No	Yes	Yes
4	**(U-4)** 1.4 جسمانی جروحات کا امتحان Jismani Juroohat ka Imtihan (Examination of Physical Injuries)	No	Yes	Yes
(M-2) حرارتی، برقی، کیمیاوی اور آتشی اسلحہ جاتی جروح کا طریقہ امتحان Haraarti, Barqi, kimyawi aur aatishi aslahajati jurooh ka tareeqa-e-Imtehan (Examination Techniques of Thermal, Electric, Chemical & Fire Arm injuries) (Marks: Range 5-20)				
1	**(U-1)** 2.1. حرارتی جروح Haraarti Jurooh (Thermal Injuries)	Yes	Yes	Yes
2	**(U-2)** 2.2. برقی جروح Barqi Jurooh (Electric injuries)	Yes	Yes	Yes
3	**(U-3)** 2.3 کیمیاوی جروح Kimiyawi Jurooh (Chemical injuries)	Yes	Yes	Yes
4	**(U-4)** 2.4 آتشی اسلحہ جاتی جروح Atishi Aslahajati Jurooh (Firearm injuries)	Yes	Yes	Yes
(M-3) مطبی طب القانون میں بدفعلی، تشدد اور جنسی جرائم کا امتحان Matabi Tibbul Qanoon men Badfe'li, Tashaddud aur Jinsi jara'im ka Imtehan (Abuse and Violence in Clinical Forensic Medicine & Examination of Sexual Crimes) (Marks: Range 5-20)				
1	**(U-1)** 3.1 طفلی تعسف اور غفلت Tifli Ta'assuf aur Ghaflat (Child Abuse and Neglect)	Yes	Yes	Yes
2	**(U-2)** 3.2 پیری تعسف اور غفلت Peeri Ta'assuf aur Ghaflat (Elder Abuse and Neglect)	Yes	Yes	Yes
3	**(U-3)** 3.3 خانگی تشدد Khangi Tashaddud (Domestic Violence)	Yes	Yes	Yes

4	**(U-4)** 3.4 جنسی جرائم Jinsi Jara'em (Sexual offences)	Yes	Yes	Yes
5	**(U-5)** 3.5 اسقاط حمل قانونی Isqate Hamal Qanooni (Medical Termination of Pregnancy)	Yes	Yes	Yes
(M-4) مابعدی طب القانون Mahiyati Tibbul Qanoon (Forensic Pathology) (Marks: Range 5-15)				
1	**(U-1)** 4.1 مرضیاتی طب القانون کا جائزہ Marziyati Tibbul Qanoon ka Jayezah (Overview of Pathological Forensic Medicine)	No	Yes	Yes
2	**(U-2)** 4.2 طب القانونی مرضیات کے بنیادی اصول Tibbul Qanooni Marziyat ke Bunyadi Usool (Basic Principles of Forensic Pathology)	No	Yes	Yes
(M-5) امتحان تشریح بعد الموت کی تکنیک Imtehan Tashreeh Ba'dul maut ki takneek (Post-Mortem Examination Techniques) (Marks: Range 5-20)				
1	**(U-1)** تشریح الجثہ کا طریقہ کار Tashreehul Jussa ka Tareeqa-e kar (Autopsy Procedures)	No	Yes	Yes
2	**(U-2)** 5.2 موت کے تعیناتی اسباب Maut ke Ta'ayunati Asbab (Determining Cause of Death)	Yes	Yes	Yes
3	**(U-3)** 5.3 تشریح الجثہ کا مخصوص طریقہ Tashreehul Jussa ka Maksoos Tareeqa (Special Autopsy Methods)	Yes	Yes	Yes
(M-6) پس مرگ ہونے والی مابعدی تبدیلیاں Pase Marg hone wali Mahiyati Tabdiliya'n (Pathological Changes in Death) (Marks: Range 5-20)				
1	**(U-1)** 6.1 مابعد الموت ابتدائی تغیرات Ma badal maut ibtidayi Tabdiliyan (Early Post-Mortem Changes)	Yes	Yes	Yes
2	**(U-2)** 6.2 تغیرات موخرہ بعد الموت Taghayyurate Muakkherah Badal Maut (Late Post-Mortem Changes)	Yes	Yes	Yes
3	**(U-3)** 6.3 بعد الموت مخصوص تغیرات Badal Maut Makhsoos Taghayyurat (Special Post-Mortem Changes)	Yes	Yes	Yes
(M-7) احولیاتی طب القانون میں جدید اضافات Mahiyati Tibbul Qanoon me Jadeed Izafaat (Recent advances in Forensic Pathology) (Marks: Range 5-15)				

1	**(U-1)** 7.1 طب القانونی مرضیات میں مستعمل جدید معملی آلات اور تکنیک Tibbul Qanooni Marziyat men musta;mal Jadeed Ma'mali Aalat aur Takneeks (Recent Laboratory Tools and Techniques used in Forensic Pathology)	No	Yes	Yes
2	**(U-2)** 7.2 سالماتی مرضیات قانونی Salemati Marziyate Qanooni (Molecular Forensic Pathology)	No	Yes	Yes
(M-8) نفسیاتی طب القانون Nafsiyati Tibbul Qanoon (Forensic Psychiatry) (Marks: Range 5-20)				
1	**(U-1)** 8.1 طب القانونی نفسیات کے مبادیات Tibbul Qanooni Nafsiyat ke Mabadiyaat(Basics of Forensic Psychiatry)	Yes	Yes	Yes
2	**(U-2)** 8.2 طب القانونی سیاق و سباق میں دماغی صحت کی تشخیص Tibbul Qanooni Siyaq wa Sabaq men Demaghi Sehat ki Tashkees (Mental Health Evaluations in Forensic Contexts	Yes	Yes	Yes
S.No	**List of Module/Unit**	**ABQ**	**SAQ**	**LAQ**
Paper No : 2 (مطبی علم السموم Matabi Ilmus Samoom (Clinical Toxicology))				
(M-9) مطبی علم السموم کے بنیادی اصول Matabi Ilmus Samoom ke bunyadi Usool (Fundamentals of Clinical Toxicology) (Marks: Range 5-20)				
1	**(U-1)** 9.1 مطبی علم السموم کا جائزہ Matabi Ilmus Samoom ka Jayezah (Overview of Clinical Toxicology)	Yes	Yes	Yes
2	**(U-2)** 9.2 علم السموم کے بنیادی اصول Ilmus Samoom ke Bunyadi Usool (Basic Principles of Toxicology)	Yes	Yes	Yes
3	**(U-3)** 9.3 طب القانونی علم السموم بمقابلہ معالجاتی علم السموم Tibbul Qanooni Ilmus Samoom Bamuqabilah Moalajati Ilmus Samoom (Forensic Toxicology vs. Clinical Toxicology)	Yes	Yes	Yes
4	**(U-4)** 9.4 ضوابط اور قانون سازی Zawabit aur Qanoon Sazi (Regulation and Legislation)	Yes	Yes	Yes
(M-10) سموم کی تقسیم Samoom ki Taqseem (Classification of Poisons) (Marks: Range 5-15)				
1	**(U-1)** 10.1 سموم کی تقسیم Samoom ki Taqseem (Classification of Poisons)	No	Yes	Yes

(M-11) مسمومات کا تعارض اور ان کے اثرات Musammimat ka Ta'aruz aur Asarat (Exposure and effects of Toxicants)) (Marks: Range 5-20)				
1	**(U-1)** 11.1 مسمومات کا تعارض Musammimaat ka Ta'aruz (Exposure of Toxicants)	Yes	Yes	Yes
2	**(U-2)** 11.2 مسمومات کے اثرات Musammimaat ke Asaraat (Effects of Toxicants)	Yes	Yes	Yes
3	**(U-3)** 11.3 ادویاتی تسمم Adviyati Tasammum(Drug Toxicity)	No	Yes	Yes
(M-12) تشخیص سمیت Tashkhees e Sammiyat (Diagnosis of poisoning) (Marks: Range 5-15)				
1	**(U-1)** 12.1 معالجاتی تشخیص Moalajati Tashkhees (Clinical Assessment)	No	Yes	Yes
2	**(U-2)** 12.2 معملی تشخیص Ma'mali Tashkhees (Laboratory Assessment)	No	Yes	Yes
(M-13) مسمماتی ہنگامیت کا بندوبست Musammimati Hangamiyat ka Bandobast aur Tafreet Miqdariyat (Management of Toxicological Emergencies and Overdose Scenarios (Marks: Range 5-20)				
1	**(U-1)** 13.1 رفع آلودگی Rafa'e Aloodgi (Decontamination)	Yes	Yes	Yes
2	**(U-2)** 13.2 تریاقات مخصوصہ کا استعمال Tiryaqate Makhsoosa Istemal (Use of Specific Antidotes)	Yes	Yes	Yes
3	**(U-3)** 13.3 معاون نگہداشت Mua'win Nigahdasht (Supportive Care)	Yes	Yes	Yes
4	**(U-4)** 13.4 مطبی مطالعہ موردات Matabi Mutale'a-e-Mauredat (Clinical Case Studies)	Yes	Yes	Yes
5	**(U-5)** 13.5 مسمماتی وبائیت Musammimati Wabayiyat (Toxicological Epidemiology)	Yes	Yes	Yes
(M-14) یونانی تریاقات Unani Tiryaqaat (Unani Antidotes) (Marks: Range 5-10)				
1	**(U-1)** 14.1 مفرد یونانی تریاقات Mufrad Unani Tiryaqat (Single Drug Unani Antidotes)	No	Yes	Yes
2	**(U-2)** 14.2 مرکب یونانی تریاقات Murakkab Unani Tiryaqat (Compound Unani Antidotes)	No	Yes	Yes
3	**(U-3)** 14.3 مرکب تریاقات کی تیاری اور ان کا استعمال Murakkab Tiryaqat ki Tayyari aur unka Istemal (Preparation and application of Murakkab Tiryaqat	No	Yes	Yes

(M-15) حیاتیاتی سمیت Hayatityati Sammiyat (Bio-toxicity) (Marks: Range 5-20)				
1	**(U-1)** 15.1 سمیاتی اہمیت کے حامل حشرات و فقرات Sammiyati Ahmiyat ke Hamil Hasharat wa Fuqraat (Reptiles & Arthorpods of Toxicological importance)	No	Yes	Yes
2	**(U-2)** 15.2 مختلف جانوروں کے زہروں کی حیاتیات Mukhtalif Janwaron ke Zahron ki Hayatiyat (Biology of Venoms of different animals)	No	Yes	Yes
3	**(U-3)** 15.3 مختلف زہروں کے سمی اثرات کی تشخیص Mukhtalif Zahron ke Sammi Asarat ki Tashkees (Diagnosis of the toxicological effects of different venoms)	Yes	Yes	Yes
4	**(U-4)** 15.4 حیاتیاتی تسمم کا معالجاتی بندوبست Hayatiyati Tasammum ka Mualejati Bando Bast (Medical Management of Biotoxicity)	Yes	Yes	Yes
5	**(U-5)** 15.5 حیاتیاتی تسمم میں مستعمل علاج بالتدابیر Hayatiyati Tasammum men Musta'mal Ilaj Bit Tadabeer (Therapies used for the management of Biotoxicity)	No	Yes	Yes
6	**(U-6)** 15.6 حیاتیاتی تسمم پر کیس اسٹڈیز Case Studies on Biotoxicity	Yes	Yes	Yes
(M-16) تحقیق برائے مطبی علم السموم Tahqeeq barai Matabi Ilmus Samoom (Research in Clinical Toxicology) (Marks: Range 5-20)				
1	**(U-1)** 16.1 یونانی تریاقات کی افادیت اور تحفظ پر طبی تحقیق Unani Tiryaqat ki Ifadiyat aur Tahaffuz par Tibbi Tahqeeq (Clinical research on Efficacy and safety of Unani Tiryaqat)	Yes	Yes	Yes
2	**(U-2)** 16.2 ادبیات عالیہ میں تسمم پر کیس اسٹڈیز Adabiyate Aliya men Tasammum par Case Studies (Case studies of poisonings in classical literature.)	Yes	Yes	Yes
3	**(U-3)** 16.3 مزاج اور تریاقات کا باہمی تعلق Mizaj aur Tiryaqat ka Bahami Ta'alluq (Correlation of Mizaj and antidotes)	No	Yes	Yes
4	**(U-4)** 16.4 مطبی علم السموم میں جدید اضافات Modern advancements in Matabi Ilmus Samoom men Jadeed Izafaat (Clinical Toxicology)	No	Yes	Yes
S.No	**List of Module/Unit**	**ABQ**	**SAQ**	**LAQ**
Paper No : 3 (طب قانونی علم السموم Tibbe Qanooni Ilmus Samoom (Forensic Toxicology))				

(M-17) طب القانونی علم السموم کے مبادیات Tibbul Qanooni Ilmus Samoom ke Mabadiyat (Basics of Forensic Toxicology) (Marks: Range 5-15)				
1	**(U-1)** 17.1 تعریف اور دائرہ کار Tareef aur Daira-e-kar (Definition and Scope	No	Yes	Yes
2	**(U-2)** 17.2 بنیادی تسممماتی تصورات Bunyadi Tasammumati Tasauwwurat(Basic Toxicological Concepts)	No	Yes	Yes
(M-18) بھاری معدنیات کی مسمومیت، شراب اور منشیات Bhari Ma'daniyat ki Masmoomiyat, Sharab aur Munashiyaat (Heavy Metals poisonings, Alcohol and Drugs of Abuse) (Marks: Range 5-20)				
1	**(U-1)** 18.1 عمومی بھاری معدنیات Umoomi Bhari Ma'daniyaat (Common Heavy Metals)	Yes	Yes	Yes
2	**(U-2)** 18.2 یونانی مرکبات کی بے ضرری کا تعین Unani Murakkabat ki Be Zarari ka Ta'yyun (Assessment of Safety of Unani formulations)	Yes	Yes	Yes
3	**(U-3)** 18.3 الکوحل Al-cohol (Alcohols)	Yes	Yes	Yes
4	**(U-4)** سوء استفادہ ادویہ Su'e Istifada Advia (Drugs of Abuse)	Yes	Yes	Yes
5	**(U-5)** 18.5 طریقہ انکشاف Tareeqa'e Inkishaf (Detection Techniques)	Yes	Yes	Yes
(M-19) حشرات کش، جراثیم کش اور مبیدات قوارض Hasharatkush, Jaraseemkush aur Mabeedate Qawariz (Pesticides, insecticides and rodenticide) (Marks: Range 5-15)				
1	**(U-1)** 19.1 آرگینوفاسفیٹس Organophospates(Organophosphates)	No	Yes	Yes
2	**(U-2)** 19.2 پائریتھرایڈز Pyrethrides (Pyrethroids)	No	Yes	Yes
3	**(U-3)** 19.3 مبیدات القوارض Mabeedatul Qawariz (Rodenticides)	No	Yes	Yes
(M-20) خانگی سموم Khangi Samoom (Household Poisons) (Marks: Range 5-15)				
1	**(U-1)** 20.1 تنظیفی مواد Tanzeefi Mawad (Cleaning Agents)	No	Yes	Yes
2	**(U-2)** 20.2 جمال افزا اور ذاتی نگہداشت کی مصنوعات Jamal Afza aur zati nigahdasht ki masnoo'at (Cosmetics and Personal Care Products)	No	Yes	Yes
(M-21) Pharmaceuticals and Over-the-Counter (OTC) Products (Marks: Range 5-20)				
1	**(U-1)** 21.1 مواد افیونی Mawade Afyooni (Opioids)	Yes	Yes	Yes

2	**(U-2)** 21.2 بینزودیازپائنز Binzudiyazpinez (Benzodiazepines)	Yes	Yes	Yes
3	**(U-3)** 21.3 الباربیتورات Albarbiturat (Barbiturates)	Yes	Yes	Yes
4	**(U-4)** 21.4 ادویہ بدون نسخہ Advia Bedoone Nuskha (Over-the-Counter drugs (OTC)	Yes	Yes	Yes
(M-22) نباتی سمین Nabati Sammeen (Plant Toxins) (Marks: Range 5-20)				
1	**(U-1)** 22.1 سمی نباتات Sammi Nabatat (Toxic Plants)	Yes	Yes	Yes
(M-23) مسمماتی حقائق کا تجزیہ وقوع پذیر رجحانات اور فنیات Musammimati Haqa'iq ka Tajziyah, Waqoo pazeer Rujhanaat aur Fanniyaat (Toxicological Data Analysis, Emerging Trends, Technologies and Pharmacovigilance (Marks: Range 5-20)				
1	**(U-1)** 23.1 کمی بمقابلہ کیفی تجزیہ Kammi bamuqabilah Kaifi Tajziyah (Quantitative vs. Qualitative Analysis)	No	Yes	Yes
2	**(U-2)** 23.2 حیاتیاتی تغیر Hayatiyati Taghayyur (Biological Variability)	No	Yes	Yes
3	**(U-3)** 23.3 Pharmacovigilance	Yes	Yes	Yes
(M-24) تشریح بعد الموت اور علم السموم Tashreeh Ba'd al Maut aur Ilmus Samoom (Autopsy and Toxicology) (Marks: Range 5-15)				
1	**(U-1)** 24.1 علم السموم بعد الوفات Ilmus Samoom Baad al Wafat (Postmortem Toxicology)	No	Yes	Yes
2	**(U-2)** 24.2 مطالعہ موردی اور عدالتی شہادت (Mutala'e Mauredi aur Adalati Shahadat(Case Studies and Courtroom Testimony	No	Yes	Yes
S.No	**List of Module/Unit**	**ABQ**	**SAQ**	**LAQ**
Paper No : 4 (ماحولیاتی و تجزیاتی علم السموم Maholyati wa Tajziyati Ilmus Samoom Environmental and Analytical Toxicology)				
(M-25) ماحولیاتی علم السموم کے مبادیات اور ان کا ظہور Mahauliyati Ilmus Samoom ke Mabadiyat, Mahauliyati Musammimat ke Makhaz aur unka Zahoor (Basics of Environmental Toxicology, Sources & Exposure of Environmental Toxicants (Marks: Range 5-15)				
1	**(U-1)** 25.1 تعارف Ta'aruf (Introduction)	No	Yes	Yes
2	**(U-2)** 25.2 جائزہ Jay'zah (Overview)	No	Yes	Yes

3	**(U-3)** 25.3 ماحولیاتی علم السموم کا یونانی نظریہ Mahauliyati Ilmus Samoom ka Unani Nazariyah (Unani concept of environmental Toxicology	No	Yes	Yes
4	**(U-4)** 25.4 ذرائع Zara'e (Sources)	No	Yes	Yes
5	**(U-5)** 25.5 طریقہ تعارض Tareeqa'e Ta'aruz (Exposure Pathways)	No	Yes	Yes
(M-26) ماحولیاتی مسمات کے درجات Mahauliyati Musammimat ke Darajaat (Classes of Environmental Toxicants) (Marks: Range 5-20)				
1	**(U-1)** 26.1 طبعی مسمات Tabayi Musammimat (Physical Toxicants)	No	Yes	Yes
2	**(U-2)** 26.2 کیمیاوی مسمات Kimiyawi Musammimat (Chemical Toxicants)	No	Yes	Yes
3	**(U-3)** 26.3 حیاتیاتی مسمات Hayatiyati Musammimat (Biological Toxicants)	Yes	Yes	Yes
4	**(U-4)** 26.4 مطفرات Mutaffirat (Mutagens)	No	Yes	Yes
(M-27) ماحولیاتی مسمات کے اثرات اور ممکنہ خطرات کا تعین Mahauliyati Musammimat ke asarat aur Mumkinah khatrat ka Ta'ayyun (Effects of Environmental Toxicants and Environmental Risk Assessment) (Marks: Range 5-20)				
1	**(U-1)** 27.1 حاد مسمومیت Haad Masmoomiyat (Acute Toxicity)	Yes	Yes	Yes
2	**(U-2)** 27.2 مزمن مسمومیت Muzmin Masmoomiyat (Chronic Toxicity)	Yes	Yes	Yes
3	**(U-3)** 27.3 مخصوص جمیعت Makhsoos Jamee'at (Special Populations)	No	Yes	Yes
4	**(U-4)** 27.4 خطراتی تشخیص کا ڈھانچہ Khatrati Tashkhees ka Dhancha (Risk Assessment Framework)	Yes	Yes	Yes
5	**(U-5)** 27.5 خطراتی آگاہی Khatrati Aagahi (Risk Communication)	Yes	Yes	Yes
(M-28) ماحولیاتی مسمومیت کا یونانی علاج Mahauliyati Masmoomiyat ka Unani Ilaj (Unani Management of Environmental) Toxicity) (Marks: Range 5-20)				
1	**(U-1)** 28.1 حاد مسمومیت کا بندوبست Haad Masmoomiyat ka Bandobast (Management of Acute Toxicity)	Yes	Yes	Yes
2	**(U-2)** 28.2 مزمن مسمومیت کا بندوبست Muzmin Masmoomiyat ka Bandobast (Management of Chronic Toxicity)	Yes	Yes	Yes

3	**(U-3)** 28.3 ازالہ سمیت کا طریقہ کار اور تدابیر Izalaye Sammiyat ka Tareeqaye kar aur Tadabeer (Detoxification Procedures & Regimens)	Yes	Yes	Yes
4	**(U-4)** 28.4 بندوبست عوارضات Bando Baste Awarezaat (Management of complications)	Yes	Yes	Yes
(M-29) ماحولیاتی علم السموم کا عملی اطلاق، قانونی اور اخلاقی امور اور رجحانات Mahauliyati Ilmus Samoom ka Amali Itlaq, Qanooni aur Akhlaqi Umoor aur Rujhanaat (Practical Applications, Regulatory & Ethical Issues and Emerging trends of Environmental Toxicology (Marks: Range 5-20)				
1	**(U-1)** 29.1 مطالعات موردی Mutaleat Moordi (Case Studies)	Yes	Yes	Yes
2	**(U-2)** 29.2 عملی اطلاقات Amali Itlaqat(Practical Applications)	Yes	Yes	Yes
3	**(U-3)** 29.3 ضوابطی ڈھانچہ Zawabiti Dhancha (Regulatory Framework)	Yes	Yes	Yes
4	**(U-4)** 29.4 اخلاقی ملاحظات Akhlaqui Mulahezat (Ethical Considerations)	Yes	Yes	Yes
5	**(U-5)** 29.5 صادراتی ملوثات Saderati Mulavvisat (Emerging Contaminants)	Yes	Yes	Yes
6	**(U-6)** 29.6 ماحولیاتی علم السموم میں پیش رفت Mahauliyati Ilmul Samoom men Peshraft (Advances in environmental Toxicology)	No	Yes	Yes
(M-30) تجزیاتی علم السموم اور اس کی تجربہ گاہ Tajziyati Ilmus Samoom aur uski Tajurba gah (Analytical Toxicology and its laboratory) (Marks: Range 5-15)				
1	**(U-1)** 30.1 تجزیاتی علم السموم کا تعارف اور اس کا تاریخی ارتقا Tajziyati Ilmul Samoom ka Ta'aruf aur uska Tareekhi Irtiqa (Introduction and Historical development of Tajziyati Ilmul Samoom)	No	Yes	Yes
2	**(U-2)** 30.2 تجزیاتی علم السموم کا اطلاق Tajziyati Ilmul Samoom ka Itlaq (Application of Analytical Toxicology)	No	Yes	Yes
3	**(U-3)** 30.3 تجزیاتی معمل میں مستعمل سازوسامان Tajziyati Ma'mal me musta'mal sazo samant(Equipment used in analytical laboratory	No	Yes	Yes
(M-31) انکشافات اور تجزیے کے طریقے Inkeshafat wa Tajziye ke Tareeqe (Methods of Detection and Analysis) (Marks: Range 5-20)				
1	**(U-1)** 31.1 فنیات نمونہ بندی Funniyate Namoona Bandi (Sampling Techniques)	Yes	Yes	Yes

2	**(U-2)** 31.2 تجزیاتی فنیات Tajziyati Fanniyat (Analytical Techniques)	Yes	Yes	Yes
(M-32) تجزیاتی امتحانات اور ان کی رودادی تاویل، طب القانونی حیاتیات اور مصلیات Tajziyati Imtehanaat aur unki roodadi Taveel, Tibbul Qanooni Hayatiyaat aur Masliyaat (Analytical Tests and Interpretation of their reports, Forensic Biology and Serology) (Marks: Range 5-20)				
1	**(U-1)** 32.1 دموی ترکیب Damavi Tarkeeb (Blood-Composition)s, Functions, and examination of blood evidences	Yes	Yes	Yes
2	**(U-2)** 32.2 منوی ساخت، ترکیب اور منوی دھبوں کا امتحان Manavi sakht, Tarkeeb aur Manavi dhabbon ka Imtihan (Semen-Nature, composition, Examination of semen stains	No	Yes	Yes
3	**(U-3)** 32.3 بالوں کی شناخت اور موازنہ Balon ki shanakht aur Muwazena (Identification and comparison of Hair	No	Yes	Yes
4	**(U-4)** 32.4 بول و براز Baul wa Baraz (Urine and Faeces)	No	Yes	Yes
5	**(U-5)** 32.5 لعاب دہن اور انفی رطوبات Luabe Dahan aur Anafi Ratoobaat(Saliva and Nasal secretions)	Yes	Yes	Yes
6	**(U-6)** 32.6 پسینہ، آنسو اور شیر انساں Paseena, Ansoo aur Sheere Insa'n (Sweat, Tears, and human milk)	No	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	**One Long case or procedure/ Major Practical from Paper-1 or Paper-4: (Duration-30 min)** 1. The student write detailed description of the case including all the details of its diagnosis and forensic significance along with the possible management of the case. 2. The patient admitted in IPD may be used as subject. or 3. case from mortuary or Mock cases may be used. **One Long case or procedure/ Major Practical from Paper-2 or Paper-3 : (Duration-30 min)** 1. The student will write detailed description of the case including all the details of its diagnosis and forensic significance along with the possible management of the case. 2. The patient admitted in IPD may be used as subject. or 3. case from mortuary or Mock cases may be used.	100
2	One Short case or procedure/ Minor Practical from Paper-1 or Paper-2, or Paper-3 or Paper-4: (Duration-30 min) The student may be asked to write detailed description of the case including all the details of its diagnosis and forensic significance along with the possible management of the case. The patient admitted in IPD may be used as subject. or Mock cases may be used in absence of real case. Note: While assigning practical from Paper1 and paper-4; It should be kept in mind that both long and short cases must not be selected from one paper. If Long case has been given from Paper-1; then Short case must be assigned from Paper-4 and vise-versa.	50
3	Spotters: Student will be assigned 10 spots (5 marks each). Total 50 marks) The student will identify the spot and write its short description including its uses. Time Given: 20 Min. (2 Min for each spot)	50

4	**Assessment of Teaching abiity: (Duration-10 min)** **1.** The student will select a topic of his choice and he will be asked to teach the said topic before the examiners considering a moot classroom. 2, The student shall be assessed on the basis of teaching methodology/tools used by the student.	25
5	**Assessment of Presentation Skills:** (Duration-10 min) 1. The student will prepapre a PPT presentation on the topic of his choice and he will be asked to present the said topic before the examiners. 2. The student shall be assessed on the basis of presentation methodology/tools used by the student.	25
6	Viva: 4 Examiners (25 Marks each examiner)#	100
7	Log Book (activity Record)	25
8	**Practical/Clinical Record:** 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
1	Jurjani AH. Zakhira khawarzam shahi. Combined Vol. 5, Chapter 9 (Urdu Translation by Hakim Hadi Hasan). New Delhi: Idara Kitab-us Shifa; 2010.
2	Usaybia IA. Uyoon al -amba fi tabaqat al -atibba. New Delhi: Urdu translated by CCRUM, Ministry of Ayush, New Delhi.
3	Razi Z. Kitabul hawi. Vol.19. New Delhi. Idara Kitabus Shifa; 2010.
4	Majoosi AIA. Kamilus sanah, Vol.2. Part 1. Delhi: CCRUM; YNM.
5	Razi AMBZ. Kitabul mansoori. (Urdu translation). Chapter 8. New Delhi: CCRUM, Ministry of Health & Family Welfare, Government of India; 1991.
6	Ibn Sina. Al qanoon fit tib. Vol.4 (Urdu Translation by Ghulam Husnain Kantoori). New Delhi: Aijaz Publishing House; 2010.
7	Tabri AABR. Firdausul hikmat. Chapter 2. Urdu Translation by Idara Kitabus Shifa. Edi. 2nd. New Delhi: 2017.
8	Ahmad I. Samoom o tasammum. New Delhi. Hidaya; 2019
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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		

		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		