Republic of Yemen

Ministry of Higher Education & Scientific Research

21 SEPTEMBER UNIVERSITY of MEDICALS & APPLIEED

SCIENCES

Faculty of Laboratory medicine..

Course Specification of Toxicology
Course No. (02.03,311)
2022/2023

Prepared by:	Reviewed by:	Head of the Department:	Vice Dean for Quality affairs	Dean of College:
Dr. Abdulsalam Alsubari	Dr\Gamil Taher Abdul Mughni		Dr\Gamil Taher Abdul Mughni	Associate Prof. Dr. Ebtesam Al-Zabedi

I. Course Identification and General Information:						
1	**Course Title:**	Toxicology				
2	**Course Code & Number:**	02.03.311				
3	**Credit Hours:**	**Theory Hours**				
		Lecture	**Exercise**	Practical	**Credit Hours**	
		2	0	2	3	
4	**Study Level/ Semester at which this Course is offered:**	3rd Level / 1st Semester				
5	**Pre –Requisite (if any):**	General Biology				
6	**Co –Requisite (if any):**	None				
7	**Program (s) in which the Course is Offered:**	Faculty of Laboratory medicine				
8	**Language of Teaching the Course:**	English				
9	**Study System:**	semester				
10	**Mode of Delivery:**	Regular				
11	**Location of Teaching the Course:**	University Campus				
12	**Prepared by:**	Dr. Abdulsalam Alsubari				
13	**Date of Approval:**	2023				

II. Course Description:

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To introduce students to the basic facts, concepts and scientific principles of forensic medicine necessary for the practice of medicine, and Introduce a high quality professional medical services to the community, reflecting the mission of our faculty and spirit of our department..

III. Alignment Course Intended Learning Outcomes with program outcomes		
III. Course Intended Learning Outcomes (CILOs)		**Referenced PILOs**
A. Knowledge and Understanding: ***Upon successful completion of the course, students will be able to:***		
a1	**Discusses** the basic concepts of toxicity and adverse side effects induced by a given medicament and common toxic agents.	**A1**
B. Intellectual Skills: ***Upon successful completion of the course, students will be able to:***		
b1	**Integrate** between type of toxin, diagnosis, and management.	B1
C. Professional and Practical Skills: ***Upon successful completion of the course, students will be able to:***		
c1	**Analyze** medical information in case scenario of clinical forensic medicine and recognize their medico-legal aspects.	**C1**
D. Transferable Skills: ***Upon successful completion of the course, students will be able to:***		
d1	Work independently and a part of group, Manage resources, time and other members of group.	D1
d2	Collect data to produce reports and presentations	D3

IV. Alignment Course Intended Learning Outcomes with Teaching Strategies and Assessment methods:			
(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1	Define the basic concepts of toxicity and adverse side effects induced by a given medicament and common toxic agents. Management, diagnosis and treatment of toxicity **side effects induced by a given medicament and**	Lectures	Exam

	common toxic agents. – Diagnose certain toxicity case through interpreting symptoms.		
(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Lectures Laboratory practical	Assessment Strategies
b1	**Integrate** between type of toxin, diagnosis, and management.	Lectures	Exam
C Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1	Availability to demonstrate the scientific researches related to the current topics.	Practical session	Practical Exams
c2	In-class lecturing where the previous knowledge is linked to the current and further topics.	Practical session	Practical Exams
(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1	Work independently and a part of group, Manage resources, time and other members of group.	Practical session	seminars
d2	Manage resources, time and other members of group.	Lectures Practical session	seminars

V. Course Content:

A – Theoretical Aspect:

NO.	Units/Topics List	Sub Topics List	Number of Weeks	contact hours	Learning Outcomes (CILOs)
1	**Introduction to toxicology (Toxicologic terms & definitions)**	Definitions and scope of toxicology	1	2	a1,b1,c1

		Introduction Historical Background A) Important toxicologic terms -Toxin -Poison (Toxicant) - Toxicity -Hazard - Risk -Acute exposure - Chronic exposure B) Presence of mixtures -synergistic, additive, Potentiation & antagonistic Synergism -Additive effect -Potentiation effect -Antagonism			
2	**Basic classifications of toxicology**	I. Based on research methodology A. Descriptive toxicology B. Mechanistic toxicolog C. Regulatory toxicology D. Predictive toxicology II. Based on specific socio-medical issues A) Occupational toxicology B) Environmental toxicology C) Clinical toxicology D) Forensic toxicology E. Based on the	1	2	a1,b1

		organ/system effect			
3	**Toxicokinetics & toxicodynamics of toxicants**	Absorption Distribution Excretion - Enzymes - Membrane receptors - Intracellular receptors - Ion channel - Damage to an enzyme system - Disruption of protein synthesis - DNA damage - Modification of an essential biochemical function	1	2	a1,b1,c1
4	**Potential sources of toxicities**	-Types of environments A. Hazard Identification Collection of Data a. Name of Substance b. Physical/Chemical Properties c. Source of Information -Protective barriers of the bod d. Exposure to Toxic Substances - Route of exposure - Duration of exposure - Frequency of exposure - Exposure to other toxic substances. -Pathways of exposure Types of exposure	1	2	a1,b1,d1

		local and systemic exposures Excretion of toxins			
5	**Emetics ,Cathartics,Adsorbents used in Treatment of toxicity , Gastric lavage ,Forced Diuresis, Dialysis**		1	2	a1,d2
6	**Heavy metal intoxication) Iron and Arsenic**		1	2	a1,c1
7	**Lead and Mercury**		1	2	a1,b1
8	**MED TERM**		1	2	
9	**Non-metallic irritant poisons.**		1	2	a1,d1
10	**Analgesics.**		1	2	a1,b1,d1
11	**Hypnotics.**		1	2	d1,d2
12	**Narcotics.**		1	2	a1,b1,c1
13	**Cannabis & Hallucinogens.**		1	2	a1,b1,c1
14	**Stimulants.**		1	2	a1,b1,c1
15	Final exam		1	2	
	Total		15	30	

B - Practical Aspect: (if any)				
Order	**Tasks/ Experiments**	**Number of Weeks**	**contact hours**	**Learning Outcomes**
1	**Introduction to toxicology**	**1**	**2**	**c1,c2,d1,d2**
2	**Corrosive poisons**	**1**	**2**	**c1,c2,d1,d2**
3	**Heavy Metals**	**1**	**2**	**c1,c2,d1,d2**
4	**Chromatography**	**1**	**2**	**c1,c2,d1,d2**
5	**Antidote**	**1**	**2**	**c1,c2,d1,d2**

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6	Acids	1	2	c1,c2,d1,d2
7	Alkalines	1	2	c1,c2,d1,d2
Number of Weeks /and Units Per Semester				

V. Teaching Strategies of the Course:	
1-	Lectures
2-	practical session
3-	Seminars

VI. Assessment Methods of the Course:	
No	**Assignment**
1	Written Exams (Short Essays) and Quizzes
2	Multiple Choice Questions (MCQ)
3	Practical Exams (PE)

VII. Assignments:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	**Midterm Exam**	8	20	20%	a1,b1,c1.d1,d2
2	**Practical exam**	12	30	30%	a1,b1,c1,d1,d2
3	**Final Exam**	16	50	50%	a1,b1,c1,d1,d2
	Total	100		100%	

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IX. Learning Resources:

1- Required Textbook(s)

1-	Principal of clinical toxicology by Thomas 3rd edition (2002).
2-	Basic and Clinical Pharmacology by Katzung:10th edition (2007)

2- Essential References.

1-	Websites on the internet that are relevant to the topic of the course
2-	The basic science of poiso, (1996); Curtis, Klassen; 5th edition McGraw-Hill Companies USA The Pharmacological bases of therapeutics by Goodman and Gillman 10th edition (2001)

3- Electronic Materials and Web Sites *etc.*

1-	Websites on the internet that are relevant to the topic of the course

XI. *Course Policies:*

1	**Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	**Tardiness:** -If the student dose not attend for more than 6 times, the student will be obligated to withdrew from the course
3	**Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.

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4	**Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	**Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	**Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	**Other policies:** The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration