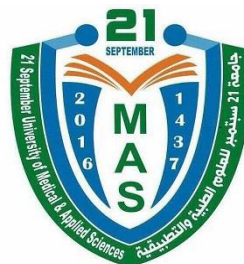


Republic of Yemen
Ministry of Education & Higher Research
Council of Academic Accreditation & Quality Assurance of
Higher Education (CAQA)



**21 septamber University of Medical
and Applied Science**



Faculty of Applied Medical Science

Department of **Medical Radiology and Imaging Technology**

Program of Radiologic Technology and Medical Imaging

Course Specification of

Pathology 1

Course Code. (____)

2024



T4: This Template is Developed and Approved by CAQA-Yemen, 2023

Prepared by:

Reviewed by:

Dr. -----

Head of the Department:

Dr. Awadh Al-Kubati

Quality Unit:

Dr. Mohammed
Al-shamahi

Dean:

Dr. Abdulsalam
Dalaq

I. General Information:

1.	Course Title:	Pathology				
2.	Course Code:					
3.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	
			Lecture	Tutorial/ Seminar	Lab	Clinical
		3	2	--	2	--
4.	Level/ Semester at which this Course is offered:	2 nd Level / 1 st Semester				
5.	Pre –Requisite (if any):					
6.	Co –Requisite (if any):	None				
7.	Program (s) in which the Course is Offered:	Bachelor of Radiologic Technology and Medical Imaging				
8.	Language of Teaching the Course:	English				
9.	Location of Teaching the Course:	Faculty of Applied Medical Science				
10.	Prepared by:					
11.	Date and Number of Approval by Council:					

II. Course Description:

This course provides an introduction to pathology with a focus on diseases relevant to radiologic technology. Topics include the study of disease mechanisms, the structural and functional changes caused by disease, and the clinical manifestations of various pathologies. Emphasis is placed on understanding the radiologic appearance of different pathological conditions to aid in accurate diagnosis and effective patient care.

III. Course Intended Learning Outcomes (CILOs) : Upon successful completion of the course, students will be able to:		Referenced PILOs		
A. Knowledge and Understanding:		I, P or M/A		
a1	Describe the basic concepts and terminology in pathology	I	A1	Demonstrate and understanding of fundamental knowledge of Biomedical sciences (Biology, Biophysics, Anatomy, Physiology, Sectional anatomy and medical imaging technique).
a2	Explain the etiology, pathogenesis, and clinical manifestations of common diseases	I	A2	Explanation the principles and procedures of medical imaging acquisitions, medical imaging technique and Radiological Technology Sciences as well as patient positioning in computed radiography and MRI technique.
B. Intellectual Skills:				
b1	Analyze radiologic images to identify pathological changes	I	B3	Analyze and evaluate evidence-based information needed in medical imaging practice.
b2	Interpret the clinical significance of pathological findings in imaging	I	B1	Assessment the radiation exposure times and intensity of exposure to guarantee the imaging technique is accurate to reduce the risk factors and adapt to patient needs
C. Professional and Practical skills:				
c1	Apply knowledge of pathology in clinical radiographic practice	P	C2	Apply technical skills using medical imaging devices, tools, and materials in radiological technology practice
c2	Correlate pathological findings with imaging techniques	P	C4	Utilize appropriate manual and automated techniques in radiological imaging investigations
D. Transferable Skills:				
d1	Communicate effectively with healthcare professionals about pathological findings	P	D1	Communicate effectively with clinicians, patients, and support staff.
d2	Utilize problem-solving skills in clinical scenarios involving pathology	P	D3	Recognize the need to obtain further education in the pursuit of life-long learning.
I= Introduced, P=Practiced or M/A= Mastered/Advanced				

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
a1	Describe the basic concepts and terminology in pathology	▪ Lectures, Reading assignments	▪ Written exams, Quizzes
a2	Explain the etiology, pathogenesis, and clinical manifestations of common diseases	▪ Lectures, Case studies	▪ Written exams, Quizzes
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
b1	Analyze radiologic images to identify pathological changes	▪ Image review sessions, Case studies	▪ Image analysis assignments, Oral exams
b2	Interpret the clinical significance of pathological findings in imaging	▪ Group discussions, Problem-based learning	▪ Case study reports, Research papers
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
c1	Apply knowledge of pathology in clinical radiographic practice	▪ Practical labs, Clinical practice	▪ Practical exams, Competency assessments
c2	Correlate pathological findings with imaging techniques	▪ Lab sessions, Quality control workshops	▪ Lab reports, Practical exams
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
d1	Communicate effectively with healthcare professionals about pathological findings	▪ Group projects, Role-plays	▪ Presentations
d2	Utilize problem-solving skills in clinical scenarios involving pathology	▪ Clinical simulations, Case-based learning	▪ Case studies, Practical exams

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Relevant Learning Outcomes
1	Introduction to Pathology	– Definitions, Basic Terminology, Disease Mechanisms	1	2	a1, a2
2	Cellular Injury and Adaptation	– Causes, Types, Cellular Responses	1	2	a2, b1
3	Inflammation and Repair	– Acute vs. Chronic Inflammation, Healing Processes	1	2	a2, b1
4	Hemodynamic Disorders	– Edema, Hyperemia, Hemorrhage, Thrombosis	1	2	a2, b2
5	Immune System Pathology	– Immune Responses, Hypersensitivity, Autoimmunity	1	2	a2, b2
6	Infectious Diseases	– Types of Pathogens, Disease Mechanisms	1	2	a2, b1, c1
7	Genetic and Pediatric Diseases	– Genetic Mutations, Congenital Anomalies	1	2	a2, b2
8	Mid-Term Exam	– In all previous Topics	1	2	a1, a2, b1
9	Neoplasia	– Tumor Classification, Carcinogenesis	1	2	a2, b1
10	Environmental and Nutritional Diseases	– Environmental Hazards, Nutritional Deficiencies	1	2	a2, b2
11	Cardiovascular Pathology	– Heart Disease, Vascular Disorders	1	2	a2, b1, c1
12	Respiratory Pathology	– Lung Diseases, Respiratory Infections	1	2	a2, b1, c1
13	Gastrointestinal Pathology	– GI Tract Disorders, Hepatic Diseases	1	2	a2, b1, c1
14	Renal Pathology	– Kidney Diseases, Urinary Tract Disorders	1	2	a2, b1, c1
15	Final Practical Exam	– All practical topics	1	2	a2, b1, b2, c1, c2
16	Final Theoretical Exam	– All theoretical topics	1	2	a1, a2, b1, b2
Number of Weeks /and Units Per Semester			16	32	

B. Practical Aspect (Lab/Clinical) (if any):

Prepared by:

Reviewed by:

Dr. -----

Head of the Department:

Dr. Awadh Al-Kubati

Quality Unit:

Dr. Mohammed
Al-shamahi

Dean:

Dr. Abdulsalam
Dalaq

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Cellular Injury Analysis: Microscopic Examination, Case Discussion	1	2	b1, c1
2	Inflammation Case Study: Identifying Inflammatory Responses	1	2	b1, c1
3	Hemodynamic Disorder Examination: Clinical Case Review, Pathological Findings	1	2	b2, c2
4	Immune Pathology Case: Case Discussion, Immune Response Analysis	1	2	b2, c2
5	Infectious Disease Analysis: Pathogen Identification, Case Review	1	2	b1, c1, c2
6	Genetic Disorder Case Study: Genetic Analysis, Clinical Manifestations	1	2	b2, c2
7	Neoplasia Case Study: Tumor Classification, Case Analysis	1	2	b1, c1, c2
8	Environmental Pathology Case: Environmental Factors, Clinical Case Review	1	2	b2, c2
9	Cardiovascular Pathology Case: Heart and Vessel Analysis, Case Review	1	2	b1, c1, c2
10	Respiratory Pathology Case: Lung Disease Analysis, Pathological Findings	1	2	b1, c1, c2
Number of Weeks /and Units Per Semester		14	28	

C. Tutorial Aspect (if any):

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	None			
2				

Prepared by:

Reviewed by:
Dr. -----

Head of the Department:
Dr. Awadh Al-Kubati

Quality Unit:
Dr. Mohammed
Al-shamahi

Dean:
Dr. Abdulsalam
Dalaq

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
Number of Weeks /and Units Per Semester				

VII. Teaching Strategies:

- Lectures
- Case Studies
- Practical Labs
- Group Discussions
- Problem-Based Learning (PBL)
- Clinical Simulations
- Role-Plays

VII. Assessment Methods:

- Written Exams
- Quizzes
- Case Study Reports
- Image Analysis Assignments
- Oral Exams
- Practical Exams
- Presentations

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Case Study Report 1	Week 7	3	b1, b2, c1
2	Image Analysis Assignment 1	Week 10	2	b1, c1
3	Case Study Report 2	Week 13	3	b1, b2, c1
4	Image Analysis Assignment 2	Week 16	2	b1, c1
Total			10	

VIII. Schedule of Assessment Tasks for Students During the Semester:

Prepared by:

Reviewed by:

Dr. -----

Head of the Department:

Dr. Awadh Al-Kubati

Quality Unit:

Dr. Mohammed
Al-shamahi

Dean:

Dr. Abdulsalam
Dalaq

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Mid-term Exam	Week 8	10	10%	a1, a2
2	Practical Exam	Week 15	30	30%	c1, c2
3	Final Exam	Week 16	50	50%	a1, a2
4	Assignments	Ongoing	10	10%	a1, a2, b1, b2, c1, c2, d1, d2
Total			100	100 %	

IX. Learning Resources:

1- Required Textbook(s) (maximum two):

1. Vinay Kumar, Abul K. Abbas, Jon C. Aster, 2020, Robbins & Cotran Pathologic Basis of Disease, Elsevier Health Sciences
2. Howard Reisner, PhD, Howard Reisner, 2013, Essentials of Rubin's Pathology, Lippincott Williams & Wilkins.

2- Essential References:

1. Gary D. Hammer, Stephen J. McPhee, 2018, Pathophysiology of Disease: An Introduction to Clinical Medicine, McGraw Hill Professional.
2. Timothy J. O'Leary, 2003, Advanced Diagnostic Methods in Pathology: Principles, Practice, and Protocols, W.B. Saunders.

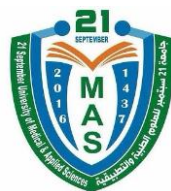
3- Electronic Materials and Web Sites etc.:

Electronic Materials and Websites

- Access to online pathology databases and resources. [Databases & Journals - Pathology - LibGuides at University of Cambridge Subject Libraries](#)
- [Databases & Journals - Pathology Information Resources - Guides @ UF at University of Florida](#)
- Access to radiologic imaging software and databases. [List of Open Access Medical Imaging Datasets - radRounds Radiology Network](#)
- Open-Access Medical Image Repositories. [aylward.org - Open-Access Medical Image Repositories](#)

X. Course Policies: (Based on the Uniform Students' By law (2007)

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: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
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.
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.

Faculty of Applied Medical Science

Department of **Medical Radiology and Imaging Technology**

Program of Radiologic Technology and Medical Imaging

Course Plan (Syllabus) of Pathology 1

Course Code.

I. Information about Faculty Member Responsible for the Course:						
Name of Faculty Member:		Office Hours				
Location & Telephone No.:	-----					
E-mail:	--@--.	SAT	SUN	MON	TUE	WED THU

2024/2025

I. General Information:

12.	Course Title:	Pathology				
13.	Course Code:					
14.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	
			Lecture	Tutorial/ Seminar	Lab	Clinical
		3	2	--	2	--
15.	Level/ Semester at which this Course is offered:	2 nd Level / 1 st Semester				
16.	Pre –Requisite (if any):					
17.	Co –Requisite (if any):	None				
18.	Program (s) in which the Course is Offered:	Bachelor of Radiologic Technology and Medical Imaging				
19.	Language of Teaching the Course:	English				
20.	Location of Teaching the Course:	Faculty of Applied Medical Science				
21.	Prepared by:					
22.	Date and Number of Approval by Council:					

II. Course Description:

This course provides an introduction to pathology with a focus on diseases relevant to radiologic technology. Topics include the study of disease mechanisms, the structural and functional changes caused by disease, and the clinical manifestations of various pathologies. Emphasis is placed on understanding the radiologic appearance of different pathological conditions to aid in accurate diagnosis and effective patient care.

III. Course Intended Learning Outcomes (CILOs) :

Upon successful completion of the course, students will be able to:

A. Knowledge and Understanding:

- | | |
|----|--|
| a1 | Describe the basic concepts and terminology in pathology |
| a2 | Explain the etiology, pathogenesis, and clinical manifestations of common diseases |

B. Intellectual Skills:

- | | |
|----|---|
| b1 | Analyze radiologic images to identify pathological changes |
| b2 | Interpret the clinical significance of pathological findings in imaging |

C. Professional and Practical skills:

- | | |
|----|--|
| c1 | Apply knowledge of pathology in clinical radiographic practice |
| c2 | Correlate pathological findings with imaging techniques |

D. Transferable Skills:

- | | |
|----|---|
| d1 | Communicate effectively with healthcare professionals about pathological findings |
| d2 | Utilize problem-solving skills in clinical scenarios involving pathology |

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Introduction to Pathology	– Definitions, Basic Terminology, Disease Mechanisms	1	2
2	Cellular Injury and Adaptation	– Causes, Types, Cellular Responses	1	2
3	Inflammation and Repair	– Acute vs. Chronic Inflammation, Healing Processes	1	2
4	Hemodynamic Disorders	– Edema, Hyperemia, Hemorrhage, Thrombosis	1	2

Prepared by:

Reviewed by:

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Quality Unit:

Dr. Mohammed
Al-shamahi

Dean:

Dr. Abdulsalam
Dalaq

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
5	Immune System Pathology	– Immune Responses, Hypersensitivity, Autoimmunity	1	2
6	Infectious Diseases	– Types of Pathogens, Disease Mechanisms	1	2
7	Genetic and Pediatric Diseases	– Genetic Mutations, Congenital Anomalies	1	2
8	Mid-Term Exam	– In all previous Topics	1	2
9	Neoplasia	– Tumor Classification, Carcinogenesis	1	2
10	Environmental and Nutritional Diseases	– Environmental Hazards, Nutritional Deficiencies	1	2
11	Cardiovascular Pathology	– Heart Disease, Vascular Disorders	1	2
12	Respiratory Pathology	– Lung Diseases, Respiratory Infections	1	2
13	Gastrointestinal Pathology	– GI Tract Disorders, Hepatic Diseases	1	2
14	Renal Pathology	– Kidney Diseases, Urinary Tract Disorders	1	2
15	Final Practical Exam	– All practical topics	1	2
16	Final Theoretical Exam	– All theoretical topics	1	2
Number of Weeks /and Units Per Semester			16	32

B. Practical Aspect (Lab/Clinical) (if any):

No.	Tasks/ Experiments	Number of Weeks	Contact Hours
1	Cellular Injury Analysis: Microscopic Examination, Case Discussion	1	2
2	Inflammation Case Study: Identifying Inflammatory Responses	1	2
3	Hemodynamic Disorder Examination: Clinical Case Review, Pathological Findings	1	2
4	Immune Pathology Case: Case Discussion, Immune Response Analysis	1	2

No.	Tasks/ Experiments	Number of Weeks	Contact Hours
5	Infectious Disease Analysis: Pathogen Identification, Case Review	1	2
6	Genetic Disorder Case Study: Genetic Analysis, Clinical Manifestations	1	2
7	Neoplasia Case Study: Tumor Classification, Case Analysis	1	2
8	Environmental Pathology Case: Environmental Factors, Clinical Case Review	1	2
9	Cardiovascular Pathology Case: Heart and Vessel Analysis, Case Review	1	2
10	Respiratory Pathology Case: Lung Disease Analysis, Pathological Findings	1	2
Number of Weeks /and Units Per Semester		14	28

C. Tutorial Aspect (if any):

No.	Tutorial	Number of Weeks	Contact Hours
1	None		
2			
Number of Weeks /and Units Per Semester			

VII. Teaching Strategies:

- Lectures
- Case Studies
- Practical Labs
- Group Discussions
- Problem-Based Learning (PBL)
- Clinical Simulations
- Role-Plays

VII. Assessment Methods:

Prepared by:

Reviewed by:

Dr. -----

Head of the Department:

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Quality Unit:

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- Written Exams
- Quizzes
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- Presentations

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3	Case Study Report 2	Week 13	3
4	Image Analysis Assignment 2	Week 16	2
Total			10

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Mid-term Exam	Week 8	10	10%
2	Practical Exam	Week 15	30	30%
3	Final Exam	Week 16	50	50%
4	Assignments	During semester	10	10%
Total			100	100 %

IX. Learning Resources:

1- Required Textbook(s) (maximum two) :

1. Vinay Kumar, Abul K. Abbas, Jon C. Aster, 2020, Robbins & Cotran Pathologic Basis of Disease, Elsevier Health Sciences

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2. Timothy J. O'Leary, 2003, Advanced Diagnostic Methods in Pathology: Principles, Practice, and Protocols, W.B. Saunders.
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Electronic Materials and Websites ○ Access to online pathology databases and resources. Databases & Journals - Pathology - LibGuides at University of Cambridge Subject Libraries ○ Databases & Journals - Pathology Information Resources - Guides @ UF at University of Florida ○ Access to radiologic imaging software and databases. List of Open Access Medical Imaging Datasets - radRounds Radiology Network ○ Open-Access Medical Image Repositories. aylward.org - Open-Access Medical Image Repositories

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