



Course Specifications

Course Title:	Medical Imaging Interpretation (1)
Course Code:	374327-2
Program:	Bachelor in Radiological Sciences
Department:	Department of Radiological Sciences
College:	College of Applied Medical Sciences
Institution:	Taif University

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A. Course Identification

1. Credit hours:	2
2. Course type	
a.	University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered:	11th Level / 4th Year
4. Pre-requisites for this course (if any):	
<ul style="list-style-type: none"> • Computerized Tomography Imaging Techniques (374317-3). • Clinical Practice in Radiography (2) (374328-3). 	
5. Co-requisites for this course (if any):	
None.	

1. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	100%
2	Blended	-	-
3	E-learning	-	-
4	Distance learning	-	-
5	Other	-	-

2. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	-
3	Tutorial	-
4	Others (specify)	-
	Total	30

B. Course Objectives and Learning Outcomes

1. Course Description

1. Describe the appearance of the pathology within the images. And allows the student to put an opinion in the image interpretation.
2. Discussion on which imaging method or modality will best demonstrate pathological condition.

2. Course Main Objective

The course is designed to enable the student to:

1. Recognize the appearances of the different pathologies in the radiographic images.
2. Interpret the different radiographic images.
3. Know the differential diagnosis of pathologies in different radiological modalities.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	Knowledge and Understanding	

CLOs		Aligned PLOs
1.1	Interpret medical terms for pathological conditions and diseases.	K3
2	Skills:	
2.1	Choose appropriate radiographic technique to deliver best demonstration for pathologies and maximize diagnostic value.	S1
2.2	Analyze radiographic appearance of common pathological conditions of body organs and human systems.	S2
3	Values:	
3.1	Evaluate the pathological condition and inform the radiologist for further diagnostic measures.	V2
3.2	Develop professional ethical standards in keeping the patient data and diagnosis discreet.	V1

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to image interpretation: (Chapter 1 , page No 1 of radiographic pathology for technologist) a. Radiographic Appearance. b. Procedural. c. Technique Considerations. d. Appropriate. e. Imaging Modality.	3
2	Skeletal and articular (1): (Chapter 2 , page No 21 of radiographic pathology for technologist) Congenital and hereditary diseases: a. Hand and foot malformations. b. Congenital dislocation of the hip. c. Vertebral anomalies. d. Cranial anomalies.	3
3	Skeletal and articular (2) (Chapter 2 , page No 41 of radiographic pathology for technologist) Traumatic disorders: a. Fractures. b. Dislocations.	3
4	Skeletal and articular (3) (Chapter 2 , page No 31 of radiographic pathology for technologist) Inflammatory diseases a. Osteomyelitis. b. Arthritis. c. Ankylosing Spondylitis. d. Osteoarthritis.	3
5	Skeletal and articular (4): (Chapter 7 , page No 44 of radiographic pathology for technologist) Metabolic Diseases:	3

	<ul style="list-style-type: none"> a. Osteoporosis. b. Osteomalacia. c. Paget's Disease. 	
6	<p>The respiratory System: (Chapter 3 , page No 74,76 of radiographic pathology for technologist)</p> <p>2. Congenital and hereditary diseases:</p> <ul style="list-style-type: none"> a. Cystic fibrosis. <p>3. Inflammatory diseases:</p> <ul style="list-style-type: none"> a. Pulmonary Tuberculosis. b. Pneumoconiosis. c. Pleurisy. d. Occupational Lung Diseases. 	3
7	<p>The abdomen and Gastrointestinal system (1): (Chapter 5 , page No 150 of radiographic pathology for technologist)</p> <p>Congenital and hereditary anomalies:</p> <ul style="list-style-type: none"> a. Esophageal Atresia. b. Esophageal web. c. Achalasia of esophagus. d. Esophageal varices. 	3
8	<p>The abdomen and Gastrointestinal system (2): (Chapter 5 , page No 158, 170 of radiographic pathology for technologist)</p> <p>1. Inflammatory disease:</p> <ul style="list-style-type: none"> a. Esophageal strictures. b. Gastroesophageal reflux disease. c. Peptic ulcer. d. Ulcerative colitis. <p>2. Degenerative diseases:</p> <ul style="list-style-type: none"> a. Herniation. b. Bowel obstruction. 	3
9	<p>The abdomen and Gastrointestinal system (3): (Chapter 5 , page No 183 of radiographic pathology for technologist)</p> <ul style="list-style-type: none"> a. Diverticular disease. b. Neoplastic disease. 	3
10	<p>The hepatobiliary system: (Chapter 6 , page No 205 of radiographic pathology for technologist)</p> <p>Inflammatory Diseases:</p> <ul style="list-style-type: none"> a. Hepatitis. b. Cholecystitis. c. Jaundice. 	3
Total		

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.1	Interpret medical terms for pathological conditions and diseases.	Lectures	Direct: Midterm and final exams. Indirect: Survey.
2.0	Skills:		
2.1	Choose appropriate radiographic technique to deliver best demonstration for pathologies and maximize diagnostic value.	Small group discussion	Direct: Assignments. Indirect: Survey.
2.2	Analyze radiographic appearance of common pathological conditions of body organs and human systems.		
3.0	Values:		
3.1	Evaluate the pathological condition and inform the radiologist for further diagnostic measures.	Self-learning	Direct: Presentation. Indirect: Survey.
3.2	Develop professional ethical standards in keeping the patient data and diagnosis discreet.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midterm written exam	4 th - 5 th	30%
2	Assignment (essay)	9 th	10%
3	Final written exam	11 th - 12 th	60%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Faculty members are available for individual consultation. They usually dedicate 12 hours weekly for office hours and students are encouraged to visit them for help. Appointments can also be made in person with the faculty through email or phone. The faculty provides a range of academic and course management advice. Each student has an academic adviser, who offers personal, academic, psychological, and professional counseling, as well as group counseling to support the academic, behavioral, emotional, psychological, and social growth of students.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	RADIOGRAPHIC PATHOLOGY FOR TECHNOLOGISTS. NINA KOWALCZYK 6 th Edition Mosby ISBN: 978-0-323-08902-9
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Essential References Materials	<p>1. Workbook for Comprehensive Radiographic Pathology. Eisenberg RL, Johnson NM. 4th ed. Mosby ISBN: 0323042198</p> <p>2. Radiographic Pathology: Workbook. Linn-Watson T. 2nd edition WB Saunders ISBN: 0721641695</p>
Electronic Materials	<p>1. http://www.arrt.org</p> <p>2. https://www.asrt.org/asrt.htm</p> <p>3. http://www.auntminnie.com</p> <p>4. http://www.air.asn.au</p> <p>5. http://user.shikoku.ne.jp/tobrains/exam/Angio/Angio-e.html</p> <p>6. http://chorus.rad.mcw.edu/</p> <p>7. http://www.emory.edu/X-RAYS/Sprawls/</p>
Other Learning Materials	None.

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom with 30 seats.
Technology Resources (AV, data show, Smart Board, software, etc.)	Black board, Projector and Smart Board.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	None.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Program Leaders	Direct
Extent of achievement of course learning outcomes	Faculty	Direct
Quality of learning resources	Student, Faculty	Indirect
Course management and planning	Students	Indirect
Teaching and interaction with students	Students	Indirect
Effectiveness of Evaluation and exams	Students, peer review	Direct, Indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	DEPARTMENT COUNCIL
Reference No.	11 TH
Date	24 TH MAY 2022





Course Specifications

Course Title:	Quality Management in Radiology
Course Code:	374424-3
Program:	Bachelor in Radiological Sciences
Department:	Department of Radiological Sciences
College:	College of Applied Medical Sciences
Institution:	Taif University

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1. Learning Resources	6
2. Facilities Required.....	7
G. Course Quality Evaluation	7
H. Specification Approval Data	7

A. Course Identification

1. Credit hours: 3
2. Course type a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 11 th Level /4 th Year
4. Pre-requisites for this course (if any): <ul style="list-style-type: none"> • Magnetic Resonance Imaging Techniques (374411-3). • Nuclear Medicine Imaging Techniques (374412-3). • Advanced Clinical Practice (1) (374415-4).
5. Co-requisites for this course (if any): None.

1. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	40	100 %
2	Blended	-	-
3	E-learning	-	-
4	Distance learning	-	-
5	Other	-	-

2. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	40
2	Laboratory/Studio	-
3	Tutorial	-
4	Others (specify)	-
	Total	40

B. Course Objectives and Learning Outcomes

1. Course Description This course is designed to provide the student with technical and administrative processes to ensure that radiographic equipment meet the manufacture standards.
2. Course Main Objective By the end of the course the student should be able to: <ul style="list-style-type: none"> • Differentiate between quality assurance/management/control concepts. • Understand the benefits of quality assurance program. • Understand the role of radiographer in quality assurance program. • Know various types of testing equipment. • Describe different quality Assurance/management/control concepts • Understand quality control tests for different imaging modalities Evaluate different radiological machines equipment

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Demonstrate the concepts of quality management, quality assurance and quality control.	K1
1.2	Demonstrate quality management tools and procedures.	K2
2	Skills:	
2.1	Apply various quality control tests for different image modalities.	S5
3	Values:	
3.1	-	-

C. Course Content

No	List of Topics	Contact Hours
1	1. Quality Management Definitions: a. Quality improvement management (QIM). b. Quality assurance (QA). c. Quality control (QC). Chapter 2 pages (17-31)	4
2	1. Benefits of quality programmers. 2. Elements of quality assurance. 3. Recommendations of CDRH to establish a QA program. Chapter 1 pages (1-9)	4
3	1. Quality control: a. Levels. b. Types. c. Parts. 2. Responsibilities of quality control in radiology department. Chapter 1 pages (10-15)	4
4	1. Performing QC tests in: a. Conventional radiography. b. CR equipment. c. DR equipment. d. kVp accuracy. e. Exposure linearity. f. Reciprocity. g. filtration check. h. Beam restriction system test. i. Focal spot size test. j. Resolution check. k. Radiation reproducibility test. l. Timer accuracy. Chapter 5 pages (64-70) Chapter 7 pages (85-113)	4
5	Reject analysis evaluations quality assurance tool and its role in continuous improvements process. Chapter 10 pages (168-183)	4
6	1. Quality control in fluoroscopic equipment: a. High contrast check. b. Low contrast check.	4

	<ul style="list-style-type: none"> c. Image resolution check. d. Dose check. <p style="text-align: center;">Chapter 8 pages (115-130)</p>	
7	<ul style="list-style-type: none"> 1. Quality control in Computerized Tomography: <ul style="list-style-type: none"> a. Phantom in CT as QC tools. b. Concepts of CT dose indices. c. Contrast resolution test. d. Contrast scale and CT number test. e. Slice width check. f. Image noise and uniformity check. g. Artifacts reduction. <p style="text-align: center;">Chapter 12 pages (231-241)</p>	4
8	<ul style="list-style-type: none"> 1. QC in Ultrasound Imaging: <ul style="list-style-type: none"> a. Tissue mimicking phantom. b. Noise check. c. Measurement's accuracy and dynamic range test. d. Grey scale test. e. Probe sensitivity and output test. f. Continuous and pulse doppler test. g. Artifact appearance and methods of reductions. <p style="text-align: center;">Chapter 14 pages (256-270)</p>	4
9	<ul style="list-style-type: none"> 1. QC in Magnetic Resonance Imaging (MRI): <ul style="list-style-type: none"> a. Coils sensitivity. b. Efficiency check. c. Signal to noise ratio concept. d. Modulation transfer function (MTF) as checking tool. e. Slice thickness. f. Position test. g. Artifacts reduction. <p style="text-align: center;">Chapter 13 pages (243-254)</p>	4
10	<ul style="list-style-type: none"> 1. QC in Nuclear Medicine (NM) imaging: <ul style="list-style-type: none"> a. Sensitivity uniformity of detectors. b. Spatial energy. c. Collimator. d. Intrinsic resolution. <p style="text-align: center;">Chapter 15 pages (272-293)</p>	4
Total		40

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Demonstrate the concepts of quality management, quality assurance and quality control.	Lectures	Direct: - Written exams (Midterm and final). Indirect: - Surveys.
1.2	Demonstrate quality management tools and procedures.	Lectures	Direct:

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
			- Written exams (Midterm and final). Indirect: - Surveys.
2.0	Skills:		
2.1	Apply various quality control tests for different image modalities.	Small group discussion	Direct: - Case study - Assignment (Long essays). Indirect: - Surveys
3.0	Values:		
-	-	-	-

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Case study	4 th	10%
2	Mid-term Examination	6 th – 7 th	30%
3	Assignment (Long essays)	9 th – 10 th	10%
4	Final Examination	11 th -12 th	50%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for the availability of faculty and teaching staff for individual student consultations and academic advice:

Faculty members are available for individual consultation. They usually dedicate 12 hours weekly for office hours and students are encouraged to visit them for help. Appointments can also be made in person with the faculty through email or phone. Faculty provide a range of academic and course management advice. Each student has an academic adviser who offers personal, academic, psychological, and professional counseling, as well as group counseling to support the academic, behavioral, emotional, psychological, and social growth of students.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Quality Management in Imaging Science Jeffry Papp 6th Edition Elsevier 2018 ISBN:9780323512374 eBook ISBN: 9780323635844
Essential References Materials	Textbook of Diagnostic Imaging Carl E. Ravin and Charles Edgar Putman 2 nd Edition Saunders

	1994 ISBN: 0721636985 (vol. 1) ISBN: 0721636993 (vol. 2)
Electronic Materials	Saudi Digital Library (SDL) on Taif University website (through the Electronic Services portal - academic systems services).
Other Learning Materials	https://scholar.google.com https://pubmed.ncbi.nlm.nih.gov http://www.radiologyinfo.org/glossary http://www.radsciresearch.org

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom with 30 seats.
Technology Resources (AV, data show, Smart Board, software, etc.)	Projector and smart board.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	None.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Program Leaders	Direct
Extent of achievement of course learning outcomes	Faculty	Direct
Quality of learning resources	Student, Faculty	Indirect
Course management and planning	Students	Indirect
Teaching and interaction with students	Students	Indirect
Effectiveness of Evaluation and exams	Students, peer review	Direct, Indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	DEPARTMENT COUNCIL
Reference No.	11TH
Date	24TH MAY 2022





Course Specifications

Course Title:	Research Project
Course Code:	374426-6
Program:	Bachelor in Radiological Sciences
Department:	Department of Radiological Sciences
College:	College of Applied Medical Sciences
Institution:	Taif University

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C. Course Content	4
D. Teaching and Assessment	4
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods.....	4
2. Assessment Tasks for Students	5
E. Student Academic Counseling and Support	5
F. Learning Resources and Facilities	5
1. Learning Resources	5
2. Facilities Required.....	6
G. Course Quality Evaluation	6
H. Specification Approval Data	6

A. Course Identification

1. Credit hours:	6
2. Course type	
a.	University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered:	11 th level / 4 th year.
4. Pre-requisites for this course (if any):	<ul style="list-style-type: none"> • Research Methodology (374324-2). • Advanced Clinical Practice (1) (374415-4).
5. Co-requisites for this course (if any):	None.

1. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	-	-
2	Blended	-	-
3	E-learning	-	-
4	Distance learning	-	-
5	Other	60	100 %

2. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	-
2	Laboratory/Studio	-
3	Tutorial	-
4	Others (Research skills and scientific writing)	60
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description

This course is designed to provide the students with the research skills directed to problem solving in the field of radiological sciences. The students are supposed to investigate a radiology related research topic, collect and analyze data, and write a research thesis with appropriate documentation.

2. Course Main Objective

The module will equip the student with experience in research skills and report the findings in a scientific way.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	Knowledge and understanding	
1.1	-	-

CLOs		Aligned PLOs
2	Skills:	
2.1	Develop appropriate methodologies to address the research question or creative objective.	S2
2.2	Identify appropriate analytical frameworks to guide and inform empirical studies.	S3
3	Values:	
3.1	Deduct an understanding of ethical issues in research.	V1
3.2	Develop strategies in working collaboratively with other researchers, demonstrating effective communication and problem-solving skills.	V2

C. Course Content

No	List of Topics	Contact Hours
1	Revise the concept of research.	6
2	Suggesting the project title.	6
3	Writing, presenting and approving the project proposal.	6
4	Writing literature review Data collection.	6
5	Data collection.	6
6	Applying statistical data analysis and report on results.	6
7	Writing the discussion.	6
8	Writing the conclusion and recommendation and references.	6
9	Submitting the project.	6
10	Oral presentation and discussion.	6
Total		60

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding		
1.1	-	-	-
2.0	Skills:		
2.1	Develop appropriate methodologies to address the research question or creative objective.	Problem solving Problem-based learning	Discussion
2.2	Identify appropriate analytical frameworks to guide and inform empirical studies.		
3.0	Values:		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
3.1	Deduct an understanding of ethical issues in research.	Collaborative learning Self-learning Project-based learning	Presentation Graduation project
3.2	Develop strategies in working collaboratively with other researchers, demonstrating effective communication and problem-solving skills.		

2. Assessment Tasks for Students

#	Assessment task*	Week / Semester Due date	Percentage of Total Assessment Score
1	Submitting the introduction and methods to the supervisor.	9 th / 11 th	10%
2	Completing the data collection.	10 th / 11 th	5%
3	Completing the data analysis.	5 th / 12 th	5%
4	Writing the results.	6 th / 12 th	10%
5	Writing the discussion and conclusion.	7 th / 12 th	10%
6	Submitting the final project to the external committee.	8 th / 12 th	40%
7	Presenting the project.	10 th / 12 th	20%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Faculty members are available for individual consultation. They usually dedicate 12 hours weekly for office hours and students are encouraged to visit them for help. Appointments can also be made in person with the faculty through email or phone. Faculty provide a range of academic and course management advice. Each student has an academic adviser who offers personal, academic, psychological, and professional counseling, as well as group counseling to support the academic, behavioral, emotional, psychological, and social growth of students.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	According to the selected topic related to radiology and medical imaging.
Essential References Materials	-

Electronic Materials	Saudi Digital Library (SDL) on Taif University website (through the Electronic Services portal - academic systems services).
Other Learning Materials	-

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom.
Technology Resources (AV, data show, Smart Board, software, etc.)	-
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	-

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Program Leaders	Direct
Extent of achievement of course learning outcomes	Faculty	Direct
Quality of learning resources	Student, Faculty	Indirect
Course management and planning	Students	Indirect
Teaching and interaction with students	Students	Indirect
Effectiveness of Evaluation and exams	Students, peer review	Direct, Indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	DEPARTMENT COUNCIL
Reference No.	11 TH
Date	24 TH MAY 2022





Field Experience Specifications

Course Title:	Advanced Clinical Practice (2)
Course Code:	374425-4
Program:	Bachelor in Radiological Sciences
Department:	Department of Radiological Sciences
College:	College of Applied Medical Sciences
Institution:	Taif University

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3. Responsibilities	5
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a. Supervision and Follow-up Mechanism	7
b. Student Support and Guidance Activities	7
5. Safety and Risk Management.....	8
G. Training Quality Evaluation	8
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A. Field Experience Identification

1. Credit hours: 4
2. Level/year at which this course is offered: 11^h Level / 4th Year
3. Dates and times allocation of field experience activities. <ul style="list-style-type: none"> • Number of weeks: (10) week. • Number of days: (10) day. • Number of hours/semesters: (90) hour.
4. Pre-requisites to join field experience (if any): Nuclear Medicine Imaging Techniques (374412-3). Magnetic Resonance Imaging Techniques (374411-3).

B. Learning Outcomes, and Training and Assessment Methods

1. Field Experience Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and understanding	
1.1	-	-
2	Skills:	
2.1	Apply magnetic resonance imaging (MRI) and nuclear medicine (NM) procedures with or without contrast media in a skilled and safe way.	S4
2.2	Choose appropriate techniques with proper care according to patient's condition.	S1
2.3	Inspect images accurately to create high quality images for MRI and NM examinations.	S2
2.4	Analyze informed decisions about clinical practice within the accepted departmental protocols.	S3
2.5	Take part in operating CT, US and fluoroscopy machines properly.	S5
3	Values:	
3.1	Adapt the ethical profession as honesty, respect, patient care and infection control.	V1
3.2	Determine the basic radiation protection and safety measures for patients, radiographer and other health staff.	V2

2. Alignment of Learning Outcomes with Training Activities and Assessment Methods

Code	Learning Outcomes	Training Methods/Activities	Assessment Methods
1.0	Knowledge and understanding		
1.1	-	-	-
2.0	Skills		
2.1	Apply magnetic resonance imaging (MRI) and nuclear medicine (NM) procedures with or without contrast media in a skilled and safe way.	Problem solving Problem-based learning Practical Training	Case study Practical Exam OSPE
2.2	Choose appropriate techniques with proper care according to patient's condition.	Problem solving Problem-based learning	Case study Practical Exam OSPE

Code	Learning Outcomes	Training Methods/Activities	Assessment Methods
		Practical Training	
2.3	Inspect images accurately to create high quality images for MRI and NM examinations.	Problem solving Problem-based learning Practical Training	Case study Practical Exam OSPE
2.4	Analyze informed decisions about clinical practice within the accepted departmental protocols.	Problem solving Problem-based learning Practical Training	Case study Practical Exam OSPE
2.5	Take part in operating CT, US and fluoroscopy machines properly.	Problem solving Problem-based learning Practical Training	Case study Practical Exam OSPE
3.0	Values:		
3.1	Adapt the ethical profession as honesty, respect, patient care and infection control.	Collaborative learning Self-learning	Presentation
3.2	Determine the basic radiation protection and safety measures for patients, radiographer and other health staff.	Collaborative learning Self-learning	Presentation

3. Field Experience Learning Outcomes Assessment

a. Students Assessment Timetable

No.	Assessment task*	Assessment timing (Week)	Percentage of Total Assessment Score
1	Case study.	5 th	20 %
2	Presentation.	7 th	20 %
3	Practical Exam OSPE.	9 th	50 %
4	Hospital Evaluation.	10 th	10 %

*Assessment task (i.e., Practical test, oral test, presentation, group project, essay, etc.)

b. Assessment Responsibilities

No.	Category	Assessment Responsibility
1	Teaching Staff	The faculty teaching staff will evaluate the performance of the students based on direct observation, reports, logbook, activity of the student and direct feedback from the hospital staff.
2	Field Supervisor	The Field Supervisor evaluates the student's Logbook, ability to identify issues/problems, provide solutions, perseverance, dedication, ethics, time management, independence, and work relationships.
3	Others (specify)	None.

C. Field Experience Administration

1. Field Experience Locations

a. Field Experience Locations Requirements

Suggested Field Experience Locations	General Requirements*	Special Requirements**
King Abdul-Aziz Specialist Hospital.	Training letter. Student ID. Medical Uniform. Proper appearance.	None.
King Faisal Specialist Hospital.		None.
Children's Hospital at Taif.		Infection control certificate.
Al-Hada Military Hospital.		Training application Security check.
Prince Mansoor Military Hospital.		Training application Security check.
Prince Sultan Military Hospital.		Training application Security check.

*Ex: provides information technology ,equipment ,laboratories ,halls ,housing ,learning sources ,clinics etc.

**Ex: Criteria of the training institution or related to the specialization, such as: safety standards, dealing with patients in medical specialties, etc.

b. Decision-making procedures for identifying appropriate locations for field experience

- Start with a meeting with the faculty teaching staff, discussing the main objectives of the trainee rounds and putting some suggestions.
- Hospitals are chosen for capacity, availability of radiological modalities, and located within Taif city.
- Students are distributed according to the hospitals' capacity.

2. Supervisory Staff

a. Selection of Supervisory Staff

Selection Items	Field Supervisor	Teaching Staff
Qualifications	Registered radiographer, radiology technologist, or radiologist.	Master's degree or higher in a relevant specialty.
Selection Criteria	The hospital staff is elected by the radiology department within the hospital-based on <ul style="list-style-type: none"> - Experience and qualification. - Availability. 	The faculty teaching staff are elected by the department training committee based on: <ul style="list-style-type: none"> - Qualification. - Availability.

b. Qualification and Training of Supervisory Staff

(Including the procedures and activities used to qualify and train the supervisory staff on supervising operations, implementing training activities, the follow-up and evaluation of students, etc.)

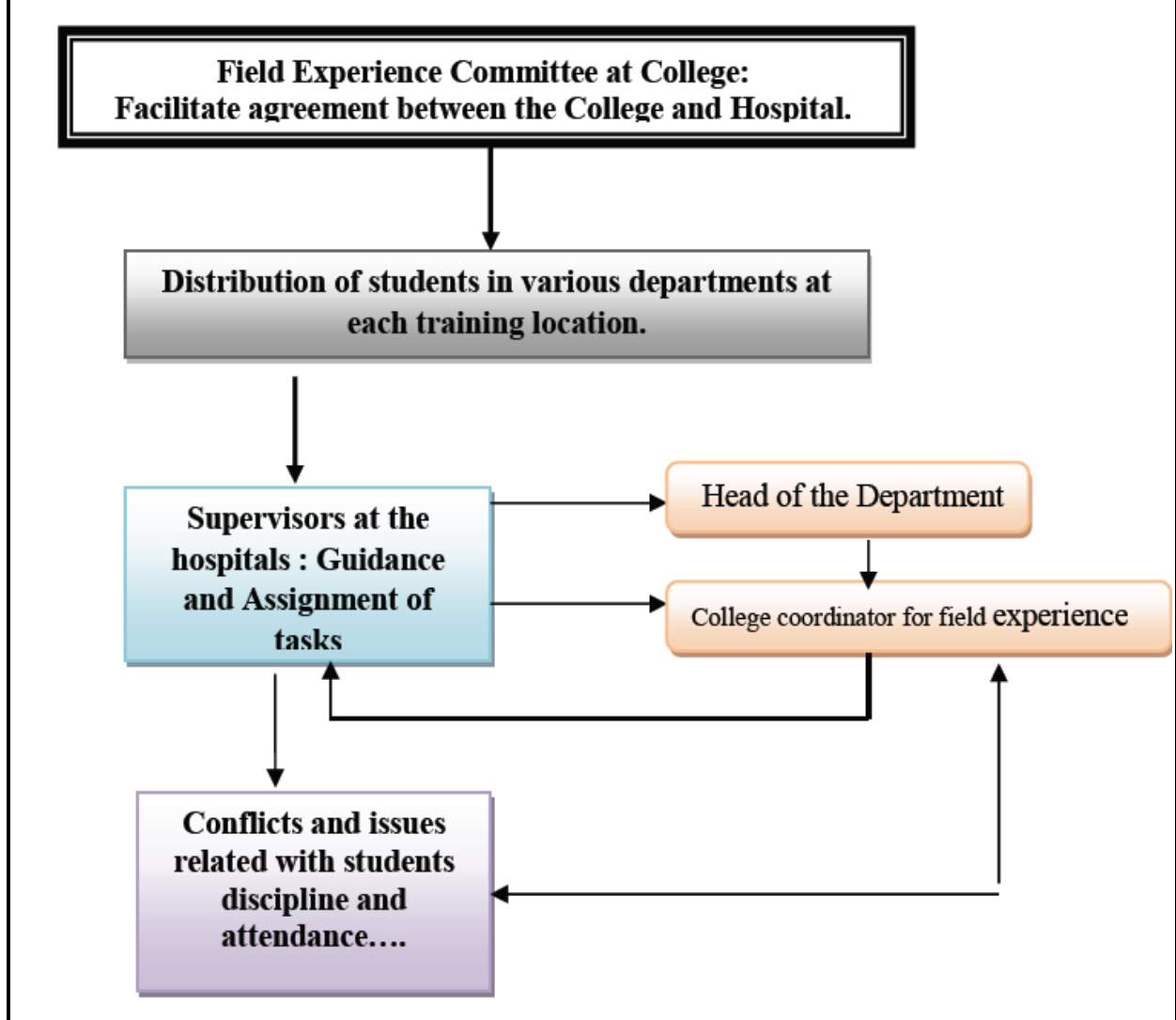
Registered radiographer, radiology technologist, or radiologist.

3. Responsibilities

a. Field Experience Flowchart for Responsibility

including units, departments, and committees responsible for field experience, as evidenced by the relations between them.

- Confidential instructor evaluation questionnaire on completion of the course.
- Student interview.
- Student feedback report to be analyzed by the course instructor and submit the results to the department head.
- External evaluators.



b. Distribution of Responsibilities for Field Experience Activities

Activity	Department or College	Teaching Staff	Student	Training Organization	Field Supervisor
Selection of a field experience site.	√			√	√
Selection of supervisory staff.				√	
Provision of the required equipment.	√	√		√	√
Provision of learning resources.	√	√			√

Activity	Department or College	Teaching Staff	Student	Training Organization	Field Supervisor
Ensuring the safety of the site.	√	√		√	√
Commuting to and from the field experience site.			√		
Provision of support and guidance.		√		√	√
Implementation of training activities (duties, reports, projects, ...etc).		√			√
Follow up on student training activities.		√		√	√
Adjusting attendance and leave.		√		√	√
Assessment of learning outcomes.		√			√
Evaluating the quality of field experience.	√	√	√	√	√
Others (specify): None.	-	-	-	-	-

4. Field Experience Implementation

a. Supervision and Follow-up Mechanism

The students will undergo training to develop their radiographic technique skills in upper and lower extremities, vertebral spine and bony thorax examinations with appropriate patient care, quality service, and safety precautions.

Supervision will be made by both the Field supervisor and Teaching Staff.

b. Student Support and Guidance Activities

Faculty members are available for individual consultation. They usually dedicate 12 hours weekly for office hours and students are encouraged to visit them for help. Appointments can also be made in person with the faculty through email or phone. Faculty provide a range of academic and course management advice. Each student has an academic adviser who offers personal, academic, psychological, and professional counseling, as well as group counseling to support the academic, behavioral, emotional, psychological, and social growth of students. Also, the Complete Training Guide booklet will be provided to the student that contains all the required info regarding the training process and assessments.

5. Safety and Risk Management

Potential Risks	Safety Actions	Risk Management Procedures
Isolation of highly infected patients.	<ul style="list-style-type: none"> - Avoid direct contact with the patient. - Avoid direct contact with contaminated areas (e.g. pressure ulcer). - Wear face mask, gloves, overhead and overshoes cover. 	<ul style="list-style-type: none"> - Enforce student's knowledge in infection control.
Radiation exposure.	<ul style="list-style-type: none"> - Always keep in shielded environment or wear shielding garment. - Keep a safe distance from the radiation source. - Minimize the exposure time as low as possible. - Apply ALARA (as low as reasonably achievable) principle. - Monitor your radiation dose regularly. 	<ul style="list-style-type: none"> - Enforce students' knowledge in radiation protection training. - Personal dosimeters.

G. Training Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Training Committee	Direct
The extent of achievement of course learning outcomes	Faculty	Direct
Quality of learning resources	Student, Faculty	Indirect
Course management and planning	Students	Indirect
Teaching and interaction with students	Students	Indirect
Effectiveness of Evaluation and exams	Students, peer review	Direct, Indirect
Safety	Teaching Staff, Field Supervisors	Direct
Training facilities/site	Students, Faculty	Direct, Indirect

Evaluation areas (e.g., Effectiveness of Training and assessment, Extent of achievement of course learning outcomes, quality of learning resources, etc.)

Evaluators (Students, Supervisory Staff, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

E. Specification Approval Data

Council / Committee	DEPARTMENT COUNCIL
Reference No.	11 TH
Date	24 TH MAY 2022

