



Course Specifications

Course Title:	Magnetic Resonance Imaging Techniques
Course Code:	374411-3
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:	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:	10 th Level/ 4 th Year
4. Pre-requisites for this course (if any):	Magnetic Resonance Imaging Physics and Instrumentation (374413-3).
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	60	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	30
3	Tutorial	-
4	Others (Library hours)	-
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description

The course introduces students to the clinical application of MRI. It will permit the student to develop the necessary skills to produce quality MRI images. Focus on MRI procedures, patient care and MRI protocols will be emphasized.

2. Course Main Objectives

The overall goal of this course is to build up knowledge and skills for students necessary to perform techniques of magnetic resonance imaging.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and understanding	
1.1	Recall anatomy, physiology and pathology of the human body.	K1
1.2	Interpret the cause and appearance of MR artifacts.	K2
1.3	Summarize MR contrast agents and describe their usage in the clinical settings.	K3

CLOs		Aligned PLOs
2	Skills:	
2.1	Choose the appropriate techniques according to the patient's condition.	S1
2.2	Identify common MR procedures.	S2
2.3	Test the patient's suitability for the diagnostic imaging.	S4
3	Values:	
3.1	Develop participation skills in teamwork effectively.	V2

C. Course Content

No	List of Topics	Contact Hours
1	Artefacts and their compensation	6
2	Flow artefacts	6
3	MR contrast agents.	6
4	1. Central Nervous System (Brain -1): a. Clinical indications b. Anatomic Location. c. Imaging Protocol. 2. Practical Demonstration for MRI Brain.	6
5	1. Central Nervous System (Brain - 2): a. Clinical indications b. Anatomic Location. c. Imaging Protocol. 2. Practical Demonstration for MRI Brain.	6
6	1. Central Nervous System (Spine and spinal cord): a. Clinical indications b. Anatomic Locations c. Imaging Protocol. 2. Practical Demonstration for MRI Spine.	6
7	1. Musculoskeletal (knee and shoulder): a. Clinical indications. b. Anatomic Locations. c. Imaging Protocol. 2. Practical Demonstration for MRI Knee and Shoulder.	6
8	Abdominal Imaging.	6
9	Vascular Imaging.	6
10	Breast Imaging.	6
Total		30

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	Recall anatomy, physiology and pathology of the human body.	Lectures, Small groups discussions	Direct: Written (Mid-term, final and practical exams).
1.2	Interpret the cause and appearance of MR artifacts.	Lectures, Small groups discussions	Direct: Written (Mid-term, final and practical exams).
1.3	Summarize MR contrast agents and describe their usage in the clinical settings.	Lectures, Small groups discussions	Direct: Written (Mid-term, final and practical exams).
2.0	Skills:		
2.1	Choose the appropriate techniques according to the patient's condition.	Lectures, Small groups discussions	Written (Mid-term, final and practical exams) presentation and discussion.
2.2	Identify common MR procedures.	Lectures, Small groups discussions	Written (Mid-term, final and practical exams) presentation and discussion.
2.3	Test the patient's suitability for the diagnostic imaging.	Lectures, Small groups discussions	Written (Mid-term, final and practical exams) presentation and discussion.
3.0	Values:		
3.1	Develop participation skills in teamwork effectively.	Group work (Collaborative learning)	Presentation and discussion.

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid-Term Exam	4 th	30%
2	Presentation	6 th	10%
3	Practical Exam	10 th	10%
4	Final Exam	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 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	<p>1. MRI in practice Catherine Westbrook, John Talbot 5th edition Wiley Blackwell ISBN: 978-1-119-39200-2</p> <p>2. Handbook of MRI Technique Catherine Westbrook 3rd edition Wiley Blackwell ISBN: 978-1405160858</p>
Essential References Materials	None.
Electronic Materials	https://radiopaedia.org
Other Learning Materials	None.

2. Facilities Required

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

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

Evaluation Areas/Issues	Evaluators	Evaluation Methods
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:	Nuclear Medicine Imaging Techniques
Course Code:	374412-3
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: 3 (2+1)
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: 10 th Level/4 th Year
4. Pre-requisites for this course (if any):
<ul style="list-style-type: none"> Nuclear Medicine Physics and Instrumentation (374322-3). Pathology (374314-4).
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	60	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	30
3	Tutorial	
4	Others (specify)	
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description
The course provides subjects that describe the principles of nuclear medicine techniques and imaging. The course also demonstrates the nuclear medicine imaging procedures.
2. Course Main Objective
The course is designed to provide student with the principles of nuclear medicine imaging technology.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and understanding	
1.1	Infer the imaging protocols for the common radioisotope procedures.	K2
1.2	Classify radiopharmaceuticals, their delivery and activity administrated.	K3
2	Skills:	

CLOs		Aligned PLOs
2.1	Identify the common radioisotope imaging procedures.	S1
2.2	Categorize radioisotope scanning findings (normal or abnormal).	S1
3	Values:	
3.1	Determine working collaboratively with patients and staff.	V2

C. Course Content

No	List of Topics	Contact Hours
1	1. Introduction to radioisotope imaging. 2. The skeletal imaging: Bone scan. Chapter 8, Pages 271- 312	6
2	The cardiovascular system: Myocardial perfusion imaging (1) Chapter 5, Pages 131 - 191	6
3	The cardiovascular system: Myocardial perfusion imaging (2) Chapter 5, Pages 131 - 191	6
4	The respiratory system: Lung perfusion scan. Chapter 6, Pages 195- 222	6
5	The respiratory system: Lung ventilation scan. Chapter 6, Pages 195- 222	6
6	The urinary system: Renal perfusion. Chapter 9, Pages 315- 328	8
7	The urinary system: Radionuclide cystography. Chapter 9, Pages 339- 341	4
8	Endocrine Imaging: a. Thyroid imaging. b. Radionuclide thyroid uptake. c. Radionuclide therapy. Chapter 4, Pages 99- 144	6
9	The hepato-biliary system: a. Liver. b. Splenic. c. Chole-scintigraphy. Chapter 7, Pages 237- 245, 249 - 261	6
10	The central nervous system: a. Conventional brain scan and Regional Cerebral Blood Flow Imaging. b. Brain PET scan. Chapter 3, Pages 71- 90	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		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.1	Infer the imaging protocols for the common radioisotope procedures.	Lectures	1. Quizzes 2. Midterm exam 3. Final exam
1.2	Classify radiopharmaceuticals, their delivery and activity administrated.	Lectures	
2.0	Skills:		
2.1	Illustrate the common radioisotope imaging procedures.	Small group discussion	Case study Practical Report
2.2	Differentiate radioisotope scanning findings (normal or abnormal).		
3.0	Values:		
3.1	Demonstrate working collaboratively with patients and staff.	Self-learning	Oral examination

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midterm examination	5 th	30 %
2	Quiz	8 th	10 %
3	Final examination	11 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. 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	Essentials of nuclear medicine imaging Fred A. Mettler Jr., Milton J. Guiberteau. 6th Edition 2012 Saunders ISBN: 978-1-4557-0104-9
Essential References Materials	Nuclear Medicine and Pet/CT: Technology and Techniques David Gilmore, Kristen M. Waterstram-Rich Mosby August 29th, 2016 ISBN: 9780323356220

Electronic Materials	<ol style="list-style-type: none"> 1. http://www.radiography.com/ 2. http://www.radiologyinfo.org/glossary/ 3. http://www.aeirs.org/resources.html 4. http://www.emory.edu/X-RAYS/Sprawls/ 5. http://www.dimag.com/
Other Learning Materials	https://www.radiologycafe.com/frcr-physics-notes/molecular-imaging/gamma-camera/

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> • Lecture room with 30 seats. • Equipment laboratory. • Hot lab laboratory. • Nuclear medicine department.
Technology Resources (AV, data show, Smart Board, software, etc.)	Data Show.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	<ul style="list-style-type: none"> • Radioactive generators. • Radioactive dose calibrators. • Radioactive detectors. • Radioactive sources. • Nuclear medicine imaging simulator.

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 Methodology
Course Code:	374324-2
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: 10 th Level/ 4 th Year
4. Pre-requisites for this course (if any): Clinical practice in Radiography (1) (374318-3).
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 (Library hours)	-
	Total	30

B. Course Objectives and Learning Outcomes

1. Course Description The research methodology course is a collection of fundamental knowledge, information and skills about how researchers select, conduct, and publish research projects.
2. Course Main Objectives: <ul style="list-style-type: none"> - Define research; explain and apply research terms; describe the research process and the principle activities and skills associated with the research process. - Describe and compare the major quantitative and qualitative research methods. - Understand the importance of research ethics and integrate research ethics into the research process. - Construct a strong research proposal that will act as the launching for the students' next semester's research project.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Describe the principles of scientific research terms, definitions, designs, steps and different reference styles.	K1
1.2	Explain key concepts of scientific research, study sample and relevance of ethics in global health research.	K3
2	Skills:	
2.1	Apply different research designs and sampling techniques.	S2
2.2	Analyze different types of samples and variables.	S3
3	Values:	
3.1	Develop a commitment to ethical standards during performing different types of scientific research as groups.	V1

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to scientific research: a. Definition and goals of scientific research. b. Types of scientific research. c. Types of Data. Chapters; 1. Pages 1-4. (Textbook-1)	3
2	Ethics in scientific research: a. Ethics in Radiology. b. Ethical approval. c. Research consent. Chapter; 6. Pages 24-25 (Textbook-1)	3
3	Scientific research steps (1): a. Observe and ask a question. b. How to make a research background. c. Formulate the hypothesis. Chapters; 2-3. Pages 5-14. (Textbook- 1)	3
4	Scientific research steps (2): a. Conduct an experiment. b. Analyze the data. c. Obtain the results. d. Interpret the results (Discussion). e. Publishing the article. Chapter; 5. Pages 19-23.(Textbook- 1) Chapter; 7. Pages 27-32. (Textbook- 1) Chapters; 8-9. Pages 33-42. (Textbook- 1)	3
5	Sampling technique and data collection (1): a. Pilot survey.	3

	<ul style="list-style-type: none"> b. Quota sampling. c. Simple Random Sample. Chapter; 12. Pages 50-52 (Textbook- 1)	
6	Sampling technique and data collection (2): <ul style="list-style-type: none"> a. Systematic Random sample. b. Stratified Random sample. c. Multistage Sample. Chapter; 12. Pages 50-52 (Textbook- 1)	3
7	Variable types: Dependent and independent variables. Chapters; 7. Pages 27-28 (Textbook- 1)	3
8	Data collection tools: <ul style="list-style-type: none"> a. Questionnaire. b. Check list. c. Other data collection methods. Chapter; 6. Pages 95-120. (Textbook- 2)	3
9	How to write a research article (manuscript): <ul style="list-style-type: none"> a. Title. b. Introduction. c. Aim of the study and objectives. d. Material and methods. e. Results. f. Discussion. g. Limitations. h. Conclusion and summary. i. Recommendations. j. References. k. Appendix. Chapter; 16. Pages 65-69. (Textbook- 1) Chapter; 14. Pages 344-359. (Textbook-2)	3
10	References: <ul style="list-style-type: none"> a. Reference and citation. b. Comparison between different styles of references. Chapter; 4. Pages 15-17. (Textbook- 1)	3
Total		30

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	Describe the principles of scientific research terms, definitions, designs, steps and different reference styles.	Lectures	Midterm exam Final exam
1.2	Explain key concepts of scientific research, study sample and relevance of ethics in global health research.	Lectures	Midterm exam Final exam
2.0	Skills:		
2.1	Apply different research designs and sampling techniques.	Small group discussion	Laboratory activity
2.2	Analyze different types of samples and variables.	Small group discussion	Laboratory activity
3.0	Values:		
3.1	Develop a commitment to ethical standards during performing different types of scientific research as groups.	Project-based learning	Presentation

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Library activity	4 th	5%
2	Midterm written exam	6 th	30%
3	Presentation	8 th	5%
4	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. 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	<p>-Introduction to clinical research for residents. Hani Tamim. 1st Edition. Chapters; 1-16. Pages; 1-103 The Saudi Commission for Health Specialties. ISBN: 978-9960-9832-9-5.</p> <p>- Research Methodology: Methods and Techniques. C. R. Kothari. 2nd Edition. Chapter; 1-10. Pages; 1-68. ISBN-13: 978-0852264775.</p>
Essential References Materials	<p>- Research Methodology: A step-by-Step guide for beginners. Ranjit Kumar. 5th Edition Chapters (section); 9-17. Pages;210-570. Los Angles SAGE. ISBN:987-1-5264-4989-4</p> <p>- The Good Research Guide: for small-scale Social Research Project. Martyn Denscombe. 4th Edition Chapters; 1-5. Pages; 1-185. ISBN-13: 978-0335241385.</p>
Electronic Materials	<p>SPSS Survival Manual, Step by step guide to data analysis using SPSS for Windows. Julie Pallant. 3rd Edition. Chapters; 1-5. Pages;1-121. Ligare Book Printer. Sydney. ISBN 0-33-520890-8.</p>
Other Learning Materials	N/A.

2. Facilities Required

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

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 (1)
Course Code:	374415-4
Program:	Bachelor in Radiological Sciences
Department:	Department of Radiological Sciences
College:	College of Applied Medical Sciences
Institution:	Taif University

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A. Field Experience Identification

1. Credit hours: 3
2. Level/year at which this course is offered: 10^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): Computerized Tomography Imaging Techniques (374317-3). Ultrasound Imaging Techniques (374323-3). Clinical Practice in Radiography (2) (374328-3).

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 CT, US and fluoroscopy 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 CT, US and fluoroscopy 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 CT, US and fluoroscopy procedures with or without contrast media in a skilled and safe way.	Problem solving Problem-based learning Practical Training	Case study Practical Exam OSPE

Code	Learning Outcomes	Training Methods/Activities	Assessment Methods
2.2	Choose appropriate techniques with proper care according to patient's condition.	Problem solving Problem-based learning Practical Training	Case study Practical Exam OSPE
2.3	Inspect images accurately to create high quality images for CT, US and fluoroscopy 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.)

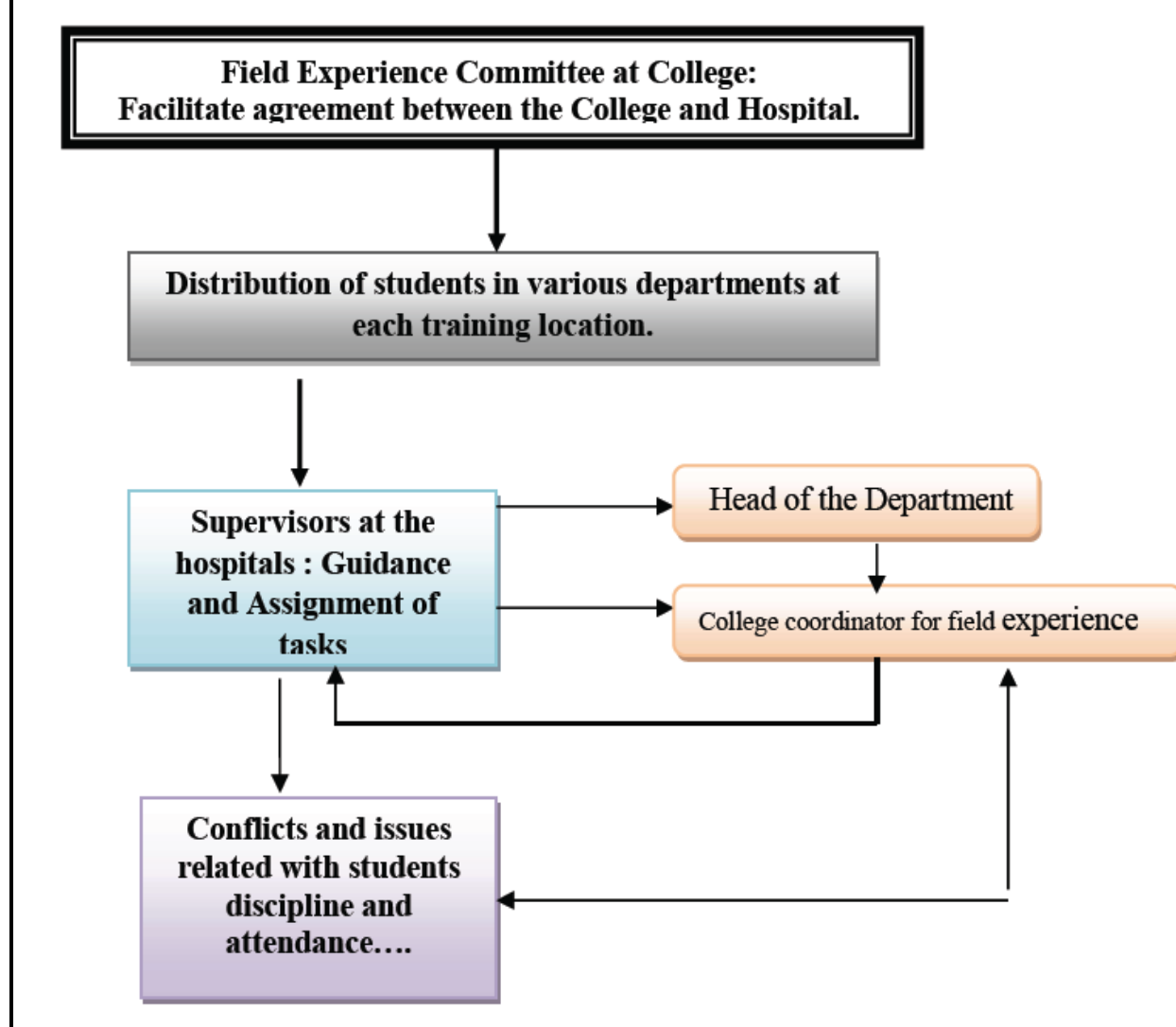
Registered radiographer, radiology technologist, or radiologist.

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.				√	

Activity	Department or College	Teaching Staff	Student	Training Organization	Field Supervisor
Provision of the required equipment.	√	√		√	√
Provision of learning resources.	√	√			√
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.

D. 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

