



Course Specifications

Course Title:	Interventional Radiology
Course Code:	374410-2
Program:	Bachelor in Radiological Sciences
Department:	Department of Radiological Sciences
College:	College of Applied Medical Sciences
Institution:	Taif University

Table of Contents

A. Course Identification	3
1. Mode of Instruction (mark all that apply)	3
2. Contact Hours (based on academic semester).....	3
B. Course Objectives and Learning Outcomes	3
1. Course Description.....	3
2. Course Main Objective.....	3
3. Course Learning Outcomes.....	4
C. Course Content	4
D. Teaching and Assessment	5
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods.....	5
2. Assessment Tasks for Students	6
E. Student Academic Counseling and Support	6
F. Learning Resources and Facilities	6
1. Learning Resources	6
2. Facilities Required.....	7
G. Course Quality Evaluation	7
H. Specification Approval Data	7

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: 12 th Level /4 th Year
4. Pre-requisites for this course (if any):
<ul style="list-style-type: none"> • Special Radiographic Techniques (374316-3). • Computerized Tomography Imaging Techniques (374317-3). • Ultrasound Imaging Techniques (374323-3).
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

<p>1. Course Description</p> <p>The course is designed to provide the student with basic knowledge of Interventional Radiology procedures. And students will learn unique and innovative treatment options available to patients in Interventional Radiology.</p>
<p>2. Course Main Objective</p> <p>By the end of the course the student should be able to:</p> <ul style="list-style-type: none"> • Explain the relationship between the materials and methods during interventional studies. • Identify the body vessels in extremities, abdomen, brain and heart, and be able to account for the anatomy and physiology of the vessels. • Explain the relationship between pathology and interventional approaches. • Explain the use of current drugs and relate these to interventional examinations. • Assist and apply an aseptic and sterile procedure in interventional examinations and treatments.

- Analyze nursing interventions and procedures in the preparation and aftercare of patients at different interventions.
- Reflect on various medical markers before and during various interventions.
- Reflect on risks involved in interventional procedures.
- Be aware with the interventional radiology procedures.
- Be aware with all related application in interventional radiology.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and understanding	
1.1	Summarize the basic information concerning interventional procedures.	K1
2	Skills:	
2.1	Choose the appropriate interventional procedures according to the patient condition.	S1
2.2	Illustrate the purpose, indication, and necessary patient preparation for each type of interventional procedures.	S4
3	Values:	
3.1	-	-

C. Course Content

No	List of Topics	Contact Hours
1	<ul style="list-style-type: none"> • Angiography. • Catheter Angiography. • MR Angiography. <p>Chapter 1 pages (153-192)</p>	3
2	<ul style="list-style-type: none"> • Angioplasty. • IVC filter. • Stenting of the Great Vessels. <p>Chapter 35 pages (954-985)/ Chapter 37 pages (1003-1019)</p>	3
3	<p>Embolization</p> <ul style="list-style-type: none"> • Catheter Embolization. • Chemoembolization. • Cryotherapy. • Detachable coil embolization. <p>Chapter 23 pages (719-733)/ Chapter 25 pages (752-769)/ Chapter 7 pages (317-339)</p>	3
4	<ul style="list-style-type: none"> • Thrombolysis. • Mechanical thrombectomy. • May-Thurner syndrome. <p>Chapter 34 pages (918-951)</p>	3
5	<ul style="list-style-type: none"> • Stent / shunt placement. • Transjugular Intrahepatic Portosystemic Shunt (TIPS). <p>Chapter 40 pages (1057-1073)</p>	3
6	<p>Tube / line insertion:</p> <ul style="list-style-type: none"> • Central venous catheters. • Nasogastric tubes. • Endotracheal tubes. • Intercostal chest drains. 	3

	<ul style="list-style-type: none"> • Cardiac Pacemaker. • Dialysis lines. • Tracheostomy Tube. Chapter 28/29/30 pages (807-855) / Chapter 31/32/33 pages (857-916)	
7	Aspiration / drainage: <ul style="list-style-type: none"> • Diagnostic aspiration. • Drainage. • Intercostal Chest Drains. Chapter 47 pages (1164-1187) / Chapter 50 pages (1231-1253)	3
8	<ul style="list-style-type: none"> • Joint injection. • Vertebroplasty. Chapter 59 pages (1445-1458)	3
9	Biopsy: <ul style="list-style-type: none"> • Needle biopsy of the lung (chest) nodules. • Breast Biopsy. Chapter 46 pages (1145-1161) / Chapter 9 pages (43-46) (Essential References)	3
10	Radiofrequency ablation: <ul style="list-style-type: none"> • Radiofrequency Ablation of Liver Tumors. • Endovenous Ablation of Varicose Veins. Chapter 24 pages (735-750) / Chapter 42 pages (1089-1102)	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	Summarize the basic information concerning interventional procedures.	Lectures	Direct: - Written exams (Midterm and final). Indirect: - Surveys.
2.0	Skills:		
2.1	Choose the appropriate interventional procedures according to the patient condition.	Small group discussion	Direct: - Case study. - Assignment (Long essays). Indirect: - Surveys.
2.2	Illustrate the purpose, indication, and necessary patient preparation for each type of interventional procedures.	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.	5 th	30%
3	Assignment (Long essays).	9 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 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	Handbook of Interventional Radiology procedures. Kandarpa K, Machan L, Durham JD. 5 th Edition Wolters Kluwer 2016 ISBN-13: 978-1496302076
Essential References Materials	Interventional Radiology: A Survival Guide Kessel D and Robertson, I 3 rd Edition Churchill Livingstone 2010 ISBN-13: 978-0702033896
Electronic Materials	Saudi Digital Library (SDL) on Taif University website (through the Electronic Services portal - academic systems services).
Other Learning Materials	<ol style="list-style-type: none"> 1. http://user.shikoku.ne.jp/tobrains/exam/Angio/Angio-e.html 2. http://www.radiologyinfo.org/glossary/ 3. http://www.radsciresearch.org 4. http://www.radiography.com/ 5. http://www.jrcert.org 6. http://www.emory.edu/X-RAYS/Sprawls/ 7. http://www.dimag.com/

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. 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:	Medical Imaging Interpretation (2)
Course Code:	374421-3
Program:	Bachelor in Radiological Sciences
Department:	Department of Radiological Sciences
College:	College of Applied Medical Sciences
Institution:	Taif University

Table of Contents

A. Course Identification	3
1. Mode of Instruction (mark all that apply)	3
2. Contact Hours (based on academic semester).....	3
B. Course Objectives and Learning Outcomes	3
1. Course Description.....	3
2. Course Main Objective.....	3
3. Course Learning Outcomes.....	4
C. Course Content	4
D. Teaching and Assessment	6
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods.....	6
2. Assessment Tasks for Students	7
E. Student Academic Counseling and Support	7
F. Learning Resources and Facilities	7
1. Learning Resources	7
2. Facilities Required.....	8
G. Course Quality Evaluation	8
H. Specification Approval Data	8

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: 12 th Level / 4 th Year	
4. Pre-requisites for this course (if any):	
<ul style="list-style-type: none"> • Ultrasound Imaging Techniques (374323-3). • Medical Imaging Interpretation (1) (374327-2). • Magnetic Resonance Imaging Techniques (374411-3). • Nuclear Medicine Imaging Techniques (374412-3). 	
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	60	100%

2. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	60
2	Laboratory/Studio	
3	Tutorial	-
4	Others (specify)	-
	Total	60

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	
1.1	Interpret medical terms for pathological conditions and diseases.	K3
2	Skills:	
2.1	Choose appropriate radiographic positioning technique to deliver best demonstration for pathologies and maximize diagnostic evidence.	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 consult the radiologist 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	The urinary system (1): (Chapter 7 , page No 224 of radiographic pathology for technologist) 1. Review normal anatomy of the urinary system. 2. Congenital and hereditary diseases: a. Number and size anomalies. b. Position anomalies of the kidney. c. Fusion anomalies of the kidney. d. Renal pelvis and ureter anomalies. e. Lower tract anomalies. f. Polycystic kidney disease. g. Medullary sponge kidney.	6
2	The urinary system (2): (Chapter 7 , page No 233 of radiographic pathology for technologist) Inflammatory diseases: a. Nephritis. b. Urinary tract infection. c. Pyelonephritis. d. Cystitis.	6
3	The urinary system (3): (Chapter 7 , page No 237 of radiographic pathology for technologist) 1. Degenerative and metabolic diseases: a. Renal Stones. b. Hydronephrosis. 2. Neoplastic diseases: a. Renal cyst. b. Renal carcinoma. c. Wilms' Tumor. d. Renal pelvis carcinoma. e. Bladder carcinoma.	6

4	<p>Female Reproductive System (1): (Chapter 10 , page No 315 of radiographic pathology for technologist)</p> <ol style="list-style-type: none"> 1. Inflammatory Diseases: <ol style="list-style-type: none"> a. Pelvic inflammatory diseases. 2. Masses and Neoplastic diseases: <ol style="list-style-type: none"> a. Uterine fibroids. b. Ovarian cystic masses. c. Uterine cancer. d. Cystadenocarcinoma. 3. Breast Disorders: <ol style="list-style-type: none"> a. Mastitis. b. Breast cancer. 	6
5	<p>Female Reproductive System (2): (Chapter 10 , page No 319 of radiographic pathology for technologist)</p> <ol style="list-style-type: none"> 1. Disorders during pregnancy: <ol style="list-style-type: none"> a. Ectopic pregnancy. b. Hydatidiform mole. <p>Male Reproductive System: (Chapter 10 , page No 328 of radiographic pathology for technologist)</p> <ol style="list-style-type: none"> 2. Neoplastic disease. <ol style="list-style-type: none"> a. Prostatic hyperplasia. b. Carcinoma of the prostate. 	6
6	<p>Cardiovascular system (1): (Chapter 4 , page No 112 of radiographic pathology for technologist)</p> <ol style="list-style-type: none"> 1. Congenital and hereditary diseases: <ol style="list-style-type: none"> a. Patent ductus arteriosus. b. Coarctation of the aorta. c. Septal defects. d. Tetralogy of Fallot. e. Valvular diseases. 2. Congestive Heart failure: <ol style="list-style-type: none"> a. Left-side failure. b. Right-side failure. 	6
7	<p>Cardiovascular system (2): (Chapter 4 , page No 121 of radiographic pathology for technologist)</p> <ol style="list-style-type: none"> 1. Degenerative diseases: <ol style="list-style-type: none"> a. Atherosclerosis. b. Coronary artery disease. c. Myocardial infarction. d. Ane. 	6
8	<p>Haemopoietic system: (Chapter 9 , page No 298 of radiographic pathology for technologist)</p> <ol style="list-style-type: none"> 1. Acquired Immune Deficiency Syndrome. 2. Neoplastic diseases: <ol style="list-style-type: none"> a. Multiple myeloma. 	6

	<ul style="list-style-type: none"> b. Leukemia. c. Non-Hodgkin's lymphoma. d. Hodgkin's disease. 	
9	<p>Central Nervous system (1): (Chapter 8 , page No 261 of radiographic pathology for technologist)</p> <ul style="list-style-type: none"> 1. Congenital and hereditary diseases: <ul style="list-style-type: none"> a. Meningomyelocele. b. Hydrocephalus. 2. Inflammatory diseases: <ul style="list-style-type: none"> a. Meningitis. b. Encephalitis. c. Brain abscess. 	6
10	<p>Central Nervous system (2): (Chapter 8 , page No 268 of radiographic pathology for technologist)</p> <ul style="list-style-type: none"> 1. Degenerative Diseases: 2. Degenerative risk diseases and herniated: <ul style="list-style-type: none"> a. Cervical spondylosis. b. Multiple sclerosis. 3. Vascular diseases: <ul style="list-style-type: none"> a. Cerebrovascular accidents. b. Ischemic strokes. c. Hemorrhagic strokes. 4. Neoplastic diseases: <ul style="list-style-type: none"> a. Gliomas. b. Medulloblastoma. c. Meningioma. d. Pituitary adenoma. 	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	Interpret medical terms for pathological conditions and diseases.	Lectures	Direct: - Midterm exam - Final exam Indirect: - Survey
2.0	Skills:		
2.1	Choose appropriate radiographic positioning technique to deliver best demonstration for pathologies and maximize diagnostic evidence.	Small group discussion	Direct: - Assignments Indirect: - Survey
2.2	Analyze radiographic appearance of common pathological conditions of		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	body organs and human systems.		
3.0	Values:		
3.1	Evaluate the pathological condition and consult the radiologist further diagnostic measures.	Self-learning	Direct: - Oral 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 exam.	5 th	30%
2	Presentation.	9 th	10%
3	Assignment (essay).	10 th	10%
4	Final exam.	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 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
Essential References Materials	1. Workbook for Comprehensive Radiographic Pathology. Eisenberg RL, Johnson NM. 4th ed. Mosby ISBN: 0323042198 Radiographic Pathology: Workbook. Linn-Watson T. 2 nd edition WB Saunders

	ISBN: 0721641695.
Electronic Materials	<ol style="list-style-type: none"> 1. http://www.arrrt.org 2. https://www.asrt.org/asrt.htm 3. http://www.auntminnie.com 4. http://www.air.asn.au 5. http://user.shikoku.ne.jp/tobrains/exam/Angio/Angio-e.html 6. http://chorus.rad.mcw.edu/ 7. http://www.emory.edu/X-RAYS/Sprawls/
Other Learning Materials	Video.

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.)	Blackboard, 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
Effectives of evaluation and exams	Students, Peer reviewer	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:	Neuroscience and Neuroimaging
Course Code:	374420-2
Program:	Bachelor in Radiological Sciences
Department:	Department of Radiological Sciences
College:	College of Applied Medical Sciences
Institution:	Taif University

Table of Contents

A. Course Identification	3
6. Mode of Instruction (mark all that apply)	3
B. Course Objectives and Learning Outcomes	3
1. Course Description.....	3
2. Course Main Objective.....	3
3. Course Learning Outcomes	3
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	4
E. Student Academic Counseling and Support	5
F. Learning Resources and Facilities	5
1. Learning Resources	5
2. Facilities Required.....	5
G. Course Quality Evaluation	6
H. Specification Approval Data	6

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:	12 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)
5. Co-requisites for this course (if any):	None

6. 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	-	-

7. 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		
The course is designed to provide the student with basic knowledge of clinical neuroscience and neuroimaging.		
2. Course Main Objective		
By the end if the course the student should:		
a) Be familiar with the neuroanatomy and neurophysiology.		
b) Be familiar with the neuroimaging techniques.		
c) Be familiar with the uses of neuroimaging in neuroscience.		
3. Course Learning Outcomes		
	CLOs	Aligned PLOs
1	Knowledge and Understanding	
1.1	Demonstrate advanced knowledge of neuroanatomy and neurophysiology.	K1

CLOs		Aligned PLOs
1.2	Demonstrate advanced knowledge of neuroimaging methods and their application to the investigation of human brain function.	K2
2	Skills :	
3	Values:	

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Neuroscience	3
2	Functional Neuroanatomy (Textbook 1, Chapter 1 and 2)	3
3	Synaptic transmission and electrical signaling (Textbook 1, Chapter 5 and 6)	3
4	Neuroimaging techniques –EEG (Textbook 2, all chapters)	3
5	Neuroimaging techniques – fMRI ((Textbook 3, all chapters)	3
6	Neuroimaging techniques – PET (All pages of paper 4)	3
7	Neuroimaging techniques – MRS (all pages of paper 5)	3
8	Neuroimaging techniques – Diffusion Imaging (all pages of paper 6)	3
9	Topics in Neuroscience-1 (no reference)	3
10	Topics in Neuroscience-2 (no reference)	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	Demonstrate advanced knowledge of neuroanatomy and neurophysiology.	Lectures	Quizzes, mid and final Exams.
1.2	Demonstrate advanced knowledge of neuroimaging methods and their application to the investigation of human brain function.	Lectures	Quizzes, mid and final Exams.
2.0	Skills		
3.0	Values		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Final Examination	10 th	50
2	Mid-term Examination	6 th	30
3	Quizzes	9 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	1. Clinical Neuroscience by Paul Johns (Chapter 1,2, 5 and 6) 2014 Elsevier Ltd. ISBN 978-0-443-10321-6
Essential References Materials	2. EEG – fMRI Physiological Basis, Technique, and Applications (All chapters). 3. Handbook of Functional MRI Data Analysis (All chapters) 4. Nasrallah I, Dubroff J. An overview of PET neuroimaging. Semin Nucl Med 2013;43:449–61. https://doi.org/10.1053/j.semnuclmed.2013.06.003 . 5. Tognarelli JM, Dawood M, Shariff MIF, Grover VPB, Crossey MME, Cox IJ, et al. Magnetic Resonance Spectroscopy: Principles and Techniques: Lessons for Clinicians. J Clin Exp Hepatol 2015;5:320–8. https://doi.org/10.1016/j.jceh.2015.10.006 . 6. Helenius J, Soenne L, Perkiö J et-al. Diffusion-weighted MR imaging in normal human brains in various age groups. AJNR Am J Neuroradiol. 2002;23 (2): 194-9.
Electronic Materials	https://mrimaster.com
Other Learning Materials	Blackboard

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Class room with 30 seat
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)	video

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:	Radiotherapy Techniques
Course Code:	374418-2
Program:	Bachelor in Radiological Sciences
Department:	Department of Radiological Sciences
College:	College of Applied Medical Sciences
Institution:	Taif University

Table of Contents

A. Course Identification	3
1. Mode of Instruction (mark all that apply)	3
2. Contact Hours (based on academic semester).....	3
B. Course Objectives and Learning Outcomes	3
1. Course Description	3
2. Course Main Objective.....	3
3. Course Learning Outcomes	4
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:	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:	12 th Level / 4 th Year
4. Pre-requisites for this course (if any):	Basics of Radiotherapy (374329-2).
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

<p>1. Course Description</p> <p>The course prepares students to apply different radiation therapy modalities in treatment of different tumors through study of techniques used for simulation and treatment delivery, with attention given to technical details aimed at optimizing the dose delivery planned during simulation and accomplished during treatment.</p>
<p>2. Course Main Objective</p> <p>The course is designed to enable the student to:</p> <ol style="list-style-type: none"> 1. Recognize the principles of clinical radiation therapy. 2. Applying different radiotherapy treatment techniques using different radiotherapy modalities for treatment of tumors. 3. Identify the healthy tissue tolerances and the possible side effects of radiotherapy treatment.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and understanding	
1.1	Illustrate the principles of care and safety for clinical external and internal radiotherapy treatments.	K3
2	Skills:	
2.1	Choose appropriate radiotherapy techniques, planning, immobilization, localization, and treatment approaches.	S1
2.2	Analyze possible side effects of radiotherapy treatment, healthy tissue tolerances, and the psychological problems associated with a malignancy.	S2
3	Values:	
3.1	Develop a commitment of professional standards including patient preparation and gathering adequate data necessary for diagnosis to be performed.	V1

C. Course Content

No	List of Topics	Contact Hours
1	Introduction and skin cancer. (Chapter 20, page No 317-339 Textbook of Radiotherapy)	3
2	Head and neck cancer. (Chapter 21, page No 317-339 Textbook of Radiotherapy)	3
3	Nasopharynx cancer. (Chapter 22, page No 341-355 Textbook of Radiotherapy)	3
4	Gastrointestinal cancer. (Chapter 24, page No 357-384 Textbook of Radiotherapy)	3
5	Breast cancer. (Chapter 26, page No 431-465 Textbook of Radiotherapy)	3
6	Gynaecological cancer. (Chapter 27, page No 467-477 Textbook of Radiotherapy)	3
7	Carcinoma of cervix. (Chapter 27, page No 478-483 Textbook of Radiotherapy)	3
8	Prostate cancer. (Chapter 28, page No 493-499 Textbook of Radiotherapy)	3
9	Lymphoma. (Chapter 29, page No 511-527 Textbook of Radiotherapy)	3
10	Pediatric oncology. (Chapter 33, page No 585-600 Textbook of Radiotherapy)	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	Illustrate the principles of care and safety for clinical external and internal radiotherapy treatments.	Lectures	Direct: - Quizzes, midterm and final exams.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.0	Skills:		
2.1	Choose appropriate radiotherapy techniques, planning, immobilization, localization, and treatment approaches.	Small group discussion	Direct: - Assignments. Indirect: - Survey.
2.1	Analyze possible side effects of radiotherapy treatment, healthy tissue tolerances, and the psychological problems associated with a malignancy.	Small group discussion	Direct: - Assignments. Indirect: - Survey.
3.0	Values:		
-	-	-	-

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 and Quizzes	8 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	Textbook of Radiotherapy Walter and Miller's Paul Symonds, Charles Deehan, John A. Mills 7 th Edition Elsevier ISBN: 978 0 443 07486 8
Essential References Materials	Principles and Practice of Radiation Oncology Perez & Brady's 7 th Edition Wolters Kluwer ISBN: 9781496386823 Practical Radiotherapy Planning Ann Barrett and Jane Dobbs Hodder Arnold

	ISBN: 978 034 0927731
Electronic Materials	https://apps.tu.edu.sa/sdl/default.aspx
Other Learning Materials	Video

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

