

**مقارنة ما يقدمه البرنامج من نتائج تعليمية مستهدفة مع المعايير المرجعية لبرنامج
الدكتوراه في الأشعة التشخيصية**

أ - المعرفة والفهم:

المقررات التي تحقق المعايير الأكاديمية للبرنامج	ILOs مخرجات التعلم المستهدفة	(ARS) Benchmark المعايير الأكاديمية لجامعة	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا
-Physics -Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	A1 A3 A4 A6 A7 A8	A1. Describe the physics and technical principles of the different imaging modalities. A.3 Demonstrate the anatomy of the different parts of the body in the different imaging modalities. A4. Classify and describe the etiology, pathogenesis and clinical features of the different pathological diseases that affect the different body regions and correlate them with their radiologic appearances. A6. List the interventional radiologic procedures in different body systems: biliary and vascular embolization procedures. A7. Name the suitable interventional instruments (catheters and cannulas) and embolizing material. -Radiologic approach to emergency medicine and life threatening illnesses; non invasive and invasive intervention and pre and postoperative follow up.	1-The theories, concepts and modern knowledge in the field of specialization and other related field
- Interventional radiology	A2 A10	Identify the recent technical	2. The basics,

<ul style="list-style-type: none"> -Physics -Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging 	A13	<p>innovations in different imaging modalities and explain how to apply them to reach a final diagnosis.</p> <p>Review how to conduct efficiently and independently the assigned research issue.</p> <p>Identify the national code of ethics, medico-legal aspects, malpractice and common medical mistakes.</p>	methodologies, ethics of scientific research and its versatile tools
<ul style="list-style-type: none"> Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging 	A11 A12 A13	<p>Identify radiation safety and protection measures.</p> <p>Explain the value of enhancing patient safety & standardization of CT contrast media practice.</p> <p>Identify the national code of ethics, medico-legal aspects, malpractice and common medical mistakes.</p>	3. The moral and legalethics of the professional practice in the area of specialization.
<ul style="list-style-type: none"> -Interventional radiology - Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging 	A5 A6 A7 A9	<p>Differentiate between the appearances of the pathological conditions on the different imaging modalities and describe them efficiently in the case reports by all means: written oral and radiologic.</p> <p>List the interventional radiologic procedures in different body systems: biliary and vascular embolization procedures.</p> <p>Name the suitable interventional instruments (catheters and cannulas) and embolizing material.</p>	The concepts and principles of quality of the professional practice in the area of specialization

		Participate in public health services and screening programs e.g. mammography for breast cancer screening.	
-Interventional radiology -Physics - Breast imaging - pediatric Imaging	A9 A11 A12	Participate in public health services and screening programs e.g. mammography for breast cancer screening. Identify radiation safety and protection measures. Explain the value of enhancing patient safety & standardization of CT contrast media practice.	The knowledge on the effects of professional practice on the environment and ways of development and maintenance of the environment

ب - القدرات الذهنية :

المقررات التي تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا
-Interventional radiology -Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	B1 B2	Integrate clinical information with radiological interpretation to reach the appropriate diagnosis/ differential diagnosis. Construct an algorithmic approach to any organ system pathology and follow it step by step ending with sonographic/CT guided biopsy taking and pathologic assessment.	Analyze and evaluate of information in the field of specialization and make full use of such information to solve problems
-Interventional	B2	Construct an algorithmic	2) Solve specific problems

radiology -Physics -Neuroradiology -Radiology of the head & neck - Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	B6	approach to any organ system pathology and follow it step by step ending with sonographic/CT guided biopsy taking and pathologic assessment. Assemble available human and equipment resources in the field of study to achieve the search goals in a given time scale.	on the basis of limited and contradictory information.
-Interventional radiology -Neuroradiology -Radiology of the head & neck - Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	B5 B6	B5. Enhance leadership capabilities required for conducting a teamwork aim to achieve a certain research subject. B6. Assemble available human and equipment resources in the field of study to achieve the search goals in a given time scale.	. 3) Carry out a research studies to add new information to the knowledge
Interventional radiology -Neuroradiology -Radiology of the head & neck - Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	B5 B6	B5. Enhance leadership capabilities required for conducting a teamwork aim to achieve a certain research subject. B6. Assemble available human and equipment resources in the field of study to achieve the search goals in a given time scale.	Write scientific papers
	B3 B7	B3. Design the initial course of management for	Assess and analyze risks in the field

		critical emergencies and traumatized cases. B7. Express ideas and scientific arguments in case reporting and problem solving debates.	of specialization
<ul style="list-style-type: none"> -Interventional radiology -Physics -Neuroradiology -Radiology of the head & neck <ul style="list-style-type: none"> -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging 	B2 B4 B7	<p>Construct an algorithmic approach to any organ system pathology and follow it step by step ending with sonographic/CT guided biopsy taking and pathologic assessment.</p> <p>Cooperate with the referring physician by all means to reach the proper treatment decision for the patient.</p> <p>Express ideas and scientific arguments in case reporting and problem solving debates.</p>	6)Plan to improve performance in the field of specialization
<ul style="list-style-type: none"> -Physics -Neuroradiology -Radiology of the head & neck <ul style="list-style-type: none"> -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging 	B1 B4	<p>Integrate clinical information with radiological interpretation to reach the appropriate diagnosis/ differential diagnosis.</p> <p>Cooperate with the referring physician by all means to reach the proper treatment decision for the patient.</p>	7)Make good decisions in different Professional aspects
<ul style="list-style-type: none"> -Interventional radiology -Physics -Neuroradiology 	B5 B6 B7	Enhance leadership capabilities required for	8)Have innovation/creativity.

-neuroradiology Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging		conducting a teamwork aim to achieve a certain research subject. Assemble available human and equipment resources in the field of study to achieve the search goals in a given time scale. Express ideas and scientific arguments in case reporting and problem solving debates.	
-neuroradiology - Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	B1 B2	B1. Integrate clinical information with radiological interpretation to reach the appropriate diagnosis/ differential diagnosis. B2. Construct an algorithmic approach to any organ system pathology and follow it step by step ending with sonographic/CT guided biopsy taking and pathologic assessment.	9)Discuss and negotiate in high level of confidence based upon proofs and evidences.

ج - المهارات العملية:

المقررات التي تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا
-Interventional radiology -Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart	C2 C3 C6	Use the contrast media and the isotopes in the optimal way regarding the dose and the time. Provide the maximum	1)professional skills specialization

<ul style="list-style-type: none"> - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging 		<p>protective measures to avoid the risks of radiation on the patients, workers and visitors.</p> <p>Recognize limitations in knowledge and equipment and refer patients to an appropriately equipped facility.</p>	
<ul style="list-style-type: none"> -Neuroradiology -Radiology of the head & neck <ul style="list-style-type: none"> -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging 	C1	Use of the technical refinements in each imaging modality in order to establish the diagnosis with the highest accuracy and in the shortest time.	2)reports
<ul style="list-style-type: none"> -Interventional radiology -Physics -Neuroradiology -Radiology of the head & neck <ul style="list-style-type: none"> -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging 	C2 C3	<p>Use the contrast media and the isotopes in the optimal way regarding the dose and the time.</p> <p>Provide the maximum protective measures to avoid the risks of radiation on the patients, workers and visitors.</p>	3) TOOLS SPECIALIZATION
<ul style="list-style-type: none"> physics interventional radiology 	C1 C2	<p>Use of the technical refinements in each imaging modality in order to establish the diagnosis with the highest accuracy and in the shortest time.</p> <p>C2. Use the contrast media and the isotopes in the optimal way regarding the dose and the time.</p>	4)technological professional practice

-Interventional radiology -Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	C5 C6 C7	Cooperate with colleagues, various health and social care professionals. C6. Recognize limitations in knowledge and equipment and refer patients to an appropriately equipped facility. C7. Perform the essential basic radiologic interventional procedures e.g US/CT guided biopsies.	5) practice performance
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د- مهارات الاتصال:

المقررات التي تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا
-Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	D2 D3	Retrieve, manage and manipulate information by all means, including electronic means to regularly updated with the recent technical innovations. Present information clearly in the form of written radiology reports, electronic and oral forms.	Communicate effectively in different aspects
-Interventional radiology -Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	D1 D2	Use the different computer programs in the different units of the diagnostic radiology department and communicate efficiently with medical staff of other departments. D2. Retrieve, manage and manipulate information	2) Demonstrate efficient IT capabilities in such a way that serves in the development of the professional practice

		by all means, including electronic means to regularly updated with the recent technical innovations.	
-Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	D4	D4. Attend interactive case study sessions and express ideas and effective arguments about debatable cases.	3)Manage the scientific meetings and manage time.
- Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	D6	Analyze and use numerical data (including the use of simple statistical methods) to assess the results of a number of case studies and assess the efficiency of a certain imaging modality in the radiologic characterization of a certain organ disease.	4)Adopt self-assessment and Adopt life-long learning.
- Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging	D2	Retrieve, manage and manipulate information by all means, including electronic means to regularly updated with the recent technical innovations.	5)Use different resources for information and knowledge
- Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology	D5.	Work efficiently within a team work to reach the goal of a research.	6)Collaborate effectively within multidisciplinary team and lead team works

<ul style="list-style-type: none"> - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging 			
<ul style="list-style-type: none"> -Neuroradiology -Radiology of the head & neck -Radiology of the chest & heart - musculo skeletal Radiology - gastrointestinal Radiology - vascular imaging - Breast imaging - pediatric Imaging 	D4.	Attend interactive case study sessions and express ideas and effective arguments about debatable cases.	7)Demonstrate a high level of competence in the management of time and scientific meetings
<ul style="list-style-type: none"> -Interventional radiology -Physics 	D1	Use the different computer programs in the different units of the diagnostic radiology department and communicate efficiently with medical staff of other departments.	1- Teaching and evaluation skills as senior staff.