PROGRAMME SPECIFICATION

(Master Degree in Diagnostic Radiology)

Faculty of Medicine- Mansoura University

(A) Administrative information

(1) Programme Title & Code	Master Degree in Diagnostic Radiology
Final award/degree	Msc
(2) Department (s)	Diagnostic radiology department
(3) Coordinator	D. Eman Abd El Salam D. Nehal ElBatouty
(4) External evaluator (s)	Prof. Dr. Adel Abd Al-Latef Sannor Faculty of Medicine, Zagazig University
(5) Date of approval by the Department`s council	28/6/2016
(6) Date of last approval of programme specification by Faculty council	9/8/2016

(B) Professional information

(1) Programme Aims:

The broad aims of the Program are as follows:

- Knowledge and understanding of all the essential basic information about imaging and interventional techniques in the different body organs and systems.
- Post graduates must acquire all competencies which enable them to employ different imaging modalities aiming to reach the proper diagnosis/differential diagnosis for the referred cases.
- Professional skills should be acquired throughout the course & implemented in their lifelong careers for continuous self education and communication skill development.

(2) Intended Learning Outcomes (ILOs):

On successful completion of the program, the candidate will be able to:

A- Knowledge and Understanding:

A1. Define the basic physics of the different imaging modalities.
A2. Describe the radiological anatomy of the different parts of the body in the different imaging modalities.
A3. Demonstrate and express the radiologic appearance of different pathological diseases that affect the different body regions.
A4. Recognize the Differential diagnosis between the various pathological conditions on the different imaging modalities.
A5. Identify Clinical correlation between the radiologic appearance and the etiology, pathogenesis and clinical features of common and life threatening illnesses.
A6. Explain the main developmental changes in humans and recognize the various pediatric congenital anomalies and developmental abnormalities in the body and major organ systems, presenting throughout the age spectrum.
A7. Identify and recognize Radiologic approach to emergency medicine and life threatening illnesses; non invasive and invasive intervention and pre and postoperative follow up.
A8. Identify the role of radiology in public health services and screening programs e.g. mammography for breast cancer screening

A9. Describe the different interventional radiological modalities: angiography, cholangiography, interventional procedures e.g. embolization.
A10. Define and be Aware of radiation safety and protection measures.
A.11. Describe best methods and protocols for enhancing patient safety & standardization of CT contrast media practice.
A12. Be aware of and recognize the national code of ethics, medico-legal aspects, malpractice and common medical mistakes.
A13. Study the basic physical principles of the different isotope modalities and the biochemical criteria of the isotope materials used.
A14. Understand the applications of isotope in different organs and their role in the differential diagnosis and early detection of metastasis.
A15. Discuss the risks and hazards of isotope material.

B- Intellectual skills:

B1. Integrate basic physical, technical and radiological principles with clinical history and data offered by the referring clinician to gather a full picture of the case available.
B2. Reason deductively in solving clinical problems:

a. Pick up the abnormality in the film
b. Interpret the available data into a full radiologic report
c. Analyze and evaluate the results to exclude or suggest the necessity of further evaluation.
d. Decide the final diagnosis or differential diagnosis of the case.
e. Discriminate between technical errors, normal anatomical variants and pathology.
f. Suggest the imaging modality of choice best for evaluating the specific organ of interest.

B3. Use personal judgment for critical and analytical problem solving and seek out information.
B4. Recognize and cope with uncertainty that is unavoidable in medical practice by accepting and reacting with uncertain situation through proper counseling, consultation and referral.
B5. Assemble advanced imaging modalities, scientific methods, regular conference attendance and computer & internet for research purposes.

C-Professional/practical skills:

C1. Apply the technical refinements in each imaging modality in order to establish the diagnosis with the highest accuracy and in the shortest time.
C2. . Apply the contrast media and the isotopes in the optimal way regarding the dose and the time.
C3. Provide the maximum protective measures to avoid the risks of radiation on the patients, workers and visitors.

C4. Provide the first aid measures for patients who develop hypersensitivity reaction or any life-threatening clinical attack while performing the examination
C5. Develop communication skills 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
C8: Balance the benefits and hazards of isotope material and decide when to refer the patient to isotope study.
C.9. Enhance patient safety & standardization of isotope contrast media in practice.

D- Communication & Transferable skills

D1. 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 by all means, including electronic means to regularly updated with the recent technical innovations.
D3. Present information clearly in the form of written radiology reports, electronic and oral forms.
D4. Attend interactive case study sessions and express ideas and effective arguments about debatable cases.
D5. Work efficiently within a team work to reach the goal of a research.
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.
D7. Knowing the basic principles of the imaging modalities utilized in a certain research, the candidate could provide valuable contributions to the teamwork and collect valuable data.

(3) Academic standards:

Academic standards for the program are attached in Appendix I. in which **NARS** issued by the National Authority for Quality Assurance & Accreditation in Education are used. External reference points/Benchmarks are attached in Appendix II.

3. a- External reference points/benchmarks are selected to confirm the appropriateness of the objectives, and ILOs.

We follow ILOs recommended ARS of Mansoura faculty of medicine.

3. b- Comparison of the specification to the selected external reference/ benchmark:

Our department is estimated to cover 85% of ILOs.

Methods:

We are developing or methodology to fully cover learning requirements, e.g. E-learning methods, researches assignment and upgrading our teaching tools and equipment.

1. PPT lectures.
2. E learning methods.
3. Self learning, problem solving and case presentation.
4. Research assignment.

4) Curriculum structure and contents:

4.a- Duration of the program: 36 months.

4.b- program structure:

-First part 5 credit hours

-Second part: 18 credit hours

-Thesis: 6 credit hours

- Clinical training program 14 credit hours
- Scientific activities 2 credit hours

Program courses:

First part

Course Title	Course Code	NO. of hours per week					Total teaching hours	Credit hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total			
		Lectures	seminars						
Radiodiagnostic Technology	RAD 529 RT	0.5		0.5			37.5	1.75	
radiological Anatomy	RAD 529 RA	1				1	26.25	1.75	
Isotopes and Radiobiology	RAD 529 IRB	1				1	7.5	0.5	
Radiologica Physics	RAD0529 RP	1				1	7.5	0.5	
Pathology related diology	RAD 505	1				1	7.5	0.5	
							86.25	5	

Second part

Course Title	Course Code	NO. of hours per week					Total teaching hours	Credit hours	Programme ILOs covered (REFERRING TO MATRIX)
		Theoretical		Laboratory /practical	Field	Total			
		ectures	seminars						
SECOND SEMESRER									
Radiology of the chest	RAD 529 Td	4		2			30	1.5	
Radiology of the heart	RAD 529 Te	4		2			22.5	1	
Musculo- skeletal Radiology	RAD 529 Tc	4		2			45	2	
vascular imaging	RAD 529 Ti	4							

				2			22.5	1	
THIRD SEMESTER									
radiology of the head & neck	RAD 529 Tb	5		2			45	1.5	
Neuroradiology	RAD 529 Ta	5		2			52.5	2	
Breast imaging	RAD 529 Tj	2		2			22.5	1	
Elective course; -Interventional radiology of hepatobiliary system. -Renal and liver transplant radiology	RAD 529 HB RAD 529 RL	15					15	1	
Fourth SEMESTER									
Gastrointestinal Radiology	RAD 529 Tf	7		2			52.5	2	
Genital system Radiology	RAD 529 Th	4		2			22.5	1	
Urinary system radiology	RAD 529 Tg						22.5	1	
Pediatric Radiology	RAD 529 Tk	4		2			45	2	
							397.5	18	

Program– course ILOs Matrix

D. Programme &Courses Outcome Map

Course	Programm ILOs																																
	A															B					C									D				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7
adiodiagnostic Technology	●								●	●	●	●								●	●	●				●	●				●						
radiological Anatomy		●				●											●																			
Isotopes and Radiobiology													●	●	●		●																			
Radiological Physics	●									●						●				●																
Pathology ed to radiology			●	●	●																															
Neuroradiology			●	●	●		●					●				●	●	●	●	●					●	●				●	●	●	●	●	●	
Radiology of the head & neck			●	●	●		●					●				●	●	●	●	●					●	●				●	●	●	●	●	●	
Radiology of the chest			●	●	●		●					●				●	●	●	●	●					●	●				●	●	●	●	●	●	
Radiology of the heart			●	●	●		●					●				●	●	●	●	●					●	●				●	●	●	●	●	●	
Musculo skeleta Radiology			●	●	●		●					●				●	●	●	●	●					●	●				●	●	●	●	●	●	
Gastrointestinal Radiology			●	●	●		●					●				●	●	●	●	●					●	●	●			●	●	●	●	●	●	
Genital system radiology			●	●	●		●					●				●	●	●	●	●					●	●	●			●	●	●	●	●	●	
Urinary system radiology			●	●	●		●					●				●	●	●	●	●					●	●	●			●	●	●	●	●	●	
Vascular imaging			●	●	●		●					●				●	●	●	●	●					●	●				●	●	●	●	●	●	
Breast imaging			●	●	●			●				●				●	●	●	●	●					●	●				●	●	●	●	●	●	

Pediatric imaging			●	●	●	●						●				●	●	●	●	●					●	●	●			●	●	●	●	●	●	
Interventional Radiology of hepatobiliary system							●		●	●	●	●				●	●	●	●	●																	
Renal and liver transplant radiology imaging			●	●	●		●					●				●	●	●	●	●																	

D. Aims in correlation with programm ILOs

Aims	Programm ILOs																																		
	A															B					C									D						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7
Knowledge d derstanding all the ential basic ormation ut imaging d erventional hniques in different dy organs and tems.	●	●	●	●		●			●	●	●	●	●		●		●			●															
Employ ferent aging dalities ning to reach proper gnosis/differe al diagnosis the referred es.	●						●	●	●				●	●			●					●			●	●	●	●		●	●				
Professional lls should be																							●				●	●	●		●	●		●	●

quired oughout the urse & plemented in ir lifelong reers for ntinuous self ucation and mmunication ll velopment.	

C. Methods in correlation with programed ILOs:

1. PPT lectures are intended to fulfill **knowledge** of basic physical and technical principals of imaging modalities, anatomy, pathology and intervention procedures. (A)
2. E learning methods to fully cover required basic **knowledge**, expand **intellectual skills** & and developed efficient **professional /practical skills**. (A, B & C).
3. Self learning, problem solving and case presentation to construct clear **algorithmic approach** for radiological interpretation and dealing critical emergencies. (B & C).
4. Research assignment to encourage team work integration and upgrading applications of recent **technical innovations** (C & D).

(4) Program admission requirements:

- **General requirements:**

  By laws regulating post graduate Studies.

- **Specific requirements (if applicable):**

  N/A

(5) Regulations for progression and program completion:

(all documented in the log book)

First part :

- **Minimally accepted attendance is 70%**
- **Passing MCQ exam.**

Second part

1- Attendance Criteria:

- Minimally accepted attendance in each course is 70%.
- Passing MCQ exam after each semester

2-Scientific activities

-for attending

- Conferences
- thesis discussions
- meetings

3-Practical work:

- Rotations in radiology dpt. and radiology units in different hospitals according to the schedule determined by the supervisors.(at least 70% of the daily schedule)

نظام الامتحان وتوزيع الدرجات (ماجستير الأشعة التشخيصية)

امتحان الجزء الأول

المقرر	الاختبار	الدرجة					إجمالي
		تحريري	MCQ	شفهي	إكلينيكي	عملي	
تكنولوجيا الفحص بالإشعة	إختبار تحريري مدته ثلاث ساعات + اختبار شفهي + اختبار عملي	١٩٢	٤٨	٨٠		٨٠	٤٠٠
التشريح الراديولوجي	إختبار تحريري مدته ثلاث ساعات + اختبار شفهي	١٩٢	٤٨	١٦٠			٤٠٠
استخدامات النظائر المشعة و بيولوجيا الإشعاع	إختبار تحريري مدته ثلاث ساعات + اختبار شفهي	٩٦	٢٤	٨٠			٢٠٠
الفيزياء الإشعاعية	اختبار تحريري مدته ثلاث ساعات + اختبار شفهي	٩٦	٢٤	٨٠			٢٠٠
الباثولوجيا المتعلقة بالأشعة	إختبار تحريري مدته ساعتين + اختبار شفهي	٩٦	٢٤	٨٠			٢٠٠
إجمالي الدرجة							١٤٠٠

الامتحان النهائي الشامل

المقرر	الاختبار	الدرجة				إجمالي
		تحريري	MCQ	شفهي	عملي	
الأشعة التشخيصية	٣ اختبارات تحريرية مدة كل منهم ثلاث ساعات + اختبار شفهي + اختبار عملي	٨٠ + ٨٠ + ٨٠	٢٠ + ٢٠ + ٢٠	١٥٠	١٥٠	٦٠٠
المقرر الاختياري	اختبار تحريري مدته ساعة	٣٢	٨			٤٠
	إجمالي الدرجة					٦٤٠

5) Assessment methods:

5.1: Written examination for assessment of knowledge and intellectual skills
5.2: Structured oral examination for assessment of ILOs number: knowledge and intellectual skills
5.3: OSCE examination for assessment of practical and intellectual skills
5.4: MCQ examination for assessment of ILOs number knowledge and intellectual skills.

(6) Evaluation of Programme's intended learning outcomes (ILOs):

Evaluator	Tools*
Internal evaluators : 1-Prof.Dr/ **Mohamed Borg** (Head of the Department) 2-Prof. Dr/ **Sabry Al-Mogy** 3-Prof. Dr/ **Talal Amer**	Observation Group discussion
External Evaluator: Prof. Dr/ **Adel Abd Al-Latef Sannor** , Faculty of Medicine, Zagazig University	Communication Email
Senior student : **none**	
Alumni: **none**	
Stakeholder: **none**	

We certify that all information required to deliver this programme is contained in the above specification and will be implemented. All course specifications for this programme are in place.	
Programme coordinator: Name: D. Eman Abd El Salam D. Nehal ElBatouty	Signature & date:
Dean: Name: P.D. elsaeed abd el-hady	Signature & date:
Executive director of the quality assurance unit: Name: P.D. Seham Gad Elhaq	Signature & date: