PROGRAM SPECIFICATIONS

Program Title

Medical Doctorate Degree of Diagnostic Radiology

Code

DRDR

Program Specification

A- Basic Information

1- Program Title: **Radiology Medical Doctorate Degree**

2- Program Type: **Single** ☑ Double ☐ Multiple ☐

3- Department (s): **Radiology Department**

4- Coordinator: **Head of department**

5- External Evaluator(s) :

Prof. Awad Bessar, MD (Professor of Diagnostic Radiology, Zagazig University)

Prof. Mahmood Dawod, MD (Professor of Diagnostic Radiology, Tanta University)

6- Last date of program specifications approval**:** The bylaws of the Master program in Radiology in the Faculty of Medicine, Suez Canal University were approved by the Supreme Council of Universities in 2016.

7-Date of specification revision approval: 2017

8- Number of credit points for this degree: 180 CP

B- Professional Information

1- Program Aim

The overall goals of the program are:

1- Demonstrate detailed understanding of pathophysiologic basis of disease with professional implementation into radiologic-pathologic correlation.

2- Be able to professionally perform advanced radiologic and imaging techniques offered by the radiology department.

3- Know how to compensate for limitations of each radiologic technique.

4- Show competence & comprehensiveness in producing radiology reports.

5- Be updated with the recent standards of practice of clinical and advanced radiology techniques.

6- Develop critical thinking and professional judgment especially where there is clinical uncertainty to improve patient management and outcome.

7- Demonstrate understanding of the varieties of clinical decisions that are based on radiologic and interventional exams.

8- Show understanding of the basic principles of administration and management applied to a clinical department with multi-disciplinary staff and high-cost equipment.

9- Recognize the medico-legal implications of diagnostic and interventional radiological practice.

10- Have the high and most updated communication skills required for transferring patient data to clinicians as well as patients.

11- Develop professional attitude to all aspects of clinical practice with a sense of team-working within all spheres of practice.

2- Intended Learning Outcomes (ILOs) of the program

a- Knowledge and Understanding:

a1-Demonstrate the ability of understanding basic and updated medical knowledge about established and evolving biomedical, clinical, and cognate sciences, as well as the application of this knowledge to patient care;

a2- Elicit knowledge of advanced sciences relevant to new techniques in Radiology such as advanced radiologic technology and physics as well as pathology of all organ systems including syndromes affecting multiple organs , advanced research design and methodologies.

a3- Demonstrate knowlegde of the advanced physical principles of most recent and updated techniques including digital radiology, multidetector CT, advanced techniques in MRI including functional MRI, 2-D & 3-D ultrasound, New advances in Doppler studies and nuclear medicine .

a4- Demonstrate knowledge of the advanced imaging and radiologic techniques and practicing of interventions used in the current practice of Radiology. This knowledge base will be applied to ensure safe and competent clinical practice.

a5- Discuss indications and contraindications in every technique of Radiologic practice and demonstrate the ability to perform management of complications of each technique.

a6- Describe in details radiologic and imaging manifestations of different pathologic conditions of all body systems in all ages, showing an ability to analyze those findings according to the clinical data of the patients .to reach to the most probable diagnosis according to evidence –based medicine.

a7- Demonstrate ability to correlate laboratory, and relevant clinical data for the patient.

a8- Conduct the education in the principles of bioethics and statistics as applied to medical care, and the students must participate in decision-making involving ethical issues that arise in the diagnosis and management of their patients.

b- Intellectual Skills

By the end of this program, participants should be able to:

b1- Analyze results of history, clinical examination and imaging finding into meaningful diagnostic formulation with full understanding of evidence-based medicine.

b2- Put a plan and design for learning objectives.

b3- Identify points of weakness and strength in learning achievement.

b4- Put a plan to solve problems in learning achievement.

b5- Design research study and write scientific paper

b6- Write comprehensive radiological report

b7- Develop and evaluate different ordinary and technological tools in radiology

b8- Use different resources to reach diagnosis

c- Professional and practical Skills

c1. Perform efficiently and independently different radiological techniques

c2. Attaining experience in non-interpretative skills (risk management, patient safety, recognition and management of contrast reaction).

c3. Plan and perform advanced CT and MRI examinations including perfusion CT and MR, diffusion tensor imaging, functional MR imaging, and proton MR spectroscopy.
c4. Perform proper post-processing tasks.
c5. Perform basic vascular catheterization and percutaneous techniques.
c6. Perform under supervision diagnostic angiographies and other interventional procedures.
c7. Apply techniques to reduce exposure doses for radiographic and CT examinations
c8. Choose the most appropriate imaging examination and contrast media according to the clinical problem
c9. Perform dynamic functional studies of the spine and joints.
c10. Perform video-fluoroscopy of the swallowing mechanism.
c11. Perform a motility assessment and a single contrast enema.
c12. Catheterize a stoma for colon opacification and to perform pouchograms and loopograms.
c13. Confidently plan CT and MRI examinations and to tailor them to the individual situation in regard to intravenous contrast medium, rate of injection, dose and delay of the contrast medium and to a potential intraluminal contrast medium application, with a dose as low as reasonably achievable.
c14. Perform ultrasound and duplex Doppler examinations recognizing the normal findings
c15. Take a detailed history of patients in regard to different disorders and relevant risk factors
c16. Perform physical examinations of the different systems
c17. Supervise the imaging quality of the radiography of surgical specimens and communicate with the surgeon accordingly
c18. Participate in double reading of screening examination discussing cases of disagreement and getting a feedback after final decision and/or final assessment after recall
c19. Design and optimize and evaluate CT protocols
c20. Apply inspiratory and expiratory imaging depending on the clinical indication
c21. Independently perform post-processing tasks for imaging studies
c22. Choose the most appropriate imaging examination according to the clinical problem
c23. Confidently perform a transabdominal and/or transvaginal ultrasound in different disorders
c24. Identify patients at risk of technical complications and contrast toxicity and take measures to reduce
c25. Perform dynamic examinations to rule out or diagnose thoracic outlet syndromes and entrapment syndromes.
c26. Protocol and prepare patients for different radiological examinations (CT and MRI)
c27. Manage procedural complications in the diagnosis and treatment of different diseases
c28. Perform post-processing tasks for cardiac and vascular imaging studies using different tools.
c29. Demonstrate skills in obtaining informed consent, including effective communication to patients about procedures, alternative approaches, and possible complications of Diagnostic and interventional Radiology procedures.
c30. Elicit and analyze medical information in effective ways.
c31. Perform post processing on advanced radiologic machines and advanced work stations using high computer skills.
c32. Perform scientific research to be innovative and creative in radiology field

d- General and Transferable Skills

d1. Demonstrate leadership skills in working effectively as a team member or leader.
d2. Show efficiency in managing time and resources.
d3- Demonstrate high competencies in computer skills needed for reporting and presentation.
d4- Exhibit effectiveness in developing good doctor-patient relationships .
d5. Demonstrate effective communication skills in professional interactions with patients and their relatives as well as other health professionals.
d6. Demonstrate the ability to conduct appropriate consultations and presentations at multidisciplinary conferences that are clear, and concise.
d7. Choose effective modes of communication (listening, nonverbal, explanatory, questioning) and mechanisms of communication (face-to-face, telephone, e-mail, written), as appropriate.
d8. Communicate and solve medical problems at appropriate levels of understanding.
d9. List points of strength and weakness in gaining these skills and put a plan to overcome points of weakness through continuous learning.
d10. Demonstrate the ability to teach younger staff and transfer knowledge and skills to them effectively.

3- Academic Standards

3a External References for Standards (Benchmarks):

Generic Academic Reference Standards (ARS) for post graduate program

3b Comparison of Provision to External References.

4- Curriculum Structure and Contents

4a- Program duration: the program lasts for a minimum of 3 academic years and maximum 7 years, as specified in the internal bylaws for postgraduate studies based on credit points system in the Faculty of Medicine, Suez Canal University approved on February 7th, 2016.

4b- MD Program Credit points (CP) structure: Total needed credit points for getting MD degree 180 CP. **The program consists of First part 30 CP, Thesis 50 CP, and Second part 100 CP**

1. The first part of the program: 30 CP, its duration (15 weeks) for one academic semester. It includes
   a. A course in Biostatistics and Research Methodology planned and held in the Community Medicine Department of the Faculty of Medicine, Suez Canal University. This part includes 8 CP.
   b. Two elective course, the students should select one elective among six courses. This part includes 4 CP (2+2).
   c. The specialized courses in radiology:
      i. Advanced radiological physics. It includes 6 CP.
      ii. Advanced technologies and interventional radiology**.** It includes 12 CP.

2. MD thesis: 50 CP, the candidate has the right to register the thesis protocol after 6 months from the degree registration. The thesis defense is allowed after 2years from the date of the faculty council approval on the thesis protocol and passing the first part exam.

3. The second part of the program: 100 CP, its duration (50 weeks) for 5 consecutive academic semesters. The second part comprises the specialized courses in the radiology department, planned and held in the Medical Education Department. This part ending by written and practical exams:

a- Radiology basic courses, 30CP
b- Clinical radiology courses, 60 CP
c- Scientific activities in radiology, 10CP.

4bi- No. of hours per week: 2 CP / week which equivalent 50 hours/ week, including lectures, tutorials, self-learning and hands-on training.

4bii- No. of credit Points: the MD program is 180 credit points

Every credit point include 25 working hour (30% = 7 hours for face to face learning activities, and 70% =18 hours for self-learning activities).

5- Program Courses

5.1- Level/Year of Program: 1st part MD (Compulsory)

Courses			**Assessment**				
Code No.	**Course Title**	**No. of Credit**	**Written Exam**			**Oral exam**	**Practical or clinical Exam**
			No of Papers	**Duration (hours)**	**Marks**		
RB	Research methodology and Biostatistics	8	1	3	160		
DRDR51	Advanced radiological physics	6	1	3	90	30	
DRDR52	Advanced technologies and interventional radiology	12	1	3	120		120
E	Elective Course*	2+2	2	1 +1	40+40		
Total		**30 credit points**			**600 marks****		

***E: Student should select one course of the following as an elective course:**

Two elective course each has 2 CP. The students should select one elective in first part of the MD degree.

E01 Evidence Based medicine (Community Department)
E02 Scientific Writing (Medical Education Department)
E03 Quality in Medical Education (Medical Education Department)

E04 Infection Control (Microbiology Department)
E05 Critical Appraisal (Community Department)
E06 Communication Skills (Medical Education Department)

5.2- Level/Year of Program: 2nd part MD (Compulsory)

Courses			**Assessment**					
Code No.	**Course Title**	**No. of Credit points**	**Written Exam**			**Oral exam**	**Practical or clinical Exam**	**Continues assessment *(Portfolio)**
			No of Papers	**Duration (hours)**	**Marks**			
DRDR53	Radiology	30	5	3 / paper	160 / each paper except last paper (80)		540	540
	Clinical training	60						
	**Scientific activities	10 (not included in the total marks)						
Total		**100 credit points**			**1800 score**			

***Portfolio scores distributed in the different parts of the portfolio and its total score included among the total mark of the second part**
****Scientific activities are not included in the total marks**

5.3- Thesis:

A faculty senior & junior supervisor from the stuff members are nominated by the department council to prepare a proposal of the thesis protocol after the selection of a subject that is complementary to the research plans of the department. Data collection, methodologies, study question, time table, ethical considerations and budget are formulated by the candidate under guidance of his supervisors into a research project. The research protocol is then peer reviewed by two different stuff members nominated by the Head of the department who share their ideas and comments with the supervisors to reach to the final form. The research protocol is discussed then openly in one of the department councils to be approved and diverted to the Faculty research committee where it is subjected to a critical appraisal to meet the research basic standards set by the committee. The final approvals of the research protocol are then issued by the committee of post graduate studies, the Faculty and University Council to be registered. The candidate has the right to register his/her thesis protocol after 6 months from the degree

registration. The first time for thesis defense after 2 years from the date of the faculty council approval on the thesis protocol and passing the first part exam.
N.B. **Thesis represents 50 credit points.**

6- Program Admission Requirements

- The program accepts candidates with Bachelor degree in Medicine and Surgery with minimum good grade & very good.
- Registration for the program opens 2 times/year, according to the internal bylaws for postgraduate studies of the Faculty of Medicine, Suez Canal University.

7- Student Assessment Methods

7.1 Written (MEQ) to assess the cognitive domain.
7.2 MCQs to assess the cognitive domain
7.3 Oral Viva Cards to assess higher cognitive and attitude domains.
7.3 Observations to assess practical and presentation skills.
7.4 Portfolio to assess the cognitive, psychomotor and the affective domains.

8- Weighting of Assessments

Total marks for Doctorate degree 2400

Type of exam	
First part (30 credit points= 600 mark)	
• Written exam	450
• Oral and practical exam	150
• **Total**	**600**
Second part (100 credit points including 10 credit points not included in the total marks =1800 mark)	
• Practical exam	540
• Written exam	720
• Portfolio	540
Total	**1800**

9- Regulations for Progression and Program Completion

The regulations for program completion follow the regulations of MD degree of radiology in the Faculty of Medicine, Suez Canal University approved by the Supreme Council of Universities.

- **First part (25%)**

Passing level 60% of total marks of the exam

At least 50% passing level of the total written exam marks

- **Second part (75%)**

Passing level 60% of total marks of the exam
Passing level 60% is prerequisite for MD degree

- **Thesis/Assay**

Passing thesis defense is perquisite for getting MD. Degree

10- Evaluation of Program Intended Learning Outcomes (ILOs)

Evaluator	**Tool**	**Sample**
1- Postgraduate students	Needs assessment questionnaires	Random sample of participants
2- Alumni	Self-administered questionnaires	Comprehensive sample
3- Stakeholders	Self-administered questionnaires	Random sample
4-External Evaluator(s) (External Examiner(s))	External audit of the program specifications	
5- Other		

Head of Radiology Department
Prof. Tarek El-Kammash, MD
Date: April 2017

A comparison of Neurology intended learning outcomes of MD program to the Generic Academic Reference Standards (ARS) for postgraduate programs

The overall goals of the program are to enable students to:

The overall goals of the program are to develop a neurologist with the following characteristics:

1- Demonstrate detailed understanding of pathophysiologic basis of disease with professional implementation into radiologic-pathologic correlation.

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4- Show competence & comprehensiveness in producing radiology reports.

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9- Recognize the medico-legal implications of diagnostic and interventional radiological practice.

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11- Develop professional attitude to all aspects of clinical practice with a sense of team-working within all spheres of practice.

The curriculum will enable trainees to become competent in the:

1. Apply the principles of evidence based medicine in practice.

2-Apply multiple sources, including information technology, to optimize lifelong learning and support patient care decisions.

3-Develop personally effective strategies for the identification and remediation of gaps in medical knowledge needed for effective practice.

4-Demonstrate radiological problems and clinical inquiries to identify process improvements to increase patient safety.

5-Apply proficiency programs to improve radiological practices.
6-Regularly improve their practical performance using sound up to date knowledge.

7-Demonstrate Professional decision making.

8- Provide good communication skills (verbal and nonverbal) to the patients and their family members and perform this communication in an appropriate fashion.

Benchmark	Program ILOs Covered (By No.)
2.1: Knowledge and understanding **By the end of the postgraduate MD program the candidate should be able to know and understand the following**:	
2.1.01 Theories, basic and specific knowledge related to his specialty as well as basic sciences related to practice in his field	a2,3
2.1.02 basis, methods and ethics of scientific researches and its different tools	a4
2.1.03 Basic of ethics and medico legal aspects of professional practice, related to the special**ty**	a8
2.1.04: basis and principles of quality in professional practice related to the specialty	c17
2.1.05 Related information concerned with the effects of professional practice on the environment and methods of environmental maintenance and development	c24
2.2- Intellectual Skills **By the end of the postgraduate MD program the candidate should be able to:**	
2.2.01 Analyze and evaluate knowledge to solve problems related to his specialty	b4, d8
2.2.02 solve specific problems with available data	b4, d8
2.2.03 Perform scientific research adding new information	a2, b5, c32
2.2.04 Writing scientific papers	b5
2.2.05 Risk assessment in professional practices	c2, c15, c24
2.2.06 Plan to improve performance related to specialty	b2,b4, d9
2.2.07 professional decision making in relation to different professional sequences	a8, c18
2.2.08 Be innovative and creative	c32
2.2.09 discuss on basis and evidence	b1
2.3- Practical and Clinical Skills **By the end of the postgraduate MD program the candidate should be able to:**	
2.3.01 Demonstrate essential practical skills related to his specialty	c1,3,4,5,6, 9-12, c14, 23,25
2.3.02 Write and evaluate professional reports	b6, d3
2.3.03 Evaluate different methods and tools available related to specialty	b7
2.3.04 Use technology to serve professional practice	b7, c31
2.3.05 plan to develop professional practice and improve performance of others	b2, b4, d9
2.4 General and transferable skills	
By the end of the postgraduate MD program the candidate should be able to	
2.4.01 Communicate ideas and arguments effectively	c17, d8
2.4.02 Use information technology to serve in the development of professional practice	a2
2.4.03 Educate and evaluate performance of others	d10
2.4.04 self evaluation and lifelong learning	b3, b4, d9
2.4.05 Use different resources to obtain knowledge and information.	d2, b8
2.4.06 Work effectively within team and lead a team effectively	d1
2.4.07Patron scientific meetings and manage time effectively	d2, d6