Peer Revision

Reviewers	University	Date of Revision
- Prof. Dawlat Salem	Cairo	10/12/2011
- Prof. Ahmad K. Mansur	Mansura	28/11/2011

Program Specification of Medical Doctorate Degree of NUCLEAR MEDICINE

Sohag University **Faculty of Medicine**

A. Basic Information

1- Program Title: MD DEGREE IN NUCLEAR MEDICINE

2- Program Type: Single

3- Faculty: Faculty of Medicine

4- Department: Oncology and Nuclear Medicine

5- Coordinator: prof: Al-Saied Mostafa Ali

6- Assistant coordinator: Wafaa Abd Elhamied

7- External Evaluator(s): prof: Hosna Mohamed Mustafa

8- Last date of program specifications approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018.

B. Professional Information

1. Program Aims:

The aim of this program is to provide the postgraduate with the advanced medical knowledge and skills essential for the safe practice of medicine and necessary for further training and practice in the field of Nuclear Medicine including: through providing:

1. Recent Scientific knowledge essential for the mastery of practice of Nuclear Medicine according to the international standards.
2. Skills necessary for proper diagnosis and management of patients including diagnostic, problem solving and decision making skills.
3. Ethical principles related to the practice in this specialty.
4. Active participation in community needs assessment and problems identification.
5. Maintenance of learning abilities necessary for continuous medical education.
6. Upgrading research interest and abilities.

2. Attributes of the student:

1. Efficient in carrying out the basics and methodologies of scientific research.
2. The continuous working to add new knowledge in the field of nuclear medicine.
3. Applying the analytical course and critical appraisal of the knowledge in his specialty and related fields.
4. Merging the nuclear medicine knowledge with the other related knowledge with conclusion and developing the relationships in between them.
5. Showing a deep awareness with the ongoing problems, theories, and advanced sciences in the specialty of nuclear medicine.
6. Determination of the professional problems in the specialty of nuclear medicine and creating solutions for them.
7. Efficient in carrying out the professional skills in his specialty.

Program Specification of Medical Doctorate Degree of NUCLEAR MEDICINE

Sohag University **Faculty of Medicine**

A. Basic Information

1- Program Title: MD DEGREE IN NUCLEAR MEDICINE

2- Program Type: Single

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B. Professional Information

1. Program Aims:

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1. Recent Scientific knowledge essential for the mastery of practice of Nuclear Medicine according to the international standards.
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2. Attributes of the student:

1. Efficient in carrying out the basics and methodologies of scientific research.
2. The continuous working to add new knowledge in the field of nuclear medicine.
3. Applying the analytical course and critical appraisal of the knowledge in his specialty and related fields.
4. Merging the nuclear medicine knowledge with the other related knowledge with conclusion and developing the relationships in between them.
5. Showing a deep awareness with the ongoing problems, theories, and advanced sciences in the specialty of nuclear medicine.
6. Determination of the professional problems in the specialty of nuclear medicine and creating solutions for them.
7. Efficient in carrying out the professional skills in his specialty.

8. Using advanced suitable technologies which serves his practice.
9. Efficient communication and leadership of team work in his specialty.
10. Decision making through the available information.
11. Using the available resources efficiently and working to find new resources.
12. Awareness with his role in the development of the society and preserve environment.
13. Behaving in a way which reflects his credibility, accountability, and responsibility.
14. Keeping continuous self development and transfer his experiences and knowledge to others.

3. Program Intended Learning Outcomes (ILOs)

a) Knowledge and Understanding:

By the end of the study of doctoral program in Nuclear Medicine the Graduate should be able to :

a1. Mention physics related to nuclear
a2. Describe methods of radioactive protection
a3. List the recent advances in clinical pathology related to nuclear medicine.
a4. Mention recent advances in nuclear medicine diagnosis of different diseases
a5. Enumerate recent advances in nuclear medicine therapy in different diseases.
a6. Explain internal medicine diseases related to nuclear medicine.
a7. Describe surgery that related to the nuclear medicine.
a8. Enumerate principles, methodologies, tools and ethics of scientific research.
a9. Mention the principles and fundamentals of ethics and legal aspects of professional practice in the field of nuclear medicine.
a10. Enumerate the principles and fundamentals of quality assurance of professional practice in the field of nuclear medicine.
a11. Enumerate the effect of professional practice on the environment and the methods of environmental development and maintenance.
a12. Enumerate Biostatistics.

b) Intellectual Skills

By the end of the study of doctoral program in Nuclear Medicine the Graduate should be capable of:

b1. Interpret data acquired through history taking of the patient to reach a provisional diagnosis for the patient scan.
b2. Select from different diagnostic alternatives the ones that help reaching a final solving for the problems in nuclear medicine.
b3. Conduct research studies, that adds to knowledge.
b4. Formulate scientific papers in the area of Nuclear Medicine.
b5. Asses risk in professional practices in the field of Nuclear Medicine.
b6. Plan to improve performance in the field of Nuclear Medicine
b7. Identify Nuclear Medicine problems and final solutions
b8. Have the ability to innovate nontraditional solutions to Nuclear Medicine problems.
b9. Mange Scientific discussion based on scientific evidences and proofs.
b10. Criticize researches related to Nuclear Medicine.

c) Professional and Practical Skills

By the end of the study of doctoral program in Nuclear Medicine the Graduate should be able to:

c1. Master the basic and modern professional clinical and medical skills in the area of nuclear medicine.
c2. Written and evaluate medical reports.
c3. Evaluate and develop methods and tools existing in the area of Nuclear Medicine.
c4. Perform imaging evaluation of Nuclear Medicine problems.
c5. Train junior staff through continous medical education programs.
c6. Design new methods, tools and ways of professional practice.

d) General and Transferable Skills

By the end of the study of doctoral program in Nuclear Medicine the Graduate should be capable of:

d1. Present reports in seminars effectively.
d2. Use appropriate computer programs.
d3. Teach others and evaluate their performance.
d4. Assess himself and identify his personal learning needs.
d5. Use of different sources for information and knowledge.
d6. Work coherently and successfully as apart of a team and team's leadership.
d7. Manage scientific meetings according to the available time.

4. Academic Standards

Sohag Faculty Of Médicine adopted the general National Academic Reference Standards (NARS) Provided by the national authority for quality assurance and accreditation of education (naqqqe) for postgraduate programs. This was approved by the Faculty Council decree NO.6854, in its session NO.177 Dated:18/5/2009.Based on these NARS; Academic Reference Standards(ARS) were suggested for this program. These ARS were approved by the Faculty Council decree NO. 7528, in its cession NO.191 Dated:15/3/2010. The adoption of NARS and the suggested ARS were approved by University council degree No 587, in its cession No.60. Dated 26-12-2011

5. Curriculum Structure and Contents

5. a- Program duration 7 semesters (3.5 years)
5. b- Program structure
5. b.i- No. of hours per week:

	hours /week		
Subject	Lectures	Practical	Clinical
First Part:			
Minors : Research Methodology	2	2	
Bio Statistics &Computer	2	2	
Physics	2		
Primary Medical Reports	1	2	
Pathology	2		
Radiation Protection	2		
Second Part:	7	12.5	

code	Item		No	%
b.i	Total credit hours	Compulsory	90	100
		Elective	0	0
		Optional	0	0
b.iii	credit hours of basic sciences courses		6	٦.٦٧
b.iv	credit hours of courses of social sciences and humanities		0	0
b.v	credit hours of specialized courses:		٥٣	58.9
b.vi	credit hours of other course		٨	8.9%
b.vii	Practical/Field Training		8	8.9%
b.viii	Program Levels (in credit-hours system): Level 1: 1st part Level 2: 2nd Part Level 3: Thesis		 14 53 15	 15.56 58.9 16.7

6. Program Courses

9 courses are compulsory

6.1- Level/Year of Program…1

Semester…1…..

First part:

a. Compulsory

Course Title	**No. of hours**	**No. of hours /week**			**Program ILOs Covered (By No.)**
		Lect.	**Lab.**	**Exer.**	
Research Methodology	4	2	2		a8,b3,b4,b9,b10,d5
Bio Statistics &Computer	4	2	2		a12,b6,d2,d6,c6
Physics	2	2			a1,b5,c3,d5
Primary Medical Reports	3	1	2		a9,a10,b5,c2,d1
Clinical Pathology	2	2			a3,b9,c4,d3
Radiation Protection	2	2			a2,a11,b5,c3,c5,d6
Second Part:	19.5	7	12.5		a4,a5,b1,b2,b8,b6,b7,c1, c3 a6b1,c1,d3,d5,c4,c5,c6,d3,d4,d7,d5 a7,b1,c1,d3,d5

7. Program Admission Requirements

I- General Requirements.

- Candidate should have either MBBch degree from any Egyptian Faculty of Medicine or Equivalent Degree from Medical Schools abroad approved by the ministry of high Education.
- Candidate should know how to speak & write English well
- Candidate should have computer skills**.**

- Follow postgraduate bylaw Regulatory rules of Sohag Faculty of Medicine approved by the ministerial decree No. (44), dated 6/1/2010.

II- Specific Requirements

- Master degree in NUCLEAR MEDICINE with at least "Good Rank".

8. Regulations for Progression and Program Completion

Duration of program is 90 credit hours (≥7 semesters ≥3.5 years), starting from registration till acceptance of the thesis; divided to:

First Part: (15 Credit hours ≥6 months ≥1 semester):

- Program-related basic science, Research Methodology, Ethics & medical reports, Biostatistics and computer.
- At least six months after registration should pass before the student can ask for examination in the 1st part.
- Two sets of exams: 1st in October — 2nd in April after fulfillment of the credit hours.
- At least 60% of the written exam and 60% of the total oral and practical/clinical is needed to pass in each course.
- For the student to pass the first part exam, a score of at least 60% (Level D) in each course is needed.
- Those who fail in one course need to re-exam it only.
- GPA of ≥1.3 is needed to pass this level (semester).

Second Part: (50-60 Credit hours ≥24 months= 4 semesters):

- Program related specialized science of NUCLEAR MEDICINE courses. At least 24 months after passing the 1st part should pass before the student can ask for examination in the 2nd part.
- Fulfillment of the requirements in each course as described in the template and registered in the log book (8 Credit hours; with obtaining ≥75% of its mark) is a prerequisite for candidates to be assessed and undertake part 1 and part 2 examinations; the credit hours of the logbook are calculated as following:
  - Each Cr. Hr.= 60 working Hrs.
  - Logbook= 8 Cr. Hr. X 60 working Hrs = 480 Working Hrs.
  - Collection of working Hrs. is as following:

Activity		**Hrs**
Grand rounds	**اجتماع علمى موسع**	**٦**
Training courses	**دورات تدريبية**	**12/ day**
Conference attendance	**حضور مؤتمرات علمية** **داخلى** **خارجة**	 **١٢/day** **18/day**
Thesis discussion	**حضور مناقشات رسائل**	**٦**
Workshops	**حضور ورش عمل**	**١٢/day**
Journal club	**ندوة الدوريات الحديثة**	**٦**
Seminars	**لقاء علمى موسع**	**٦**

Morbidity and Mortality conference	**ندوة تحليل المخاطر المرضية أوالوفاة**	٦
Self education program	**برنامج التعليم الذاتى**	٦

- Two sets of exams: 1st in October - 2nd in April.
- At least 60% of the written exam is needed to be admitted to the oral and practical exams.
- 4 times of oral and practical exams are allowed before the student has to re-attend the written exam.

Third Part (Thesis) (15 Credit hours =24-48 months=4-8 semester):

- Documentation of the subject should not be delayed for > 1.5 years after registration.
- Could start after registration and should be completed, defended and accepted after passing the 2nd part final examination, after passing of at least 24 months after documentation of the subject of the thesis and after publishing of at least one paper from the thesis in a specialized peer-reviewed journal.
- Accepting the thesis is enough to pass this part.

9. Methods of student assessments:

Method of assessment	weight	The assessed ILOs
1-Research assignment		- General transferable skills, intellectual skills
2-Written Exams: -Short essay: 40% -structured questions: 25% -MCQs: 20% -Commentary, Problem solving: 15%	50%	 - Knowledge - Knowledge - Knowledge, intellectual skills - Intellectual skills, General transferable skills
3-OSCE/ OSPE	50%	-Practical skills, intellectual skills, general transferable skills
4-Structured Oral Exams		- Knowledge, Intellectual skills, General transferable skills

Assessment schedule:

Part I:

- Biostatistics & Computer: Written Exam (2 hours) + Structured oral Exam+ OSPE
- Research Methodology: Written Exam (1.30 hours) + structured oral Exam+ OSPE
- Primary medical reports: Written Exam (2 hour) + Structured oral Exam+ OSPE
- Physics: Written Exam (2 hour) + Structured oral Exam+ OSCE
- Radiation Protection: Written Exam (2 hour) + Structured oral Exam+ OSCE
- Oncologic Pathology: Written Exam (2 hours) + structured oral Exam.

Part II:

- Four Written Exams : Two Written Exams (3 hours for each) for Nuclear Medicine, one Written Exam (2 hours) for Internal Medicine and one (2 hours) for Surgery + OSCE for Nuclear Medicine
- Oral Exams: one fof nuclear medicine, One for surgery, one for internal medicine

10. Evaluation of Program Intended Learning Outcomes:

Evaluator	Tool	Sample
1- Senior students	Questionnaire	2

2- Alumni	Questionnaire	0
3- Stakeholders (Employers)	Questionnaire	3
4-External Evaluator(s) (External Examiner(s))	Report	1
5- Other		

Course Specification of Biostatistics and Computer in MD degree in Nuclear Medicine

Sohag University **Faculty of Medicine**

1. Program on which the course is given: MD degree in Nuclear Medicine
2. Major or minor element of program: Minor
3. Department offering the program: Oncology and Nuclear Medicine Department.
4. Department offering the course: Community Medicine and public Health Department.
5. Academic year / level: 1st part of Doctoral degree of Nuclear Medicine.
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specification

Code: COM 0521-300

Total hours

Title	Lecture	Practical	Total	credit
Biostatistics and Computer	30	30	60	3

B. Professional Information

1. Overall Aims of Course

- To use precisely the computer programs and biostatistics.

2. Intended Learning Outcomes of Courses (ILOs)

a) Knowledge and understanding:

By the end of the course, the student is expected to be able to:

a1. Mention different programs of analysis of data and statistical packages
a2. Define the recent advances data sources for vital statistics.
a3. Define the recent advances of sources of data and methods of collection.
a4. Summarize data, construct tables and graphs
a5. Calculate measures of central tendency and measures of dispersion
a6. Describe the normal curves and its uses
a7. Illustrate selected tests of significance and the inferences obtained from such tests
a8. Illustrate selected tests of significance for parametric inferences

b) Intellectual Skills

By the end of the course, the student is expected to be allowed to:

b1. Collect and verify data from different sources
b2. Interpret data to diagnose prevalent health problems in the community, using various epidemiological strategies and use it for titration and conclusion

c) Professional and Practical Skills:

By the end of the course, the student is expected to practice the following:

c1. Perform recent advanced technological methods in collection, analysis and interpretation of data and in management of prevalent community problems and training junior staff

d) General and Transferable Skills:

By the end of the course, the student is expected to be able to:

d1. Use appropriate computer program packages.

d2. Use of different sources for information and knowledge about biostatistics.

3. Contents

Topic	No. of hours	Lecture	Tutorial/ Practical
-Details of Tests of significance: Proportion test Chi-square test Student T test Paired T test -Correlation -Regression -ANOVA test -Discrimination analysis Factor analysis - parametric and non parametric tests		3 3 3 3 3 3 3 3 3 3	 Practical computer sessions
Total	٦٠	**30**	**30**
Credit hours	**3**	**2**	**1**

4. Teaching and Learning Methods

4.1- Lectures

4.2- Practical sessions

4.3- Computer search assignments

4.4- Computer application

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3-Structured Oral Exams	- Knowledge
5.4Computer search assignment	- general transferable skills, intellectual skills

Assessment Schedule

Assessment 1……..Final written exam Week: 24

Assessment 2……..Final oral exam Week: 24

Assessment 3 Attendance and absenteeism throughout the course

Assessment 4 Computer search assignment performance throughout the course

Weighting of Assessments

Final-term written examination	50	%
Final oral Examination	50	%
Total	100	%

Formative only assessments: attendance and absenteeism and Computer search assignments performance.

6. List of References

6.1- Essential Books (Text Books)

1-Maxy-Rosenau Public health and preventive medicine, 2008.,Robert Wallace, publisher McGraw-Hill Medical; 15 edition.

6.2- Recommended Books

1- Dimensions of Community Based projects in Health Care, 2018. Arxer, Steven L., Murphy, John W.; 1st edition.

2- Parks Text Book of Preventive & Social Medicine. 2017., K. Park. BanarsidasBhanot Publishers; 23 edition.

3- Clinical Epidemiology: The Essentials, 2013, Robert F., Suzanne W. Fletcher, Grant S., publisher Lippincott Williams & Wilkins; 5 edition.

6.3- Periodicals, Web Sites, …etc

1-American Journal of Epidemiology

2-British Journal of Epidemiology and Community Health

3- WWW. CDC and WHO sites

7. Facilities Required for Teaching and Learning:

a. Adequate Infrastructure: including testching class, labs, comfortable desks, good areation, bathrooms, good illumination, safty & security tools.

b. Teaching tools: including screens, computers, data shows, projectors,flip charts, white boards, video player, digital video camera, scanner, copier, cooler & laser printers.

Course Coordinator: Dr. Foad Metry Atya

Head of department: Prof. Dr. Ahmed Fathy Hammed

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018

Course Specification of Research Methodology in MD degree in Nuclear Medicine

Sohag University **Faculty of Medicine**

1. Program on which the course is given: MD degree in Nuclear Medicine
2. Major or minor element of program: Minor
3. Department offering the program: Oncology & Nuclear Medicine Department.
4. Department offering the course: Community Medicine and public Health Department.
5. Academic year / level:1st part of Doctoral degree of Nuclear Medicine.
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specification Of Research Methodology in MD degree in Nuclear Medicine

Code: COM 0521-300

Title	lecture	practical	total	credit
Research Methodology	**30**	**30**	**60**	**3**

B. Professional Information

1. Overall Aims of Course

- To influence the students to adopt an analytical thinking for evidence based medicine
- To use precisely the research methodology in researches and computer programs SPSS, Epi Info and Excel in data analysis

2. Intended Learning Outcomes of Course (ILOs):

According to the intended goals of the faculty

a) Knowledge and understanding:

By the end of the course, the student is expected to be able to:

a1. Enumerate the recent advances of principles, methodologies, tools and ethics of scientific research.

a2. Explain the strategies and design of researches.

a3. Describe bias and confounding.

a4. Describe sampling techniques and list advantages of sampling

b) Intellectual Skills

By the end of the course, the student is expected to be able to:

b1. Conduct research studies that adds to knowledge.

b2. Formulate scientific papers in the area of nuclear medicine.

b3. Innovate and create researches in the field of nuclear medicine.

b4. Criticize researches related to nuclear medicine

c) Professional and Practical Skills:

By the end of the course, the student is expected to be able to:

c1. Master the basic and modern professional skills in the area of nuclear medicine.
c2. Design new methods, tools and ways of professional practice.

d) **General and Transferable Skills:**
By the end of the course, the student is expected to be able to:
d1. Use of different sources for information and knowledge to serve research.
d2. Work coherently and successfully as a part of a team and team's leadership in conducting researches and field studies.

3. Course contents:

Topic	No.of hours	Lecture	Tutorial/ Practical
Details of epidemiological studies (case control, cohort and cross sectional)	8	4	4
Clinical trials, Quasi experimental study	8	4	4
Bias and errors	8	4	4
Setting a hypothesis	8	4	4
- Evidence – based Medicine: Concept and examples Applicability Scientific writing: A protocol A curriculum	12	6	6
Setting an objective - Critical thinking	8	4	4
Formulation of papers	8	4	**4**
Total	60	30	30
Credit hours	3	2	1

4. Teaching and Learning Methods

4.1- Lectures.
4.2- Computer search assignments

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3-Structured Oral Exams	- Knowledge
5.4 Computer search assignment	- general transferable skills, intellectual skills

Assessment Schedule

Assessment 1Final written exam Week: 24
Assessment 2Final oral exam Week: 24
Assessment 3 Attendance and absenteeism throughout the course
Assessment 4 Computer search assignment performance throughout the course

Weighting of Assessments

Final-term written examination	50	%
Final oral Examination	50	%
Total	100	%

Any formative only assessments Attendance and absenteeism throughout the course

Computer search assignment performance throughout the course

6. List of References

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6.2- Recommended Books

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Course Coordinator: Dr. Foad Metry Atya

Head of department: Prof. Dr. Ahmed Fathy Hammed

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018

Course Specification of Primary Medical Reports in MD degree in Nuclear Medicine

Sohag University **Faculty of Medicine**

1. Program on which the course is given: MD degree in Nuclear Medicine.
2. Major or minor element of program: Minor
3. Department offering the program: Oncology & Nuclear Medicine Department.
4. Department offering the course: Forensic Medicine and Clinical Toxicology Department.
5. Academic year /level: 1st part of Doctoral degree of Nuclear Medicine.
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Program Title: Course Specification of Primary Medical Reports in MD degree in Nuclear Medicine

Code: FOR 0521-300

Title	Lecture	Practical	Total	Credit Hours
Primary medical report	15	30	45	2

B. Professional Information

1. Overall Aims of Course

By the end of the course the post graduate students should be able to have the professional knowledge and skills of the 1ry medical reporting in sufficient depth to be of permanent value to the candidates as well as to cope with the continuous growth and advance of this field.

2. Intended Learning Outcomes of Course (ILOs):

According to the intended goals of the faculty

a) Knowledge and Understanding:

By the end of the course the student should be able to:

a1. Enumerate the knowledge and understanding of the 1ry medical reporting.
a2. Become familiar with the common toxins and their toxicity management.
a3. List different ethics
a4. Have sufficient information about how to write medical reports.

b) Intellectual Skills:

By the end of the course, the student is expected to be able to:

b1. Formulate medical reports including death certificate and toxicological reports.
b2. Select the appropriate diagnostic tools for diagnosis of poisoning and select the suitable method of management.

c) Professional and Practical Skills:

By the end of the course, the student is expected to practice the following:

c1. Write and evaluate of medical reports including death certificate and toxicological reports.

d) General and Transferable Skills:

By the end of the course, the student is expected to be able to:

d1. Present reports in seminars effectively after formulation and evaluation.

3. Course contents:

Topic	No. of hours	Lecture	Practical
Definition of poison, classification of poison and factors that influence toxicity	0.75	1.25	2.5
Management of poisoning including: respiratory support, circulatory support and neurological support	0.75	1.25	2.5
Diagnosis of poisoning	0.75	1.25	3.5
Treatment of poisoning including: dilution, emesis, gastric lavage, adsorbents, demulcent, endoscopic, whole bowel irrigation and topical decontamination	0.75	1.25	3.5
Elimination of toxic agents including: forced diuresis, peritoneal dialysis, hemodialysis and hemoperfusion	0.75	1.25	2.5
Specific antidotes, toxicological sampling and permanent infirmity	0.75	1.25	3.5
How to write a toxicological report & How to write death certificate	0.75	1.25	2.5
Obligation of physicians (towards patients, colleagues, community)	0.75	1.25	3.5
Consent, and professional secrecy	0.60	1.25	2.5
Types of malpractice, and items of medical responsibility	0.41	1.25	3.5
Medicolegal aspects of organ transplantation, intersex states, euthanasia, assisted reproduction techniques	0.35	1.25	
ethical considerations of medical research involving human subjects	0.65	1.25	
Total hours	**45**	**١٥**	**٣٠**
credit hours	**2**	**1**	**١**

4. Teaching and Learning Methods

4.1. Lectures.

4.2. Practical learning on field of hot laboratory and Gamma Camera.

4.3. Sample problems with solution to illustrate certain quantitative relationships and to demonstrate stranded calculations that are daily required in the field of Nuclear medicine.

4.3. Figures, tables & presentations.

4.5. The internet.

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3-Structured Oral Exams	- Knowledge

Assessment Schedule

Assessment 1. Attendance and absenteeism (formative)
Assessment 2. Final Written examination: week 24
Assessment 3. Final Oral examination: week 24

Weighting of Assessments

Final-term Examination 50%
Oral Examination 30%
Practical Examination & attendance and absenteeism 20%
Total 100%
formative only assesment:simple research assignment,attendance and absenteeism.

6. List of References

Essential books

Simpson's Forensic Medicine, 13th Edition, by Jason Payne-James, RichardJones,Steven B Karch,John Manlove. published by Hodder& Stoughton Ltd (2011).
Goldfrank'sToxicologic Emergencies, (9th ed.) by Lewis S. Nelson, Robert S. Hoffman, Mary Ann Howland, Neal A Lewin, Lewis R. Goldfrank, Neal E. Flomenbaum. Published by McGraw-Hill (2011)
Emergency Toxicology,Peter Viccellio,(2nded.) Published by Lippincott Williams & Wilkins (1998)

Recommended books

Medical ethics.(1997)Robert M Veatch. 2nd edition.Jones & Bartlett publishers

Periodicals and websites……etc.

Egyptian journals of forensic medicine and clinical toxicology
International journals of forensic medicine and clinical toxicology
www.sciencedirect.com
https://emedicine.medscape.com
https://www.ncbi.nlm.nih.gov/pmc/

7. Facilities Required for Teaching and Learning:

a. Adequate Infrastructure:including testching class,comfortable desks,good areation,bathrooms,good illumination,safty & security tools.
b. Teatching tools:including screens,computers,data shows,projectors,flip charts,white boards,video player,digital video camera,scanner,copier,colour&laser printers.

Course Coordinator: Dr. Soheir Ali Mohamed

Head of Department: Dr. Soheir Ali Mohamed

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018

Course Specification of Physics in MD degree in Nuclear Medicine

Sohag university **Faculty of medicine**

1. Program on which the course is given: MD degree in Nuclear Medicine
2. Major or minor element of program: Minor
3. Department offering the program: Oncology & Nuclear Medicine Department.
4. Department offering the course: Oncology & Nuclear Medicine Department.
5. Academic year / level: 1st part of Doctoral degree of Nuclear Medicine.
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specification Of physics in MD degree in Nuclear Medicine

Code: ONC - NUC0521-300

Title	**Lectures**	**Practical**	**Total**	**Credit**
Physics	**30**	**-**	**30**	**2**

B. Professional Information

1. Overall Aims of Course

By the end of the course the post graduate students should be able to have the professional knowledge and skills of the physics and instrumentation of Nuclear Medicine in sufficient depth to be of permanent value to the candidates as well as to cope with the continuous growth and advance of this field.

2. Intended Learning Outcomes of Course (ILOs):

According to the intended goals of the faculty

a) Knowledge and Understanding:

By the end of the course the student should be able to:

a1. Enumerate the knowledge and understanding of the basic principles of nuclear physics (the atom structure, radioactivity and radioactive decay, radionuclide production methods, radiation interactions, radiation detection and counting)

a2. Become familiar with the terminologies, Units of radiation and the abbreviations of the radiation physics.

a3. Have sufficient information about basis of the radionuclide imaging principles of gamma cameras, image processing and reconstruction tomography.

a4. By the end of the course the student should be able to provide core knowledge of advances in nuclear medicine fields like Single Photon Emission Tomography (SPECT) and positron Emission Tomography (PET).

a5. Define and discuss the main concepts of tracer kinetics of labeled molecules and the ability to extract quantitative biological data form these studies.

a6. Capable of addressing the radiation protection concepts and safety issues and its relation to health physics

b) Intellectual Skills:

By the end of the course the student should have the ability to:

b1. Calculate the specific activity, half life, average life time & decay factors of different commonly used radionuclides.

b2. Qualify the images quality of radionuclide imaging by the gamma camera.

b3. Awareness of the FAQ about the radiation and radiation protection.

c) Professional and Practical Skills:

By the end of the course the student should have the ability to:

c1. Preparing radiopharmaceuticals for using it in common nuclear medicine procedures.
c2. Capable of image processing in different radionuclide imaging procedures.
c3. Identification of common problems of radiation protection, usage of radioactive materials, radiation protection, image processing and how to solve these problems.
c4. Identification of quality control measures of different nuclear medicine instrumentations.
c5. Usage of radiation protection and radiation counting methods.

d) General and Transferable Skills:

By the end of the course the student should have the ability to:

d1. Appreciate the importance of life long learning and show a strong commitment to it.
d2. Use the sources of biomedical information to remain current with the advances in knowledge and practice.
d3. Use data analysis and communication skills
d4. Respect, be willing to work through systems, collaborate with other members of the students.
d5. Be reliable and responsible in fulfilling obligations.
d6. Effectively utilize various computer based instruction tools and E-learning of physics of Nuclear Medicine and utilize a variety of computer-based self assessment tools.
d7. Accept the limitation in knowledge and always strive for excellence.

3. Course contents:

Topic	No. of hours	Lecture	Practical
1- Basic atom and Nuclear Physics:	2	2	
1.1. Quantities and Units.			
1.2. The Atom.			
1.3. The Nucleus.			
2- Modes of radioactive decay:	2	2	
2.1. decay by: α, β, γ emission, isometric transition and internal conversion, electron capture			
2.2. Decay modes and line of stability.			
3- Decay of radioactivity:	2	2	
3.1. Activity, specific activity.			
3.2. Determining decay factor.			
4- Radionuclide and radiopharmaceutical production:	3	3	
4.1. Reactor produced RN.			
4.2. Accelerator produced RN.			
4.3. RN Generators.			
4.4. Equation of RN production.			
4.5. Radionuclide for nuclear medicine.			
4.6. Radiopharmaceuticals preparation.			
5- Interaction of radiation with matter:	2	2	

5.1. Interactions of charged particles.			
5.2. Passage of photons through matter.			
5.3. Attenuation of photon beams.			
6Radiation Detectors:	2	2	
6.1 Gas filled detectors.			
6.2 Semiconductor detectors.			
6.3 Scintillation detectors.			
6.4 Electronic instrumentation for radiation detection systems.			
6.5 Problems in radiation detection and measurements.			
6.6 Counting Systems: 6.6. NaI (Tl) Well counter 6.6b. Conventional NaI (Tl) detectors. 6.6c. Liquid scintillation counters. 6.6d. Gas filled detectors. 6.6e. Semiconductor detectors. 6.6f. In vivo counting systems.			
7 Gamma Camera	3	3	
7.1 Basic princibles: 7.1a. General concepts of radionuclide imaging 7.1b. Basic principles of Gamma Camera: system components, detector system & electronics, collimators, event detection.			
7.2 Performance and characteristics.			
8Image quality in Nuclear Medicine:	2	2	
8.1 Methods for characterizing and evaluating image quality.			
8.2 Spatial Resolution, contrast, noise.			
9 Tomographic Reconstruction.	2	3	
10- SPECT:	3	3	
10.1 SPECT system.			
10.2 Practical implementation of SPECT.			
10.3 Performance characteristics of SPECT.			
11PET:	3	3	
11.1 Annihilation coincidence detection.			
11.2PETdetector and scanner designs.			
11.3 Data acquisition for PET.			
11.4 Data correction and quantitative aspects of PET.			
12-Digital image processing in nuclear medicine.	2	2	
13-Radiation Safety and Health physics:	1	1	
13.1 Quantities and Units.			
13.2 Regulations to the use of radionuclide.			
13.3 Safe handling and disposal of radioactive materials.			
13,4adiation monitoring.			
TOTAL	30	30	
Credit hours	2	2	

4. Teaching and Learning Methods

4.1. Lectures.

4.2. Practical learning on field of hot laboratory and Gamma Camera.

4.3. Sample problems with solution to illustrate certain quantitative relationships and to demonstrate stranded calculations that are daily required in the field of Nuclear medicine.

4.3. Figures, tables & presentations.

4.5. The internet.

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3-Structured Oral Exams	- Knowledge

Assessment Schedule

Assessment 1. Attendance and absenteeism (formative)

Assessment 2. Final Written examination: week 24

Assessment 3. Final Oral examination: week 24

Weighting of Assessments

Final-term Examination 50%

Oral Examination 50%

Total 100%

formative only assesment:simple research assignment,attendance and absenteeism.

6. List of References

6.1- Essential Books (Text Books):

- Sorenson's Physics in Nuclear Medicine.

7. Facilities Required for Teaching and Learning:

a. Adequate Infrastructure:including testching class,comfortable desks,good areation,bathrooms,good illumination,safty & security tools.

b. Teatching tools:including screens,computers,data shows,projectors,flip charts,white boards,video player,digital video camera,scanner,copier,colour&laser printers.

c. Computer Program:for designing &evaluating MCQs.

Course Coordinator: Wafaa Abd Elhamied

Head of department: Dr: Al-Saied Mostafa Ali

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013,Revised:1/12/2018

Course Specification of Radiation Protection in MD degree in Nuclear Medicine

Sohag university **Faculty of medicine**

1. Program on which the course is given: MD degree in Nuclear Medicine
2. Major or minor element of program: Minor
3. Department offering the program: Oncology & Nuclear Medicine Department.
4. Department offering the course: Oncology & Nuclear Medicine Department.
5. Academic year / level:1st part of doctoral degree in Nuclear Medicine.
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specification of Radiation Protection in MD degree in Nuclear Medicine

Code: ONC - NUC0521-300

Credit Hours: 2 hours

Title	Lectures	Practical	Total	Credit
Radiation Protection	**30**	**-**	**30**	**2**

B. Professional Information

1. Overall Aims of Course

By the end of the course the post graduate students should be able to:

- Apply the basic principles of radiation protection to reduce exposure to patients and staff.
- Apply the techniques of radiation monitoring of the area and the personnel
- Practice the techniques of decontamination and radioactive waste disposal

2. Intended Learning Outcomes of Course (ILOs):

According to the intended goals of the faculty

a) Knowledge and Understanding:

By the end of the course the student should have the sufficient knowledge about the basic principles of radiation protection.

a1. Describe methods of radioactive protection.

b) Intellectual Skills:

By the end of the course the student should have the ability to:

b1. Apply the basic principles of radiation protection to reduce exposure to patients and staff.
b2. Plan to improve performance in dealing with physical accidents
b3. Apply the techniques of radiation monitoring of the area and the personnel
b4. Practice the techniques of decontamination and radioactive waste disposal

c) Professional and Practical Skills:

By the end of the course the student should have the ability to:

c1. Apply the basic principles of radiation protection to reduce exposure to patients and staff.

c2. Evaluate and develop methods and tools existing in the area of Nuclear Medicine
c3. Practice the techniques of decontamination and radioactive waste disposal

d) General and Transferable Skills:

By the end of the course the student should have the ability to:

d1. Appreciate the importance of life long learning and show a strong commitment to it.
d2. Use the sources of biomedical information to remain current with the advances in knowledge and practice.
d3. Use data analysis and communication skills
d4. Teach others and evaluate their performance in radiation protection
d5. Respect, be willing to work through systems, collaborate with other members of the students.
d6. Be reliable and responsible in fulfilling obligations.
d7. Effectively utilize various computer based instruction tools and E-learning of physics of Nuclear Medicine and utilize a variety of computer-based self assessment tools.
d8. Accept the limitation in knowledge and always strive for excellence.

3. Course contents:

Topic	No. of hours	Lecture	Practical
1- Diagnostic and nuclear medicine occupational exposure and risks			
1.1. Acute radiation syndrome.	3	3	
1.2. Effect of irradiation on fetus.	3	3	
2- Sources of exposure of man I.R			
2.1. Units of ionizing radiation. 2.2. International recommendation MPDs & MPC	2 2	2 2	
2.3. Organization of radiation protection in nuclear medicine Department	2	2	
2.4. Legislation of radiation protection	3	3	
2.5. monitoring of radiation N.M.	3	3	
2.6. Methods of radiation protection in N.M. department	3	2	
2.7. Radiation doses for various N.M investigation and treatment	3	3	
2.8. Risk estimates to patients radiation workers and population for various nuclear medicine procedures	3	3	
2.9. Management of radiation contamination of accidents of N.M. departments	3	3	
TOTAL	**30**	**30**	
Credit hours	**2**	**2**	

4. **Teaching and Learning Methods**

4.1. Lectures.

4.2. Practical learning on field of hot laboratory and Gamma Camera.

4.3. Sample problems with solution to illustrate certain quantitative relationships and to demonstrate stranded calculations that are daily required in the field of Nuclear medicine.

4.3. Figures, tables & presentations.

4.5. The internet.

5. **Student Assessment Methods**

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3-Structured Oral Exams	- Knowledge

Assessment Schedule

Assessment 1. Attendance and absenteeism (formative)

Assessment 2. Final Written examination: week 24

Assessment 3. Final Oral examination: week 24

Weighting of Assessments

Final-term Examination	50%
Oral Examination	50%
Total	100%

formative only assesment:simple research assignment,attendance and absenteeism.

6. **List of References**

6.1- Essential Books (Text Books):

- Elithabeth's of Radiobiology.

6.2- periodicals, web sites, etc.

7. **Facilities Required for Teaching and Learning:**

a. Adequate Infrastructure:including testching class,comfortable desks,good areation,bathrooms,good illumination,safty & security tools.

b. Teatching tools:including screens,computers,data shows,projectors,flip charts,white boards,video player,digital video camera,scanner,copier,colour&laser printers.

Course Coordinator: Wafaa Abd Elhamied

Head of department: Dr: Al-Saied Mostafa Ali

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013,Revised:1/12/2018

Course Specification of Pathology in MD degree in Nuclear Medicine

Sohag university **Faculty of medicine**

1. Program on which the course is given: MD degree in Nuclear Medicine
2. Major or minor element of program: Minor
3. Department offering the program: Oncology & Nuclear Medicine Department.
4. Department offering the course: Pathology Department.
5. Academic year /level: 1st part of Doctorate degree in Nuclear Medicine
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specification Of Pathology in MD degree in Nuclear Medicine

Code: PAT 0521-300

lecture	Practical	Total	Credit Hours
30	-	30	2

B. Professional Information

1. Overall Aims of Course

By the end of the course the post graduate students should be able to have the professional knowledge of the pathology of medical diseases, in addition to cancer pathology of different organs, staging, prognostic factors and their relation with treatment outcome of different types of cancer.

2. Intended Learning Outcomes of Course (ILOs):

According to the intended goals of the faculty

a) Knowledge and Understanding:

By the end of the course the student should be able to:

a1. Develop understanding basis of general and systemic pathology.

a2. Enumerate the knowledge and understanding of general pathology of cancer & correlates radiological & ultrasonographic picture with histopathologic pictures.

a3. Become familiar with etiology, pathogenesis and pathologic manifestation of diseases.

a4. Be able to correlate gross and histopathology with the clinical basis of diseases.

a5. Have sufficient information about the fate and complications and prognosis of different diseases.

a6. By the end of the course the student should be able to provide core knowledge of processes affecting organ system, with an emphasis on understanding mechanisms of disease.

a7. Define and discuss the main disease categories that may affect the body (general pathology) & correlates radiological & songraphic picture with histopathologic pictures.

b) Intellectual Skills:

By the end of the course the student should have the ability to:

b1. Interpret in a professional manner a pathology report.

b2. Able to solve pathological problems

b3. Data interpretation

c) Professional and Practical Skills:

By the end of the course the student should have the ability to:

c1. Identify the macroscopic and microscopic criteria of the altered structure (pathology) of the body and its major organs and systems that are seen in various diseases.

c2. Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, and degenerative) and mechanisms of diseases and the way through which they operate in the body (pathogenesis).

d) General and Transferable Skills:

By the end of the course the student should have the ability to:

d1. Appreciate the importance of life long learning and show a strong commitment to it.

d2. Use the sources of biomedical information to remain current with the advances in knowledge and practice.

d3. Write a report commenting on a pathological specimen.

d4. Use data analysis and communication skills

d5. Respect, be willing to work through systems, collaborate with other members of the students.

d6. Be reliable and responsible in fulfilling obligations.

d7. Effectively utilize various computer based instruction tools and E-learning of Pathology and utilize a variety of computer-based self assessment tools.

d8. Accept the limitation in knowledge and always strive for excellence.

3. Course contents:

Topic	No. of hours	Lecture	Practical
1- General Pathology:	3	3	
1.1. General pathology of tumors.			
1.2. Effect of ionizing radiation.			
1.3. Immunological basics of tumors.			
1.4. Molecular biology of tumors.			
2- Heart:	3	3	
2.1. Myocardial ischemia and infarction			
2.2. Cardiomyopathy & heart failure.			
3- Respiratory system:	3	3	
3.1. Tumors of lung & pleura.			
3.2. Tumors of the mediastinum.			
4- Gastrointestinal tract:	3	3	
4.1. Tumors of the GIT			
4.2. Tumors of the liver, gall bladder & pancreas			
5- Kidney & male genital system:	3	3	
5.1. Tumors of the kidney & urinary bladder.			
5.2. Tumors of the testis & prostate.			
7- The musculoskeletal system:	3	3	

7.1. Tumors of bone & joints.			
7.2. Tumors of soft tissues.			
8- Brain:	3	3	
8.1. Tumors of the brain.			
8.2. Tumors of the spinal cord.			
9-Diseases of blood, lymph nodes, and spleen:	3	3	
9.1. Leukemia & lymphomas.			
9.2. Multiple myeloma.			
10- Tumors of the female genital system & breast.	3	3	
10.1. Tumors of uterus & ovary.			
10.2. Tumors of the breast.			
11- Endocrine system:	3	3	
11.1. Thyroid & parathyroid tumors.			
11.2. Adrenal gland tumors.			
Total	**30**	**30**	
Credit Hours	**2**	**2**	

4. Teaching and Learning Methods

4.1. Lectures.

4.2. Gross and histopathology (Jars & slides).

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3-Structured Oral Exams	- Knowledge

Assessment Schedule

Assessment 1. Attendance and absenteeism (formative)

Assessment 2. Final Written examination: week 24

Assessment 3. Final Oral examination: week 24

Weighting of Assessments

Final-term Examination	50%
Oral Examination	50%
Total	100%

formative only assesment:simple research assignment,attendance and absenteeism.

6. List of References

6.1- Essential Books (Text Books):

- Muir's text book of pathology, 15th edition, 2014.
- Robbins Pathologic Basis of Diseases, 10th edition, 2015.

6.2- Recommended Books:

- Rosai&Ackerman text book of Pathology, 11th edition,2017
- Sternberg text book of Pathology, 6th edition, 2015.

6.4- Periodicals, American journal of pathology

Pathology
Human pathology
Web Sites: http://www.ncbi.nlm.nih.gov/pubmed/

7. Facilities Required for Teaching and Learning:

a. Adequate Infrastructure:including testching class,comfortable desks,good areation,bathrooms,good illumination,safty & security tools.
b. Teatching tools:including screens,computers,data shows,projectors,flip charts,white boards,video player,digital video camera,scanner,copier,colour&laser printers.

Course Coordinator: Dr. Eman Muhammad Salah El Deen

Head of Pathology Department: Dr. Afaf Taha El- Nashar

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018

Course Specification of Diagnostic & Therapeutic Nuclear Medicine in MD degree in Nuclear Medicine

Sohag university **Faculty of medicine**

1. Program on which the course is given: MD degree in Nuclear Medicine
2. Major or minor element of program: Major
3. Department offering the program: Oncology Nuclear Medicine Department.
4. Department offering the course: Oncology & Nuclear Medicine Department.
5. Academic year / 2nd part of doctoral degree in Nuclear Medicine.
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specification Of Diagnostic Nuclear Medicine in MD degree in Nuclear Medicine
Code: ONC-NUC 0521-300

Title	Lectures	Practical	Total	Credit
Diagnostic Nuclear Medicine	105	180	285	13

Title: Course Specification Of Therapeutic Nuclear Medicine in MD degree in Nuclear Medicine
Code: ONC- NUC 0521-300

Title	Lectures	Practical	Total	Credit
Therapeutic Nuclear Medicine	105	210	315	14

B. Professional Information:-

1. Overall Aims of Course

Diagnostic Nuclear Medicine

a. To have standard clinical skills in diagnosis of different diseases using different diagnostic modalities with the radionuclide.
b. To have standard knowledge about different radionuclides used in diagnosis of diseases in the field of nuclear medicine.
c. To have special skills in different diagnostic nuclear medicine technique.
d. Application of diagnostic nuclear medicine in different health care services.
e. Provide the candidates with the master degree to start professional careers as specialists in Egypt and to be recognized as specialists abroad.
f. Provide the candidates with the skills to enable them to obtain higher degrees in Egypt and abroad.

Therapeutic Nuclear Medicine

a. To have standard clinical skills in of radionuclide therapy in endocrine and malignant diseases.

b. To have special skills in different therapeutic nuclear medicine techniques.
c. Application of nuclear medicine technology in different health care services.
d. Provide the candidates with the master degree to start professional careers as specialists in Egypt and to be recognized as specialists abroad.
e. Provide the candidates with the skills to enable them to obtain higher degrees in Egypt and abroad.

2. Intended Learning Outcomes of Course (ILOs)

Diagnostic Nuclear Medicine

a) Knowledge and Understanding:

By the end of the course the student should have

a1. To have standard knowledge about diagnosis of different diseases using different diagnostic modalities of nuclear medicine.

b) Intellectual Skills:

By the end of the course the student should have

b1. To have standard clinical skills in diagnosis of different diseases using different diagnostic modalities using the radionuclide.
b2. To have special skills in different diagnostic nuclear medicine technique.
b3. Application of diagnostic nuclear medicine in different health care services.

c) Professional and Practical Skills:

By the end of the course the student should have

c1. To have standard clinical skills in diagnosis of different diseases using different diagnostic modalities using the radionuclide.
c2. To have special skills in different diagnostic nuclear medicine technique.
c3. Application of therapeutic nuclear medicine in different health care services.

d) General and Transferable Skills:

By the end of the course the student should have the ability to:

d1. Appreciate the importance of life long learning and show a strong commitment to it.
d2. Use the sources of biomedical information to remain current with the advances in knowledge and practice.
d3. Write a report commenting on a diagnostic Nuclear Medicine study.
d4. Use data analysis and communication skills
d5. Respect, be willing to work through systems, collaborate with other members of the students.
d6. Effectively utilize various computer based instruction tools and E-learning of Nuclear Medicine and utilize a variety of computer-based self assessment tools.

Therapeutic Nuclear Medicine

a) Knowledge and Understanding:

By the end of the course the student should have

a1. To have standard knowledge about therapy of different diseases using different therapeutic radionuclides in the field of nuclear medicine.

b) Intellectual Skills:

By the end of the course the student should have

b4. To have standard clinical skills in treatment of different diseases using different therapeutic modalities using the radionuclide.
b5. To have standard clinical skills in of radionuclide therapy in endocrine and malignant diseases.
b6. To have special skills in different therapeutic nuclear medicine technique

c) Professional and Practical Skills:

By the end of the course the student should have

c1. To have standard clinical skills in treatment of different diseases using different therapeutic modalities using the suitable radionuclides.

c2. To have standard clinical skills in of radionuclide therapy in endocrine and malignant diseases.

c3. To have special skills in different therapeutic nuclear medicine technique.

d) General and Transferable Skills:

By the end of the course the student should have the ability to:

d1. Appreciate the importance of life long learning and show a strong commitment to it.

d2. Use the sources of biomedical information to remain current with the advances in knowledge and practice.

d3. Write a report commenting on a diagnostic Nuclear Medicine study.

d4. Use data analysis and communication skills

d5. Respect, be willing to work through systems, collaborate with other members of the students.

d6. Effectively utilize various computer based instruction tools and E-learning of Nuclear Medicine and utilize a variety of computer-based self assessment tools.

3. Course contents:

Diagnostic Nuclear Medicine

Topic	No. of hours	Lecture	clinical
A.Endocrinal system: 1-Thyrotoxicosis. 2-Hypothyroidism. 3-Thyroid nodules. 4-Thyroid cancers. 5-Parathyroid adenomas. 6-Suprarenal gland disorders.	49	13	23
B.Skeletal System: 1-Bone secondaries. 2-Osteomyelitis. 3-1ry Bone tumours. 4-Metabolic bone diseases. 5-Skeletal trauma. 6-Osteonecrosis & Infarction.	49	13	23
C.Hepatobiliary system: 1-Cholecystitis. 2-Biliary duct obstruction. 3-Choledocal cyst. 4-Biliary atrisia. 5-Postoperative biliary tract complications. 6-Liver Haemangiomas. 7-Hepatoma..	49	13	23
D.Genitourinary System: 1-Urinaty tract obstruction. 2-Urinary tract infection. 3-Hydronephrosis. 4-Renovascular hypertension. 5-Vesico-uretric reflux.	49	13	23

6-Renal transplant evaluation. 7-Testicular torsion. 8-Epididymitis. E.Gastrointestinal System: 1-Esophageal motility disorders. 2-Gasro-esophageal rflux . 3-Gastric motility disorders. 4-GIT bleeding. 5-Heterotopic gastric mucosa. F.Central Nervous System: 1-Demensia. 2-Stroke&cerebrovascular diseases. 3-Brain death. 4-Movement disorders. 5-Hydrochephalus. 6-tumour imaging. G.Cardiac System: 1-Congenital heart disease 2-Ischemic heart disease. H.Pulmonary System: 1- Pulmonary embolism. 2-Non embolic pulmonary diseases.	49 49 49 50	13 13 13 14	23 23 23 24
Total	**290**	**105**	**185**
Credit	**13**	**7**	**6**

Therapeutic Nuclear Medicine

Topic	No. of hours	Lecture	clinical
1-MIBG therapy in Neuroendocrinal tumours.	39	13	26
2-I131 therapy in Differentiated Cancer Thyroid.	40	14	26
3-Radionuclide joint therapy.	39	13	26
4-Palliation of bone pain from osteoplastic metastasis.	39	13	26
5-Radioimmunotherapy in: -Solid tumours. -Lymphoma.	39	13	26
6-Therapy with Phosphorus132 in: - Polycythemia Vera. -Pleural effusion.	39	13	26
7-I131 therapy of begnin thyroid diseases.	40	14	26
8-Radionuclide intracoronary brachytherapy.	40	12	28
Total	**315**	**105**	**210**
credit	**14**	**7**	**7**

4. Teaching and Learning Methods

4.1. Lectures.

4.2. Practical learning on clinical cases.
4.3. case presentations.
4.3. Figures, tables & presentations.
4.5. The internet.

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3-Structured Oral Exams	- Knowledge

Assessment Schedule

Assessment 1. Attendance and absenteeism (formative)
Assessment2. Final Clinical examination: week 96
Assessment 3. Final Written examination: week 96
Assessment 4. Final Oral examination: week 96

Weighting of Assessments

Final-term Examination separate exam
Passing in the written exam is a condition to attend the following exams:

Oral Examination 50%
clinical Examination & attendance and absenteeism 50%
Total 100%

formative only assesment:simple research assignment,log book,attendance and absenteeism.

6. List of References

6.1- Course Notes:

6.2- Essential Books (Text Books):

- Nuclear Medicine: The Requisites.
- Alexander Gottschhalk: Diagnostic Nuclear Medcine.
- Peter Ell: Clinical Nuclear Medicine.

6.3- Recommended Books:

- Mazzaferri: Essentials of thyroid cancer.

6.4- Periodicals, Web Sites, etc…

7. Facilities Required for Teaching and Learning:

a. Adequate Infrastructure:including testching class,comfortable desks,good areation,bathrooms,good illumination,safty & security tools.
b. Teatching tools:including screens,computers,data shows,projectors,flip charts,white boards,video player,digital video camera,scanner,copier,colour&laser printers.
c. Computer Program:for designing &evaluating MCQs.

Course Coordinator: Wafaa Abd Elhamied

Head of department: Dr: Al-Saied Mostafa Ali

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013,Revised:1/12/2018

Course Specification of Internal Medicine in MD degree in Nuclear Medicine

Sohag university **Faculty of medicine**

1. Program on which the course is given: MD degree in Nuclear Medicine
2. Major or minor element of program: Major
3. Department offering the program: Oncology & Nuclear Medicine Department
4. Department offering the course: Internal Medicine Department
5. Academic year /level :2nd part of Doctoral degree in Nuclear Medicine
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. Basic Information

Title: Course Specification Of Internal Medicine in MD degree in Nuclear Medicine
Code: MED 0521-300

Title	Lectures	Practical	Total	Credit
Internal Medicine	105	180	285	13

B. Professional Information:-

1. Overall Aims of Course

- To have standard clinical skills in diagnosis of different diseases using different diagnostic modalities using the radionuclide.
- To have standard clinical skills in of radionuclide therapy in endocrine and malignant diseases.
- To have special skills in different diagnostic and therapeutic nuclear medicine technique.
- Application of nuclear medicine technology in different health care services.
- Provide the candidates with the master degree to start professional careers as specialists in Egypt and to be recognized as specialists abroad.
- Provide the candidates with the skills to enable them to obtain higher degrees in Egypt and abroad.

2. Intended Learning Outcomes of Course (ILOs)

a) Knowledge and Understanding:

By the end of the course the student should have the ability to:

a1. To have standard knowledge about diagnosis of different internal medicine diseases using different diagnostic modalities of nuclear medicine.

b) Intellectual Skills:

By the end of the course the student should have the ability to:

b1. To have standard clinical skills in diagnosis of different diseases using different diagnostic modalities using the radionuclide.

b2. To have standard clinical skills in of radionuclide therapy in endocrine and malignant diseases.
b3. To have special skills in different diagnostic and therapeutic nuclear medicine technique.
b4. Application of nuclear medicine technology in different health care services.

c) Professional and Practical Skills:

By the end of the course the student should have the ability to:

c1. To have standard clinical skills in diagnosis of different diseases using different diagnostic modalities using the radionuclide.
c2. To have standard clinical skills in of radionuclide therapy in endocrine and malignant diseases.
c3. To have special skills in different diagnostic and therapeutic nuclear medicine technique.
c4. Application of nuclear medicine technology in different health care services.

d) General and Transferable Skills:

By the end of the course the student should have the ability to:

d1. Appreciate the importance of life long learning and show a strong commitment to it.
d2. Use the sources of biomedical information to remain current with the advances in knowledge and practice.
d3. Write a report commenting on a diagnostic Nuclear Medicine study.
d4. Use data analysis and communication skills
d5. Respect, be willing to work through systems, collaborate with other members of the students.
d6. Effectively utilize various computer based instruction tools and E-learning of Nuclear Medicine and utilize a variety of computer-based self assessment tools.

3. Course contents:

Topic	No. of hours	Lecture	practical
1. Medical Emergencies: 1.1. Acute renal failure 1.2. GIT bleeding 1.3. Pulmonary embolism 1.4. Heart failure	35	13	22
2. Endocrinology: 2.1. Thyroid gland disorders: 2.1.1. Hypothyroidism 2.1.2. Hyperthyroidism 2.1.3 Thyroiditis 2.1.4. Thyroid malignancies 2.2. Parathyroid disorders: Hyperparathyroidism 2.3. Suprarenal gland disorders: 2.3.1. Cushing's disease. 2.3.2. Addison's disease. 2.3.3. Pheochromocytoma 2.4. Pituitary 2.4.1. Hypopituitarism 2.4.2. Acromegaly	35	13	22

2.4.3. Gigantism 2.5. Complication of DM			
3. CNS: 3.1. Epilepsy 3.2. Stroke 3.3. Dementia	36	14	22
4. Nephrology: 4.1. Chronic renal failure 4.2. Golmerulonephritis 4.3. Pyelonephritis 4.4 Kidney transplant	35	13	22
5. Cardiovascular system: 5.1. CAD 5.2. Angina 5.3. Infarction 5.4. Cardiomyopathy 5.5. Hypertension	36	13	23
6. Respiratory system 6.1. Pulmonary embolism 6.2. COPD 6.3 Bronchogenic Carcinoma	36	13	23
7. Hematology: 7.1. Anaemias 7.2.Haemolytic anaemias 7.3. Megaloblastic anaemia 7.4. Aplastic anaemia 7.5. Hypersplenism	36	13	23
8. Gastroentrology: 8.1. Liver cirrhosis 8.2. Jaundice 8.3. Portal hypertension 8.4 Causes of hepatosplenomegaly	36	13	23
TOTAL	**285**	**105**	**180**
Credit hours	**13**	**7**	**6**

4. Teaching and Learning Methods

4.1. Lectures.
4.2. Clinical Practice.
4.3. Images and films review.
4.3. Seminars, presentations, graphs, pictures, tables, etc…

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3-Structured Oral Exams	- Knowledge

Assessment Schedule

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Weighting of Assessments

Final-term Examination separate exam
Passing in the written exam is a condition to attend the following exams:

Oral Examination	50%
Practical Examination & attendance and absenteeism	50%
Total	100%

formative only assesment:simple research assignment,log book,attendance and absenteeism.

6. List of References

6.1- Essential Books (Text Books):

- Kumar and Clarke Textbook of Medicine; Parveen Kumar and Richard Clark; Blackwell Science; 9th edition, 2018
-Hutchison's Clinical Methods; Robert Hutchison; Harry Rainy; 24st edition;2018

6.2- Recommended Books

- Goldman-Cecil Textbook of Medicine; 25th edition, 2018.
- Harrisson's principales of internal medicine , 20th edition, 2018.

6.3 Periodicals, Web Sites:

- WWW.American Heart Association. Com.
- WWW. American gastroenterology Association.com.
- WWW. Circulation.com.
- WWW. American Rheumatology Association.com.

7. Facilities Required for Teaching and Learning:

a. Adequate Infrastructure:including testching class,comfortable desks,good areation,bathrooms,good illumination,safty & security tools.
b. Teatching tools:including screens,computers,data shows,projectors,flip charts,white boards,video player,digital video camera,scanner,copier,colour&laser printers

Course Coordinator: Lecturer. Mohamed Hussein Ahmed El-Sayed El- Rashidy

Head of Department: Prof. Usama Ahmed Arafa.

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised: 1/12/2018

Course Specification of General Surgery in MD degree in Nuclear Medicine

Sohag university **Faculty of medicine**

1. Program on which the course is given: MD degree in Nuclear Medicine
2. Major or minor element of program: Major
3. Department offering the program: Oncology and Nuclear Medicine Department.
4. Department offering the course: General Surgery Department.
5. Academic year / level: 2nd part of doctoral degree in Nuclear Medicine.
6. Date of specification approval: Faculty council No. "317", decree No. "1533" dated 17/12/2018

A. **Basic Information**

Title: Course Specification of Surgery in MD degree in Nuclear Medicine

Code: SUR 0521-300

Title	Lectures	Practical	Total	Credit
Surgery	105	180	285	13

B. Professional Information

1. Overall Aims of Course

By the end of the course the post graduate students should be able to:

- Apply the basic principles of radiation protection to reduce exposure to patients and staff.
- Apply the techniques of radiation monitoring of the area and the personnel
- Practice the techniques of decontamination and radioactive waste disposal

2. Intended Learning Outcomes of Course (ILOs)

a) Knowledge and Understanding:

By the end of the programme, the student is expected to:-

a1. Enumerate basics of general surgery (shock, haemoperitoneum, ascites, and peritonitis.
a2. Mention update in management of head injury.
a3. Describe update in management of jaw swelling.
a4. List and understand update in management of oesophageal cancer, non malignant obstructions.
a5. Mention and understand of G.I.T. diseases.
a6. Enumerate of abdominal masses.
a7. Enumerate of portal hypertension.

b) Intellectual Skills: -

By the end of the program, the student is expected to:-

b1. Understand scientific thinking.
b2. Understand skills of observation.
b3. Understand skills of description and interpretion of what he observes.

c) **Professional and Practical Skills:-**

By the end of the program, the student is expected to:-

c1. Understand treatment options done to cancer patients

d) **General and Transferable Skills:-**

By the end of the programme, the student is expected to:-

d1. Understand skills of observation and description

d2. Acquire skills of working within team.

d3. Acquire skills of logical and scientific thinking..

3. Course contents:

Topic	No. of hours	Lecture	clinical
General surgery	40	15	25
Head injury	40	15	25
Jaw swelling	41	15	26
Oesophageal cancer, non malignant obstructions.	41	15	26
G.I.T. diseases	41	15	26
Abdominal masses	41	15	26
Portal hypertension	41	15	26
Total	285	105	180
Credit Hours	13	7	6

4. Teaching and Learning Methods

4.1. Lectures.

4.2. Practical learning on clinical cases.

4.3. case presentations.

4.3. Figures, tables & presentations.

4.5. The internet.

5. Student Assessment Methods

Method of assessment	The assessed ILOs
5.1- Observation of attendance and absenteeism.	- General transferable skills, intellectual skills
5.2-Written Exams:	- Knowledge
-Short essay: 40%	- Knowledge
-structured questions: 25%	- Knowledge, intellectual skills
-MCQs: 20%	- Intellectual skills, General transferable skills,
-Commentary, Problem solving: 15%	- Practical skills, intellectual skills
5.3-Structured Oral Exams	- Knowledge

Assessment Schedule

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Weighting of Assessments

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Oral Examination 50%

Practical Examination & attendance and absenteeism 50%

Total 100%

formative only assesment:simple research assignment, log book, attendance and absenteeism.

6. List of References

6.1- Course Notes

Department books

6.2- Essential Books (Text Books)

1-Baily and Love

2-Schwartz

6.3- Periodicals, Web Sites, … etc

Freemedical journals.com

7. Facilities Required for Teaching and Learning:

a. Adequate Infrastructure: including testching class, comfortable desks, good areation, bathrooms, good illumination, safty & security tools.
b. Teatching tools: including screens, computers, data shows, projectors, flip charts,white boards, video player, digital video camera, scanner, copier, colour&laser printers.

Course Coordinator: Prof. Dr. Alaa El Syoty

Head of Department: Prof. Dr. Nabil Abo – El Dahab

Date: 18/12/2011, Revised:1/9/2012, Revised:1/12/2013, Revised:1/12/2018