Master (MSC) Degree Program and Courses Specifications for Clinical Oncology

(According to currently applied Credit points bylaws)

Clinical Oncology department

Faculty of medicine

AssiutUniversity

2022-2023

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Master degree of Clinical Oncology

A. Basic Information

- **Program Title: Master degree of Clinical Oncology**
- **Nature of the program: Single.**
- **Responsible Department: Clinical Oncology Dept Program Academic Director (Head of the Department):**

  Prof. Samir Shehata
- **Coordinator (s):**

  Principle coordinator:

  Dr. Rehab Farouk Mohamed

  Assistant coordinator (s)

  Dr. Samar El- Morshidy

Internal evaluators: Prof. Samir Shehata

External evaluator : Prof. Emad Hamada & Prof. Ehsan El Ghonemy- (Cairo University)

- **Date of Approval by the Faculty of Medicine Council of Assiut University: 23-9- 2014**
- **Date of most recent approval of program specification by the Faculty of Medicine Council of Assiut University: 27-11-2022**
- **Total number of courses:** 6 **courses + one elective course**

B. Professional Information

1- Program aims

1/1 To enable candidates to acquire satisfactory level of clinical skills, bedside care skills, in addition to update medical knowledge as well as clinical experience and competence in the area of radiation therapy, clinical oncology and enabling the candidates of making appropriate referrals to a sub-specialist.

1/2Provide candidates with fundamental knowledge of Clinical Oncology regarding; Skillful management of different cancers; professional communication with cancer patients, mastering the indications, contraindications and use of chemotherapy in different cancers. Becoming knowledgeable about current and recent radiotherapy techniques and different radiotherapy equipments, in addition to knowledge of recent National and International policies and treatment recommendations in the field of Clinical Oncology.

1/3 Provide candidates with fundamental knowledge and skills of clinical oncology as regards; dealing with critically ill cancer patients, indications, contraindications and training skills of different radiation and chemotherapy techniques.

1/4 Introduce candidates to the basics of scientific medical research.

1/5 To enable candidates to start professional careers as specialists in Egypt but recognized abroad.

1/6 To enable candidates to perform high standard scientific medical research and learn how to proceed with publications in indexed medical journals.

2- Intended learning outcomes (ILOs) *for the whole program*:

2/1Knowledge and understanding:

A. Explain the essential facts and principles of relevant basic sciences including, Physics of radiation, Pathology of tumors, Basics of Nuclear medicine and Radioisotopes techniques, Radiobiology related to Clinical oncology.

B. Mention essential facts of clinically supportive sciences including –General Surgery and Internal Medicine related to Clinical Oncology.

C. Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention and treatment of common diseases and situations related to Clinical Oncology.

D. Give the recent and updated developments in the pathogenesis, diagnosis, prevention and treatment of common diseases related to Clinical oncology.

E. Mention the basic ethical and medicolegal principles that should be applied in practice and relevant to Clinical oncology.

F. Mention the basics and standards of quality assurance to ensure good clinical practice in the field of Clinical oncology.

G. Mention the ethical and scientific principles of medical research methodology.

H. State the impact of common health problems in the field of Clinical oncology on the society and how good clinical practice improves these problems.

2/2 Intellectual outcomes

A.Correlate the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases of the Clinical Oncology.

B.Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical situations related to Clinical Oncology

C. Design and /or present a case or review (through seminars/journal clubs) in one or more of common clinical problems relevant to the Clinical Oncology
D. Formulate management plans and alternative decisions in different situations in the field of the Clinical Oncology.

2/3 Skills

2/3/1 Practical skills (Patient Care)

A. Obtain proper history and examine patients in caring and respectful behaviors.
B. Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment for common conditions related to Clinical Oncology.
C. Carry out patient management plans for common conditions related to Clinical Oncology.
D. Use information technology to support patient care decisions and patient education in common clinical situations related to Clinical Oncology.
E. Perform competently non invasive and invasive procedures considered essential for the Clinical Oncology.
F. Provide health care services aimed at preventing health problems related to Clinical Oncology.
G. Provide patient-focused care in common conditions related to Clinical Oncology, while working with health care professionals, including those from other disciplines
H. Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets (Write a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records)

2/3/2 General skills

Including:

- Practice-based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-based Practice

Practice-Based Learning and Improvement

A. Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).
B.Appraises evidence from scientific studies.
C. Conduct epidemiological Studies and surveys.
D. Perform data management including data entry and analysis and using information technology to manage information, access on-line medical information; and support their own education.
E. Facilitate learning of students and other health care professionals including their evaluation and assessment.

Interpersonal and Communication Skills

F. Maintain therapeutic and ethically sound relationship with patients.

G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.

I. Work effectively with others as a member of a health care team or other professional group.

Professionalism

J. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society

K. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices

L. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities

Systems-Based Practice

M. Work effectively in relevant health care delivery settings and systems including good administrative and time management.

N. Practice cost-effective health care and resource allocation that does not compromise quality of care.

O. Assist patients in dealing with system complexities.

3- Program Academic Reference Standards (ARS) (Annex 2)

Academic standards for master degree in Clinical Oncology.

Assiut Faculty of Medicine developed master degree programs' academic standards for different clinical specialties.

In preparing these standards, the General Academic Reference Standards for post graduate programs (GARS) were adopted. These standards set out the graduate attributes and academic characteristics that are expected to be achieved by the end of the program. These standards were approved by the Faculty Council on 17-6- 2009. These standards were revised and approved without changes by the Faculty Council on 23-9-2014.These standards were revised recently and reapproved without changes by the Faculty Council on 27-11-2022.

4- Program External References (Benchmark)

1. ACGME (Accreditation Council for Graduate Medical Education).
http://www.acgme.org/acWebsite/navPages/nav_Public.asp
2. Residency training program in **radiation oncology - University of Rochester Medical Center -Strong Memorial Hospital.**
http://www.urmc.rochester.edu/smd/gme/prospective/radiation_oncology/

Comparison between program and external reference		
Item	Clinical Oncology program (Assiut University)	Residency training program in radiation oncology - University of Rochester Medical Center
Goals	Matched	Matched
ILOS	Matched	Matched
Duration	3-5 years	5-years
Requirement	Different	Different
Program structure	Different	Different

5. Program Structure and Contents

A. Duration of program: 3 – 5 years
B. Structure of the program:
Total contact number of credit points 180 point (20 out of them for thesis)
Didactic# 40 (22.2 %), practical 120 (66.7%), thesis 20 (11.1%), total 180
First part
Didactic 14 (35 %), practical 24 (60 %), elective course 2 CP (5%), total 40
Second part
Didactic 24 (20%), practical 96 (80 %), total 120
 # Didactic (lectures, seminars, tutorial)

According the currently applied credit points bylaws:

Total courses 160 credit point

Compulsory courses: 98.9%

Elective course: 2 credit point =1.25%

	Credit points	% from total
Basic science courses	24	13.3%
Humanity and social courses	2	1.1%
Specializty courses	134	74.5%
Others (Computer, …)		
Field training	120	66.7%
Thesis	20	11.1%

C. Program Time Table

A. Duration of program 3 years maximally 5 years divided into

- **Part 1: (One year)**

  Program-related basic science courses and ILOs

  Students are allowed to sit the exams of these courses after 12 months from applying to the MSc degree.

  One elective course can be set during either the 1st or 2nd parts.

- **Thesis**

  For the MSc thesis;

  MSc thesis subject should be officially registered within 6 months from application to the MSc degree,

  Discussion and acceptance of the thesis could be set after 12 months from registering the MSc subject;

  It should be discussed and accepted before passing the second part of examination)

- **Part 2 (2 years)**

Program –related Speciality courses and ILOs

Students are not allowed to sit the exams of these courses before 3 years from applying to the MSc degree.

The students pass if they get 50% from the written exams and 60% from oral and clinical/practical exams of each course and

60% of summation of the written exams, oral and clinical/practical exams of each course
Total degrees 1900 marks.
700 marks for first part
1200 for second part
Written exam 40% - 70%.
Clinical/practical and oral exams 30% - 60%.

D. Curriculum Structure: (Courses):

Curriculum Structure: (Courses / units/ rotations):

Year 1

The first year of the residency is primarily for basic science related medical knowledge internal medicine and General surgery (studied in speciality courses over 12 months in collaboration with basic sciences department and internal medicine and General surgery departments of Assiut Faculty of Medicine) and a clinical year during which the resident gain experience with a wide variety of patients in inpatient and outpatient settings, develop proficiency in the performance and appropriate utilization of various procedures and develop proficiency in the utilization and interpretation of Clinical Oncology studies. Throughout the year, emphasis is placed on developing: 1) an understanding of basic mechanisms and pathophysiology of Different cancers; 2) the ability to efficiently formulate clinical assessments and therapeutic plans; 3) the ability to critically analyze the relevant medical literature; and 4) skills in communicating with nursing and medical staff as well as house staff.

Years 2 and 3

Although the primary focus of the second and third year is the development of skills and experience in research (see below), senior residents continue to participate in clinical

activities and certain procedures. First, they maintain their longitudinal outpatient and inpatient clinic experience throughout these years. Senior residents will also actively participate in the regular weekly scientific seminars and collaborate with those residents in their first year. In addition, residents rotate through the different inpatient clinical services approximately three months on clinical rotations. This rotation complements the previous inpatient and outpatient experiences.

Approximately by the end of the first year, residents are expected to identify a research area in which the subsequent two years will be focused. Together, the trainee and supervisors develop a project for investigation that is of interest to the trainee and within the expertise of the faculty member; in certain instances, joint mentorship provided by two faculty members within the Division, or by one divisional faculty member and a collaborator from another unit, is appropriate. By the beginning of the second year, the resident presents a conference in which he/she synthesizes existing knowledge, presents the problem for investigation, and describes the proposed plan of investigation. The faculty members and residents in attendance provide feedback to the resident and supervisors about the proposed project; this process of peer review provides a useful experience for the fellow and often strengthens the experimental approach.

During the second and third years, the trainee carries out the proposed work in the clinical research facilities of the faculty mentor(s). The trainee also benefits from interactions with other trainees, technicians, and collaborating investigators. The trainee also participates in laboratory meetings and journal clubs specific to individual research groups. Presenting research findings at regional

and national meetings and submitting work for publication are both important aspects of the investigative endeavor. The trainee will receive guidance and specific assistance in learning to prepare data for oral and written presentation, to prepare graphics, and to organize talks and prepare slides. Throughout the research training period, it is anticipated that the fellow will assume increasing intellectual responsibility and technical independence.

Research Pathway

Selection of a research project and supervisors is subject to the approval of the Clinical Oncology Department council approval and vice-Dean of post graduate studies of the faculty as officially regulated. Fellows may elect clinical trial, meta-Analysis/ systematic Review, clinical audit or epidemiological studies -based research training pathways. For all Master degree students, a research advisory committee will be selected based on the approved regulatory rules of the faculty council. This committee will monitor the progress of research fellows and provide advice regarding research training and career development.

Levels and courses of the program:

Courses and student work load list	Course Code	Credit points		
		Lectures	training	Total
First Part				
Basic science courses (8CP)				
1) Course 1: Physics of radiation.	**ONM227A§**	**3**		**3**
2) Course 2: Pathology of tumors	**ONM205**	**2**		**2**
3) Course 3: Basics of Nuclear medicine and Radioisotopes techniques	**ONM227B**	**1**		**1**
4) Course 4: Radiobiology	**ONM227C**	**5**		**5**
General clinical compulsory courses (6 points)				
5) Course 5: Internal Medicine related to oncology& General Surgery related to oncology	**ONM227D#**	**3**		**3**
Unit (Module) 1: General Surgery related to oncology		**1.5**		
Unit (Module) 2: Internal Medicine related to oncology		**1.5**		
Elective courses*				
Clinical training and scientific activities:				
Clinical training in General clinical compulsory courses (10 CP)				
5) Course 5: Internal Medicine related to oncology& General Surgery related to oncology	**ONM227D#**	**10**		**10**
Unit (Module) 1: General Surgery related to oncology		**5**		
Unit (Module) 2: Internal Medicine related to oncology		**5**		
Clinical training and scientific activities in Speciality course (14 CP) (Clinical Oncology (Advanced))	**ONM227E**		**14**	**14**
Total of the first part		**16**	**24**	**40**

Second Part	Speciality courses Speciality Clinical Work (log Book)			
Speciality Courses **6) Course 6 *(Clinical Oncology Advanced)***	**ONM227E**	**24**		**24**
Training and practical activities in specialty (96 CP) (Clinical Oncology Advanced)	**ONM227E**		**96**	**96**
Total of the second part		**24**	**96**	**120**
Thesis	**20 CP**			
Total of the degree	**180 CP**			

 # Didactic (lectures, seminars, tutorial)

* Elective courses can be taken during either the 1st or 2nd parts.

Student work load calculation:

Work load hours are scheduled depending on the type of activities and targeted competences and skills in different courses

Elective Courses#:

- Medical statistics.
- Evidence based medicine.
- Medicolegal Aspects and Ethics in Medical Practice and Scientific Research
- Quality assurance of medical education
- Quality assurance of clinical practice.
- Hospital management

One of the above mentioned courses are prerequisites for fulfillment of the degree.

Thesis:

20 CP are appointed to the completion and acceptance of the thesis.

6. Courses Contents (Annex 1)

The competency based objectives for each course/module/rotation are specified in conjunction with teaching/training methods, requirements for achieving these objectives and assessment methods.

<u>See Annex 1 for detailed specifications for each course/ module</u>

7-Admission requirements

- **Admission Requirements (prerequisites) if any :**
  - **I. General Requirements:**
    - MBBCh Degree from any Egyptian Faculties of Medicine
    - Equivalent Degree from medical schools abroad approved by the Ministry of Higher Education
    - One year appointment within responsible department (for non Assiut University based registrars)
  - **II. Specific Requirements:**
    - Fluent in English (study language)

VACATIONS AND STUDY LEAVE

The current departmental policy is to give working residents 2 weeks leave prior to first/ second part exams.

FEES:

As regulated by the postgraduate studies rules and approved by the faculty vice dean of post graduate studies and the faculty and university councils

8-Progression and completion requirements

- Examinations of the first part could be set at 12 months from registering to the MSc degree.
- Examination of the second part cannot be set before 3 years from registering to the degree.
- Discussion of the MSc thesis could be set after 1 year from officially registering the MSc subject before setting the second part exams.
- The minimum duration of the program is 3 years.

The students are offered the degree when:

1. Passing the exams of all basic science, elective and speciality courses of this program as regulated by the post graduates approved rules by the faculty council.
2. Completing all scheduled CP and log book (minimum 80%).
3. Discussion and acceptance of the MSc thesis.

9- Program assessment methods and rules (Annex IV)

ILOs measured	Method
K & I	**Written examinations:** **Structured essay questions** **Objective questions:** **MCQ** **Problem solving**
K ,I, P &G skills	**Clinical:** **Long/short cases** **OSCE**
K ,I &G skills	**Structured oral**
All	**Logbook assessment**
I &G skills	**Research assignment**

Weighting of assessments:

Courses		Degrees			
	Course code	Written Exam	Oral Exam*	Practical / Clinical Exam	Total
First Part					
Basic science courses:					
Course 1: Physics of radiation	**ONM227A§**	**60**	**45**	**45**	**150**
Course 2: Pathology of tumors	**ONM205**	**40**	**30**	**30**	**100**
Course 3: Basics of Nuclear medicine and Radioisotopes techniques	**ONM227B**	**20**	**15**	**15**	**50**
Course 4: Radiobiology	**ONM227C**	**100**	**75**	**75**	**250**
General clinical courses					
Course 5: Internal Medicine related to oncology& General Surgery related to oncology **Unit (Module) 1: General Surgery related to oncology** **Unit (Module) 2: Internal Medicine related to oncology**	**ONM227D#**	**60**	**45**	**45**	**150**
Total of the first part					**700**
Second Part					
Speciality Courses:					
Course 6: Clinical Oncology **Paper 1: Clinical Oncology (advanced) Basics of chemotherapy** **Paper 2:(advanced) Technology of Radiotherapy.** **Paper 3: Clinical Oncology (advanced)** **Paper 4: Clinical Oncology (advanced)**	**ONM227E**	**480** **120** **120** **120** **120**	**360**	**360**	**1200**
Total of the degree					**1900**
Elective course		**50**	**50**		**100**

* 25% of the oral exam for assessment of logbook

<u>700 marks for first part</u>

<u>1200 for second part</u>

Written exam 40% (480 marks).

Clinical /practical and oral exams 60% (720 marks)

Elective course 100

Examination system:

- **First part:**

- Written exam 3 hours in Physics of radiation + Oral exam + Clinical & Practical exam
- Written exam 2 hours in Pathology of tumors + Oral exam + Clinical & Practical exam
- Written exam 1 hour in Basics of Nuclear medicine and Radioisotopes techniques + Oral exam + Clinical & Practical exam
- Written exam 3 hours in Radiobiology + Oral exam + Clinical & Practical exam
- Written exam 3 hours in Internal Medicine related to oncology& General Surgery related to oncology + Oral exam+ Clinical exam

- **Second part:**

- Written exam four papers in Clinical Oncology 3 hours for each (Paper 1: Clinical Oncology (advanced) Basics of chemotherapy; Paper 2:(advanced) Technology of Radiotherapy.; Paper 3: Clinical Oncology (advanced) ; Paper 4: Clinical Oncology (advanced)+ Oral exam+ Clinical & Practical exam

- **Elective courses**

- Written exam one paper 1 hour in Elective course + Oral & Practical exam

10-Program evaluation

By whom	Method	sample
Quality Assurance Unit	Reports Field visits	#
External Evaluator (s):According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits Questionnaires	#
Senior students	Questionnaires	#
Alumni	Questionnaires	#

#Annex 5 contains evaluation templates and reports (Joined in the departmental folder).

11-Declaration

We certify that all of the information required to deliver this program is contained in the above specification and will be implemented.

All course specifications for this program are in place.

Contributor	Name	Signature	Date
Program Principle Coordinator:	**Dr. Rehab Farouk**	**Rehab Farouk**	
Head of the Responsible Department (Program Academic Director):	**Prof. Samir Shehata**		

Annex 1, Specifications for Courses / Modules

Annex 1: specifications for courses/

First Part

Course 1 Physics of radiation

Name of department: **Clinical Oncology**
Faculty of medicine
Assiut University
2022-2023

1. Course data

- **Course Title:** Physics of radiation
- **Course code: ONM227A§**
- **Speciality** Clinical Oncology
- **Number of credit point:** 3 credit point, didactic 3 credit point (100%)
- **Department (s) delivering the course:** Department of physics, Cairo University in conjunction with Clinical Oncology, Assiut University
- **Coordinator (s):**
  - **Course coordinator:** Staff members of Department of physics, Cairo University in conjunction with Clinical Oncology, Assiut University as annually approved by both departments councils
  - **Assistant coordinator (s)** Staff members of Clinical Oncology Department, , Assiut University as annually approved by both departments councils
- **Date last reviewed: 5**- 2022
- **General requirements (prerequisites) if any :**
  None
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

- The student become knowledgeable and proficient in all technical aspects of radiation therapy treatment planning, delivery, and documentation.
- The student understands all technical availabilities and limitations with regard to patient set-up and beam delivery.

3. Course intended learning outcomes (ILOs):

A- Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*

A. Mention physical details of:
- Structure of matter and radiation
- The production and properties of X-rays
- The fundamentals of nuclear physics
- High energy and teletherapy machines and simulators.
- Isotopic therapy machines (tele and brachytherapy)
- Quality assurance of teletherapy machines and simulators.
- Interaction and absorption of radiation in matter.
- Measurements of radiation and dose measuring devices.
- Physical principles of patients and tumor imaging including
  • radiographic image
  • tomography
  • sonography
  • MRI
  • isodose imaging.
	Lectures	Written and oral examination
		Log book

Dose calculation for external beam: PDD • TAR. • TPR. • Dose calculations. • SSD. • FAD. • Isodose curves. • Field dose calculations. • Off axial dose calculation. • Tissue inhomogenity. Principles of external beam modification: • Isodose distribution. • Field arrangement. • Single field. • Parallel opposing fields. • Multiple fields. • Wedge fields. • Moving fields' technique. • Weighting. • TBI. • Adjacent fields. Electron beam (inhomgenities – field shaping). Brachytherapy (BT): • Physics of BT sources • Apparatus • Dose calculation.		
B. Mention the principles of Radiation protection: • Background radiation • Dose equivalent • Protective barriers • Protection against scattered & leakage radiation. Protection against sealed sources. • Protection against unsealed sources.		

• Radiation survey. • Personal area and environmental monitoring. • Waste disposal. • Storage and transfer of isotopes. • Protective regulation in RT. • Maximum allowable doses. • Risk estimates national and international regulations and license.		

B- Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of radiation physics with designing and selection of different radiotherapy planes and techniques.	lectures, practical sessions	Written and oral examination Log book
B. Be able to calculate radiation doses of different cases	lectures, practical sessions	Written and oral examination Log book

C- Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Master the basic skills in the radiation physics.	Lectures practical sessions	-Assessment of practical skills -Log book
B. Use information technology to support decisions in common clinical situations related to radiation physics.		

D- General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
B. Write a report in the conditions mentioned in A.A &A.B	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook - Check list

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	-Oral Exam - Logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	-Observation -Senior staff experience	-Log book

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge **A**	**Intellectual** B	**Practical skills** **C**	**General Skills** D
Section 1: Structure of matter and radiation	A	A	A,B	A-D
Section 2: The production and properties of X-rays	A	A	A,B	A-D
Section 3: The fundamentals of radiation physics	A	A	A,B	A-D
Section 4: High energy and teletherapy machines and simulators.	A	A	A,B	A-D
Section 5: Isotopic therapy machines (tele and brachytherapy)	A	A	A,B	A-D
Section 6: Quality assurance of teletherapy machines and simulators.	A	A	A,B	A-D
Section 7: Interaction and absorption of radiation in matter.	A	A	A,B	A-D
Section 8: Measurements of radiation and dose measuring devices.	A	A&B	A,B	A-D

Section 9: Physical principles of patients and tumor imaging	A	A&B	A,B	A-D
radiographic image	A	A&B	A,B	A-D
Tomography	A	A&B	A,B	A-D
Sonography	A	A&B	A,B	A-D
MRI	A	A&B	A,B	A-D
isodose imaging	A	A&B	A,B	A-D
Section 10: Dose calculation for external beam:	A	A&B	A,B	A-D
PDD.	A	A&B	A,B	A-D
TAR	A	A&B	A,B	A-D
TPR	A	A&B	A,B	A-D
dose calculations	A	A&B	A,B	A-D
SSD	A	A&B	A,B	A-D
FAD	A	A&B	A,B	A-D
Isodose curves Field dose calculations	A	A&B	A,B	A-D
Off axial dose calculation	A	A&B	A,B	A-D
Tissue inhomogenity.	A	A&B	A,B	A-D
Section 11: Principles of external beam modification:	A	A&B	A,B	A-D
Isodose distribution.	A	A&B	A,B	A-D
Field arrangement	A	A&B	A,B	A-D
Single field	A	A&B	A,B	A-D
Parallel opposing fields. Multiple fields.	A	A&B	A,B	A-D
Wedge fields.	A	A&B	A,B	A-D
Moving fields' technique.	A	A&B	A,B	A-D
Weighting.	A	A&B	A,B	A-D
TBI.	A	A&B	A,B	A-D
Adjacent fields.	A	A&B	A,B	A-D

Electron beam (inhomgenities – field shaping).	A	A&B	A,B	A-D
Section 12: Brachytherapy	A	A&B	A,B	A-D
Physics of BT sources. Apparatus.	A	A&B	A,B	A-D
Dose calculation.	A	A&B	A,B	A-D
Section 13: Radiation protection:	B	A	A,B	A-D
Background radiation	B	A	A,B	A-D
Dose equivalent	B	A	A,B	A-D
Protective barriers	B	A	A,B	A-D
Protection against scattered & leakage radiation. Protection against sealed sources	B	A	A,B	A-D
Protection against unsealed sources.	B	A	A,B	A-D
Radiation survey.	B	A	A,B	A-D
Personal area and environmental monitoring.	B	A	A,B	A-D
Waste disposal.	B	A	A,B	A-D
Storage and transfer of isotopes.		A	A,B	A-D
Protective regulation in RT.	B	A	A,B	A-D
Maximum allowable doses.	B	A	A,B	A-D
Risk estimates national and international regulations and license.	B	A	A,B	A-D

5. Course methods of teaching/learning:

- Didactic (lectures, seminars, tutorial)
- Laboratory work
- Observation and supervision
- Written & oral communication
- Senior staff experience

6. Course methods of teaching/learning: for students with poor achievements

- Extra didactic (lectures, seminars, tutorial)
- Extra Laboratory work

7. Course assessment methods:

I. Assessment tools:

1. Written , oral and practical /clinical exam
2. Log book

ii. Time schedule: At the end of the first part**.**

iii. Marks: 150

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

-The Physics of Radiation Therapy. Faiz Khan. Publisher: Williams and Wilkins. Baltimore, 2014 (fifth edition)

iii. Periodicals, Web sites, … etc

- **Periodicals:**
- **Web sites:**

✓ www.NCCN.com
✓ www.asco.org
✓ www.uicc.org
✓ www.EORTC.org
✓ www.medscape.com
✓ www.cancer.gov/
✓ http://annonc.oxfordjournals.org/
✓ www.redjournal.org/

v. others : None

9. Signatures

Head of the Department:	**Course Coordinator:** **…….**
Date: ……	**Date: ……**

Course 2 Pathology of tumors

Name of department: of Clinical Oncology
Faculty of medicine
Assiut University
2022-2023

I. Course data

- **Course Title: Pathology of tumors**
- **Course code: ONM205**
- **Speciality is Clinical Oncology**
- **Number of credit point:** 2 credit point, didactic 2 credit point (100%)
- **Department (s) delivering the course:** Departments of Pathology and Clinical Oncology - Faculty of Medicine- Assiut- EGYPT
- **Coordinator (s): Staff members of Clinical Oncology and Pathology, Assiut University as annually approved by department council**
- **Date last reviewed: 5**-2023
- **Requirements (prerequisites) if any :**
  - None
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

The student should acquire the facts of pathology of tumors necessary for Clinical Oncology

2. Course intended learning outcomes(ILOs):

A- Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A. Illustrate Principles of General Pathology ☒ **General pathology:** • Inflammatory reactions • Gangrene • Necrosis • carcinogenesis	-Lectures	-Written and oral examination - Log book
B. Describe Pathological details of: ☒ **Tumor pathology:** • Etiology • Epidemiology • Incidence. • A brief morphology of common tumors (macro & micro) • Grading & differentiation of tumors. • Natural history, growth characteristics and tumor spread. • Staging systems classification i.e. TNM, FIGO. ☒ Use of specialized pathology techniques e.g. immunohistochemistry, phenotyping, Cluster of differentiation (CD) classifications, FISH, CISH, microarry&geneprint.		

B- Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of Pathology with clinical reasoning, diagnosis and management of common diseases related to Clinical Oncology**.**	-Didactic (lectures, seminars, tutorial)	-Written and oral examination -Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to Clinical Oncology**.**		

C- Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Master of basic skills in the pathology of tumours.	-Laboratory work	-Assessment of practical skills -Log book
B. Use information technology to support decisions in common situations related to pathology of the Tumors.		
C. Examine Pathological slides of common Tumors		

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
B. Write a report in the conditions mentioned in A.A &A.B	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook - Check list

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	- Oral Exam - Logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	-Observation -Senior staff experience	-360o global rating

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: First part

Topic	Covered ILOs			
	Knowledge A	**Intellectual** B	**Practical skills** C	**General Skills** D
• Inflammatory reactions	A	A	A&B	A-D
• Gangrene	A	A	A&B	A-D
• Necrosis	A	A	A&B	A-D
• carcinogenesis	A	A	A&B	A-D
• Etiology	B	A	A&B	A-D
• Epidemiology	B	A	A&B	A-D
• incidence.	B	A	A&B	A-D
• A brief morphology of common tumors (macro & micro)	B	A	A-C	A-D
• grading & differentiation of tumors.	B	A	A-C	A-D
• Natural history, growth characteristics and tumor spread.	B	A	A-C	A-D
• Staging systems classification i.e. TNM, FIGO.	B	A	A-C	A-D
• Use of specialized pathology techniques e.g. immunohistochemistry, phenotyping, Cluster of differentiation (CD) classifications, FISH, CISH, microarry&geneprint.	B	A&B	A-C	A-D

5. Course methods of teaching/learning:

1. Didactic (lectures, seminars, tutorial)
2. Laboratory work
3. Observation and supervision
4. Written & oral communication
5. Senior staff experience

6. Course methods of teaching/learning: for students with poor achievements

1. Extra Didactic (lectures, seminars, tutorial) according to their needs
2. Extra Laboratory work

7. Course assessment methods:

i. Assessment tools:

- Written examination.
- Oral examination/ Clinical examination
- logbook

ii. Time schedule: At the end First part

iii. Marks: 100

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

Robbins and Cotran PATHOLOGIC BASIS OF DISEASE, Tenth edition 2021.

iii- Recommended books

- General Pathology of Cancer, El-Bolkainy et al., fifth edition, 2016
- Topographic Pathology of Cancer. EL-Bolkainy et al., fifth edition, 2016

iv. Periodicals, Web sites, … etc : None

v. Others: None

9. Signatures

Head of the Department: **……**	**Course Coordinator:** **…….**
Date: ……	**Date: ……**

Course 3 Basics of Nuclear medicine and Radioisotopes techniques

Name of department: Clinical oncology

Faculty of medicine

Assiut University

2022-2023

1. Course data

- **Course Title:** : Basics of Nuclear medicine and Radioisotopes techniques
- **Course code: ONM227B**
- **Speciality :** Clinical Oncology
- **Number of credit point: 1 credit point, didactic 1 credit point (100%)**
- **Department (s) delivering the course:** Clinical Oncology and Nuclear Medicine Department,
- **Coordinator (s):** Staff members of Clinical Oncology and Nuclear Medicine, Assiut University as annually approved by department council
- **Date last reviewed: 5**- 2022
- **Requirements (prerequisites) if any :** None
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

The student should acquire the facts of Nuclear medicine necessary for Clinical Oncology.

3. Course intended learning outcomes (ILOs):

A- Knowledge and understanding

ILOs	**Methods of teaching/ learning**	***Methods of Evaluation***
A. Mention Principle of: - Diagnostic Use of radionuclide in Malignancy and related conditions including principles of their use, techniques, indications, interpretation specially in: -Bone Sientigraphy (for primary and secondary bone tumors) - Thyroid scientigraphy (for benign and malignant conditions. - Renal scientigraphy - Hepatic scientigraphy The Rational and technique of recent Nuclear medicine investigations such as PET and PET/CT scan.	Didactic (lectures, seminars, tutorial)	- Written and oral examination - Log book

B- Intellectual outcomes

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases related toNuclear medicine**.**	Didactic (lectures, seminars, tutorial)	- Written and oral examination - Log book

B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to Nuclear medicine.		
C. Design and present cases, seminars in common problem in Nuclear medicine.		
D. Formulate management plans and alternative decisions in different situations in the field of the Nuclear medicine.		

C- Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Obtain proper history and examine patients in caring and respectful behaviors.	Lectures	Assessment of practical skills -Log book
B. Order the following invasive and non invasive diagnostic procedures: ❖ Bone scan. ❖ Thyroid scan. ❖ Hepatobiliary scan.		
C. Interpret the following non invasive and invasive diagnostic procedures ❖ Bone scan. ❖ Thyroid scan. ❖ Hepatobiliary scan.		
D. Prescribe the following non invasive and invasive therapeutic procedures : ❖ Thyroid radioactive iodine therapy. ❖ Thyroid radioactive iodine ablation.		
E. Carry out patient management plans for common conditions related to Nuclear medicine.		

F. Use information technology to support patient care decisions and patient education in common clinical situations related to Nuclear medicine.		

D- General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook)	Observation and supervision -Written & oral communication	Log book
B. Appraises evidence from scientific studies(journal club)		
C. Perform data management including data entry and analysis.		
D. Facilitate learning of junior students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
E. Maintain therapeutic and ethically sound relationship with patients.	Observation and supervision -Written & oral communication	Log book
F. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		

G. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Work effectively with others as a member of a health care team or other professional group.		

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
I. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	-Observation -Senior staff experience.	Log book
J. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
K. Work effectively in relevant health care delivery settings and systems.	Observation -Senior staff experience	Log book
L. Practice cost-effective health care and resource allocation that does not compromise quality of care.		
M. Assist patients in dealing with system complexities.		

4. Course contents (topic s/modules/rotation Course (Unit) Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	**Intellectual** B	**Practical skills C**	**General Skills D**
- Diagnostic Use of radionuclide in Malignancy and related conditions including principles of their use, techniques, indications, interpretation specially in: -Bone Sientigraphy (for primary and secondary bone tumors) - Thyroid scientigraphy (for benign and malignant conditions. - Renal scientigraphy - Hepatic scientigraphy The Rational and technique of recent Nuclear medicine investigations such as PET and PET/CT scan.	A	A-D	A-F	A-M

5. Course methods of teaching/learning:

- Didactic (lectures, seminars, tutorial)
- Clinical work
- Observation and supervision
- Written & oral communication
- Senior staff experience

6. Course methods of teaching/learning: for students with poor achievements

- Extra didactic (lectures, seminars, tutorial)
- Extra Clinical

7. Course assessment methods:

I. Assessment tools:

1. Written , oral and practical exam
2. Log book

ii. Time schedule: At the end of the first part**.**

iii. Marks: 50

8. List of references

i. Lectures notes

- Staff members print out of lectures.

ii. Essential books

- **Nuclear Medicine: The Requisites**, Third Edition .Harvey A. Ziessman MD, Janis P. O'Malley MD, James H. Thrall MD,2006.

iii. Recommended books

- **Nuclear Medicine in clinical diagnosis and treatment**: Peter J. Ell, Sanjiv Sam Gambhir . Third edition ,2004

Ii Periodicals, Web sites, … etc.

None

iii Others : None

9. Signatures

Head of the Department: ……	**Course Coordinator:** …….
Date: ……	**Date:** ……

Course 4 (Radiobiology)

Name of department: Clinical oncology
Faculty of medicine
Assiut University
2022-2023.

1. Course data

- **Course Title:** Radiobiology

- **Course code:** ONM227C
- **Speciality** Clinical Oncology

- **Number of credit point: 5 credit point, didactic 1 credit point (100%)**

- **Department (s) delivering the Course:** Clinical Oncology Department,
- **Coordinator (s):**
  - **Course coordinator:** Staff members of Clinical Oncology, Assiut University as annually approved by department council
  - **Assistant coordinator (s)** Staff members of Clinical Oncology, Assiut University as annually approved by department council
- **Date last reviewed: 5- 2022**
- **General requirements (prerequisites) if any :**
  None
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

2/1The student should acquire the facts of Radiobiology including cellular biology ; laws and principles of radiation biology ,electromagnetic and particulate radiations to cellular interactions; units of radiation quantities and radiobiological measures ; correct usage somatic and genetic effects of radiation.

3. Course intended learning outcomes (ILOs):

A- Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*

A. Demonstrate details of the following:
 	
- Normal cell morphology & physiology.
- DNA strand breaks and chromosomal aberrations.
- Cell survival curve.
- Cell, Tissue, and tumor Kinetics.
- Radiosenstivity and cell age in mitotic cycle.
- Repair of radiation damage and dose-rate effect.
- Oxygen effect and Reoxygenation.
- Linear Energy Transfer and Relative Biologic Effectiveness.
- Acute Effects of Total-Body Irradiation.
- Radioprotectors.
- Radiation Carcinogenesis.
- Hereditary Effects of Radiation.
- Effects of radiation on the embryo and fetus.
- Radiation protection.
- Effect of radiotherapy on the:
  - Skin
  - Hematopoietic system
	Didactic (lectures, seminars, tutorial)	- Written and oral examination
		
		- Log book

- Digestive system - Lung - Kidney - Liver - Urinary bladder - CNS - Testis - Ovary Molecular techniques in radiobiology. Cancer Biology. Time dose and fractionation in radiotherapy. Alternative radiation Modalities. Radiosenstizers and Bioreductive drugs. Gene therapy. Interaction of Radiation and chemotherapeutic agents. Hyperthermia.		

B- Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases related to Radiobiology.	Lectures	Written and oral examination Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to tumor Radiobiology.		
C. Design and present cases, seminars in common problems related to Radiobiology.		
D. Formulate management plans and alternative decisions in different situations in the field of the Radiobiology.		

C- Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment for common conditions related to radiation biology	-Observation and supervision -Field Training	-Log book Assessment of practical skills
B. Provide health care services aimed at preventing health problems related to radiation biology	-Observation and supervision -Field Training	-Log book Assessment of practical skills

D. General Skills
Practice-Based Learning and Improvement

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education.	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
B. Write a report in the conditions mentioned in A.A &A.B	-Observation and supervision -Written & oral communication	- Oral Exam - Logbook - Check list

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles.	-Observation -Senior staff experience	- Oral Exam - Logbook

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in relevant health care delivery settings and systems.	-Observation -Senior staff experience	-360o global rating

4. Course contents (topic s/modules/rotation Course (Unit) Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	**Intellectual** B	**Practical skills C**	**General Skills D**
Normal cell morphology & physiology	A	A	A&B	A-D
DNA strand breaks and chromosomal aberrations	A	A	A&B	A-D
Cell survival curve.	A	A	A&B	A-D
Cell, Tissue, and tumor Kinetics.	A	A-D	A&B	A-D
Radiosenstivity and cell age in mitotic cycle.	A	A-D	A&B	A-D
Repair of radiation damage and dose-rate effect.	A	A-D	A&B	A-D
Oxygen effect and Reoxygenation.	A	A-D	A&B	A-D
Linear Energy Transfer and Relative Biologic Effectiveness.	A	A	A&B	A-D
Acute Effects of Total-Body Irradiation	A	A-D	A&B	A-D
Radioprotectors.	A	A-D	A&B	A-D
Radiation Carcinogenesis	A	A-D	A&B	A-D
Hereditary Effects of Radiation	A	A	A&B	A-D
Effects of radiation on the embryo and fetus	A	A	A&B	A-D
Radiation protection	A	A-D	A&B	A-D
Effect of radiotherapy on the: - Skin - Hematopoietic system - Digestive system - Lung - Kidney	A	A-D	A&B	A-D

- Liver - Urinary bladder - CNS - Testis - Ovary				
Molecular techniques in radiobiology	A	A-D	A&B	A-D
Cancer Biology	A	A-D	A&B	A-D
Time dose and fractionation in radiotherapy	A	A-D	A&B	A-D
Alternative radiation Modalities.	A	A-D	A&B	A-D
Radiosenstizers and Bioreductive drugs	A	A-D	A&B	A-D
Gene therapy.	A	A-D	A&B	A-D
Interaction of Radiation and chemotherapeutic agents.	A	A-D	A&B	A-D
Hyperthermia	A	A-D	A&B	A-D

5. Course methods of teaching/learning:

- Didactic (lectures, seminars, tutorial)
- Laboratory work
- Observation and supervision
- Written & oral communication
- Senior staff experience

6. Course methods of teaching/learning: for students with poor achievements

- Extra didactic (lectures, seminars, tutorial)
- Extra Laboratory work

7. Course assessment methods:

. Assessment tools:

1. Written , oral , practical exam
2. Log book

ii. Time schedule: At the end of the first part**.**

iii. Marks: 250

8. List of references

i. Lectures notes

Staff members print out of lectures

ii. Essential books

- Radiobiology for the Radiologist, 8 th edition 2018: Eric Hall
- The Basic Science of Oncology, 6th edition 2021: Tannock, Hill, Bristow & Harrington.

iii. Recommended books

- none

iv. Periodicals, Web sites, … etc

- ✓ www.NCCN.com
- ✓ www.asco.org
- ✓ www.uicc.org
- ✓ www.EORTC.org
- ✓ www.medscape.com
- ✓ www.cancer.gov/
- ✓ http://annonc.oxfordjournals.org/
- ✓ www.redjournal.org/

v. Others: none

9. Signatures

Head of the Department: **……**	**Course Coordinator:** **…….**
Date: ……	**Date: ……**

Course 5 (Internal Medicine and General Surgery related to Clinical Oncology)

Course 5 module 1 Internal Medicine

Name of department: of Clinical Oncology
Faculty of medicine
Assiut University
2022-2023

I. Unit data

- **Unit Title: Internal Medicine related to Clinical Oncology**
- **Unit code: ONM227D**
- **Speciality is Clinical Oncology**
- **Number of credit point: 6.5 credit point, didactic 1 credit point (23.1%) and 5 for training (76.9%)**
- **Department (s) delivering the unit :** Department of Internal Medicine - Faculty of Medicine- Assiut- EGYPT
- **Coordinator (s): Staff members of Clinical Oncology and Internal Medicine , Assiut University as annually approved by department council**
- **Date last reviewed: 5-2022**
- **Requirements (prerequisites) if any :**
  None
- **Requirements from the students to achieve Unit ILOs are clarified in the joining log book**

2. Unit Aims

- To make the students able to be familiar with the diagnosis and management of common medical problems that may be encountered with Clinical Oncology
- To make the students able to deal with medical emergencies related to Clinical Oncology safely and effectively as regard their investigations and management.

3. Unit intended learning outcomes (ILOs):

A-Knowledge and understanding

ILOs	**Methods of teaching/ learning**	***Methods of Evaluation***
A. Describe the etiology, clinical picture, diagnosis and management of the following diseases and clinical condition ☒ Thyroid ☒ Parathyroid ☒ Pituitary ☒ Renal ☒ Suprarenal ☒ Heart ☒ Respiratory system ☒ GIT	-Lecture -Self-directed learning -Case-based studies with discussion and problem solving.	-OSCE at the end of each year -log book & portfolio - One MCQ examination at the second half of the second year -Written and oral examination
B. Mention the principles of the relevant basic and clinically supportive sciences related to Internal Medicine.		
C. State update and evidence based Knowledge of Thyroid • Hypothyroidism		

• Hyperthyroidism • Thyroiditis • Thyroid malignancies ☒ <u>Parathyroid</u> • Hyperparathyroidism • Suprarenal • Cushing • Addison's • Pheochromocytoma ☒ <u>Pituitary</u> • Hypopituitarism • Acromegaly • Gigantism ☒ <u>Renal:</u> • Acute and Chronic renal failure • Golmerulonephritis • Pyelonephritis ☒ <u>Heart</u> • CAD • Angina • Infarction • Cardiomyopathy ☒ <u>Respiratory system</u> • Pulmonary embolism • Bronchogenic Ca • Pleural effusion ☒ <u>GIT:</u> • Liver cirrhosis • Jaundice • Hepatitis • Causes of hepatosplenomegaly		
D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to Internal medicine related to clinical		

oncology.		
E. Describe the basics of quality assurance to ensure good clinical care in Internal Medicine.		
E. Explain the ethical and scientific principles of medical research		
F. Explain the impact of common health problems in the field of speciality on the society.		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases related toInternal medicine related to clinical oncology.	-Clinical rounds -Senior staff experience	-Procedure and case presentation -Log book & Portfolio
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations of Internal medicine related to clinical oncology.		
C. Design and present cases , seminars in common problem		
D-Formulate management plans and alternative decisions in different situations in the field of the Internal medicine related to clinical oncology.		

C-Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Obtain proper history and examine patients in caring and respectful behaviors		
B. Order the following non invasive and invasive diagnostic procedures	Clinical round with	Procedure presentation

• Routine appropriate Lab investigations related to Clinical Oncology • Blood gases • Serum electrolytes • Endocrinal profile • Tuberculin test • Chest X ray • CT chest • MRI chest • Abdominal US • CT abdomen • MRI abdomen • Bone Scan • Thyroid scan • Barium studies • Pulmonary function testing • Pleural aspiration • Paracentesis • Bronchoscopy • Thoracoscopy • Endoscopy (Upper, Lower, Pan, Fibro-optic)	senior staff Observation -Post graduate teaching -Hand on workshops -Perform under supervision of senior staff	- Log book - Chick list
C. Interpret the following non invasive and invasive diagnostic procedures • Routine appropriate Lab investigations related to Clinical Oncology • Blood gases • Serum electrolytes • Endocrinal profile • Tuberculin test • Chest X ray • CT chest • MRI chest • Abdominal US	Clinical round with senior staff Observation -Post graduate teaching -Hand on workshops -Perform under supervision	Procedure presentation - Log book - Chick list

• CT abdomen • MRI abdomen • Bone Scan • Thyroid scan • ECHO • Pulmonary function testing • Pleural aspiration • Paracentesis • Bronchoscopy • Thoracoscopy • Endoscopy (Upper, Lower, Pan, Fibro-optic)	of senior staff	
D. Perform the following non invasive and invasive diagnostic procedures • Intravenous canulation • Blood gases	Clinical round with senior staff Observation -Post graduate teaching -Hand on workshops -Perform under supervision of senior staff	
E. Carry out patient management plans for the following problems: ☒ <u>Thyroid</u> • Hypothyroidism • Hyperthyroidism • Thyroiditis • Thyroid malignancies ☒ <u>Parathyroid</u>	Clinical round with senior staff	

• Hyperparathyroidism • Suprarenal • Cushing • Addison's • Pheochromocytoma ☒ <u>Pituitary</u> • Hypopituitarism • Acromegaly • Gigantism ☒ <u>Renal:</u> • Acute and Chronic renal failure • Golmerulonephritis • Pyelonephritis ☒ <u>Heart</u> • CAD • Angina • Infarction • Cardiomyopathy ☒ <u>Respiratory system</u> • Pulmonary embolism • Bronchogenic Ca • Pleural effusion ☒ <u>GIT:</u> • Liver cirrhosis • Jaundice • Hepatitis • Causes of hepatosplenomegaly		
F. Carry out patient management plans for common conditions related to Internal medicine.	Clinical round with senior staff	
G. Use information technology to support patient care decisions and patient education in common clinical situations related to Internal medicine.	Clinical round with senior staff	

H. Provide health care services aimed at preventing health problems related to Internal medicine.	Clinical round with senior staff	
I. Work with health care professionals, including those from other disciplines, to provide patient-focused care.	Clinical round with senior staff	

General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology in the common problems (plan and conduct audit cycles) in conditions mentioned in A.A and A.C	-Simulations -Clinical round -Seminars -Lectures -Case presentation -Hand on workshops	Global rating -Procedure & case presentation -Log book & Portfolios - Chick list
B. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness		
C. Use information technology to manage information, access on-line medical information; and support their own education		
D. Lead the learning of students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
E. Create and sustain a therapeutic and ethically sound relationship with patients	Simulations -Clinical round -Seminars -Lectures -Case presentation -Hand on workshops	- Global rating -Procedure & case presentation -Log book & Portfolios - Chick list
F. Perform the following oral communications: • Interpretation of the results of different investigations relevant toInternal Medicine related to Clinical Oncology conditions and discussion of different therapeutic options		
G. Fill the following reports: • Patients' medical reports		
H. Work effectively with others as a member or leader of a health care team as regard diagnosis and treatment of conditions mentioned in A.A and A.C		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
I. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest.	Observation - Senior staff experience - Case taking	1. Objective structured clinical examination 2. Patient survey
I. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.		1. 360o global rating
K. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Work effectively in different health care delivery settings and systems.	Observation - Senior staff experience	1. 360o global rating
B. Practice cost-effective health care and resource allocation that does not compromise quality of care		1. Check list evaluation of live or recorded performance
C. Advocate for quality patient care and assist patients in dealing with system complexities		1. 360o global rating 2. Patient survey
D. Partner with health care managers and health care providers to assess, coordinate, and improve health care and predict how these activities can affect system performance		

4. Unit contents (topic s/modules/rotation
Course Matrix

Time Schedule: First part

Topic	Covered ILOs			
	Knowledge **A**	**Intellectual** B	**Practical skills** **C**	**General Skills** D
• Hypothyroidism	A-F	A-D	A-C,E-I	A-O
• Hyperthyroidism	A-F	A-D	A-C,E-I	A-O
• Thyroiditis	A-F	A-D	A-C,E-I	A-O
• Thyroid malignancies	A-F	A-D	A-C,E-I	A-O
• Hyperparathyroidism	A-F	A-D	A-C,E-I	A-O
• Suprarenal	A-F	A-D	A-C,E-I	A-O
• Cushing	A-F	A-D	A-C,E-I	A-O
• Addison's	A-F	A-D	A-C,E-I	A-O
• Pheochromocytoma	A-F	A-D	A-C,E-I	A-O
• Hypopituitarism	A-F	A-D	A-C,E-I	A-O
• Acromegaly	A-F	A-D	A-C,E-I	A-O
• Gigantism	A-F	A-D	A-C,E-I	A-O
• Acute and Chronic renal failure	A-F	A-D	A-I	A-O
• Golmerulonephritis	A-F	A-D	A-C,E-I	A-O
• Pyelonephritis	A-F	A-D	A-C,E-I	A-O
• CAD	A-F	A-D	A-C,E-I	A-O
• Angina	A-F	A-D	A-C,E-I	A-O
• Infarction	A-F	A-D	A-C,E-I	A-O
• Cardiomyopathy	A-F	A-D	A-C,E-I	A-O
• Pulmonary embolism	A-F	A-D	A-I	A-O
• Bronchogenic Ca	A-F	A-D	A-I	A-O
• Pleural effusion	A-F	A-D	A-C,E-I	A-O
• Liver cirrhosis	A-F	A-D	A-C,E-I	A-O
• Jaundice	A-F	A-D	A-C,E-I	A-O
• Hepatitis	A-F	A-D	A-C,E-I	A-O
• Causes of hepatosplenomegaly	A-F	A-D	A-C,E-I	A-O

5. Unit methods of teaching/learning:

1. Didactic (lectures, seminars, tutorial)
2. Post graduate teaching
3. Present a case (true or simulated) in a grand round
4. Written & oral communications

6. Unit methods of teaching/learning: for students with poor achievements

1. Extra Didactic (lectures, seminars, tutorial) according to their needs
2. Extra training according to their needs

7. Unit assessment methods:

i. Assessment tools:

- Clinical examination
- Written
- Oral examination
- Chick list
- log book & portfolio
- Procedure/case presentation
- One MCQ examination in f the second year and one in the third year
- Objective structured clinical examination
- Check list evaluation of live or recorded performance
- Record review (report)
- Patient survey
- 360o global rating

ii. Time schedule: At the end of the first part

iii. Marks: 75

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

Davidson's Principles and Practice of Medicine. Nicki R. Colledge BSc FRCP(Ed), Brian R. Walker BSc MD FRCP(Ed), and Stuart H. Ralston MD FRCP FMedSci FRSE , 24th edition, 2022.

iii. Periodicals, Web sites, … etc

- None

iv. Others : None

Course 5 (module 2) General Surgery related to clinical Oncology

Name of department: of Clinical Oncology
Faculty of medicine
Assiut University
2022-2023

I. Unit data

- **Unit Title: General Surgery related to clinical Oncology**
- **Unit code: ONM227D**
- **Speciality is Clinical Oncology**
- **Number of credit point: 6.5 credit point, didactic 1 credit point (23.1%) and 5 for training (76.9%)**
- **Department (s) delivering the unit :** Department of **General Surgery** - Faculty of Medicine- Assiut- EGYPT
- **Coordinator (s): Staff members of Clinical Oncology and General Surgery, Assiut University as annually approved by department council**
- **Date last reviewed: 5- 2023**
- **Requirements (prerequisites) if any :**
  - None
- **Requirements from the students to achieve unit ILOs are clarified in the joining log book.**

2. Course Aims

Provide candidates with enough knowledge and general skills relevant toGeneral surgery related to Clinical Oncology including,

3. Unit intended learning outcomes (ILOs):

A-Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A- Describe the etiology, clinical picture, diagnosis and management of the following diseases and clinical conditions: • Breast cancer • Benign and malignant thyroid tumors • Abdominal Swellings • Colorectal Cancer • Jaundice • Testicular Tumors • Tongue Cancer • Lymphadenopathy	-Lecture -Self-directed learning -Case-based studies with discussion and problem solving.	-written and oral examination - Log book
B. Mention the principles of ☒ Surgical Oncology • Preoperative evaluation • Surgery for specific types and sites • Biopsy techniques ○ Fine-needle aspiration ○ Core, excision ○ Needle localization biopsy	-Lecture -Self-directed learning -Case-based studies with discussion and problem solving.	-OSCE at the end of each year -log book & portfolio - One MCQ examination at the second half of the second year -Written and oral examination

C. Mention updates of the following common diseases and conditions ☒ Breast Cancer ☒ Thyroid Cancer	-Lecture -Self-directed learning -Case-based studies with discussion and problem solving.	-OSCE at the end of each year -log book & portfolio - One MCQ examination at the second half of the second year -Written and oral examination
D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to General Surgery related to clinical oncology.		
E. Mention the basic ethical and medico-legal principles revenant to the General Surgery. related to clinical oncology.		
F. Demonstrate the basics of quality assurance to ensure good clinical care in General Surgery related to clinical oncology.		
G. Explain the ethical and scientific principles of medical research		
H. Explain the impact of common health problems in the field of General Surgery related to clinical oncology. on the society.		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases related toGeneral Surgery related to clinical oncology	-Clinical rounds -Senior staff experience	-Procedure and case presentation -Log book & Portfolio
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related toGeneral Surgery related to clinical oncology		
C. Design and present cases , seminars in common problem in General Surgery related to clinical oncology		
D. Formulate management plans and alternative decisions in different situations in the field of General Surgery related to clinical oncology		

C-Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Obtain proper history and examine patients in caring and respectful behaviors in subjects related to Clinical Oncology: • Breast cancer • Benign and malignant thyroid tumors • Abdominal Swellings • Colorectal Cancer • Jaundice	Didactic (lectures, seminars, tutorial) -Clinical rounds Clinical rotations	-OSCE at the end of each year -log book & portfolio - One MCQ examination at the

• Testicular Tumors • Tongue Cancer • Lymphadenopathy	(service teaching)	second half of the second year -Clinical exam
B. Order the following invasive diagnostic procedures • Fine-needle aspiration • Core, excision • Needle localization biopsy.		
C. Interpret the following invasive diagnostic procedures • Surgery for specific types and sites • Biopsy techniques • Fine-needle aspiration • Core, excision • Needle localization biopsy	Observation -Post graduate teaching -Hand on workshops	Procedure presentation - Log book - Chick list
D. Prescribe the following non invasive therapeutic procedures Preoperative evaluation		
E. Use information technology to support patient care decisions and patient education in common clinical situations related to General Surgery related to clinical oncology: • Breast cancer • Benign and malignant thyroid tumors • Abdominal Swellings • Colorectal Cancer • Jaundice • Testicular Tumors • Tongue Cancer • Lymphadenopathy	Clinical round with senior staff	

• Lymphedema		
F. Provide patient-focused care in common conditions related to clinical oncology, while working with health care professionals, including those from other disciplines like • Breast cancer • Benign and malignant thyroid tumors • Abdominal Swellings • Colorectal Cancer • Jaundice • Testicular Tumors • Tongue Cancer • Lymphadenopathy	Clinical round with senior staff	
G. Use information technology to support patient care decisions and patient education for General Surgery related to Clinical Oncology conditions	Clinical round with senior staff	
H. Provide health care services aimed at preventing the following conditions • Breast cancer • Benign and malignant thyroid tumors • Abdominal Swellings • Colorectal Cancer • Jaundice • Testicular Tumors • Tongue Cancer • Lymphadenopathy • Side effects and complication of different surgical procedures.	Clinical round with senior staff	
J. Work with health care professionals, including those from other disciplines, to provide patient-focused care.	Clinical round with senior staff	

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology in the common problems (plan and conduct audit cycles) in conditions mentioned in A.A and A.C	-Simulations -Clinical round -Seminars -Lectures -Case presentation -Hand on workshops	Global rating -Procedure & case presentation -Log book & Portfolios - Chick list
B.Appraises evidence from scientific studies(journal club)	-Simulations -Clinical round -Seminars -Lectures -Case presentation -Hand on workshops	Global rating -Procedure & case presentation -Log book & Portfolios - Chick list
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain therapeutic and ethically sound relationship with patients	Simulations -Clinical round -Seminars -Lectures -Case presentation -Hand on workshops	- Global rating -Procedure & case presentation -Log book & Portfolios - Chick list
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group		
J. Present a case in general surgery.		
K. Write a report in general surgery.		
L. Council patients and families about investigations and management plans.		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation - Senior staff experience -Case taking	1. Objective structured clinical examination 2. Patient survey

N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		1. 360o global rating
O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in different health care delivery settings and systems.	Observation - Senior staff experience	1. 360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care		1. Check list evaluation of live or recorded performance
R. Advocate for quality patient care and assist patients in dealing with system complexities		1. 360o global rating 2. Patient survey

4. Unit contents (topic s/modules/rotation
Course Matrix

Time Schedule: First part

Topic	Covered ILOs			
	Knowledge **A**	**Intellectual** B	**Practical skills** **C**	**General Skills** **D**
• Breast Cancer	A-H	A-D	A-I	A-R
• Benign and malignant thyroid tumors	A, B, D-H	A-D	A-I	A-R
• Abdominal swelling	A, B, D-H	A-D	A-I	A-R
• Colorectal cancer	A, B, D-H	A-D	A-I	A-R
• Jaundice	A, B, D-H	A-D	A-I	A-R
• Testicular tumors	A, B, D-H	A-D	A-I	A-R
• Tongue cancer	A, B, D-H	A-D	A-I	A-R
• Lymphadenopathy	A, B, D-H	A-D	A-I	A-R
• **Surgical oncology**	B-H	A-D	A-I	A-R
• Preoperative evaluation	B-H	A-D	A-I	A-R
• Surgery for specific types and sites	B-H	A-D	A-I	A-R
• Biopsy techniques	B-H	A-D	A-I	A-R

5. Unit methods of teaching/learning:

1. Didactic (lectures, seminars, tutorial)
2. Post graduate teaching
3. Present a case (true or simulated) in a grand round
4. Written & oral communications

6. Unit methods of teaching/learning: for students with poor achievements

1. Extra Didactic (lectures, seminars, tutorial) according to their needs
2. Extra training according to their needs .

7. Unit assessment methods:

i. Assessment tools:

- Clinical examination
- Written
- Oral examination
- Chick list
- log book & portfolio
- Procedure/case presentation
- One MCQ examination in f the second year and one in the third year
- Objective structured clinical examination
- Check list evaluation of live or recorded performance
- Record review (report)
- Patient survey
- 360o global rating

ii. Time schedule: at the end of the first part

iii. Marks: 75

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Principles and Practice of Surgical Oncology: A Multidisciplinary Approach to Difficult Problems Howard Silberman and Allan W. Silberman(2009)

iii. Periodicals, Web sites, … etc

- None

iv. Others

- None

9. Signatures

Course Coordinator	
Head of the Department: **……**	**Unit 1 Coordinator:** **…….**
Date: ……	**Date: ……**
Head of the Department: **……**	**Unit 2 Coordinator:** **…….**
Date: ……	**Date: ……**

Second Part

Course 6 Clinical Oncology Advanced

Name of department: of Clinical Oncology
Faculty of medicine
Assiut University
2022-2023

I. Course data

- **Course Title: Clinical Oncology Advanced**
- **Course code: ONM227E**
- **Speciality is Clinical Oncology**
- **Number of credit points: 134, didactic 24 credit points (17.9%), practical 110 credit points (82.1%).**
- **Department (s) delivering the course:** Department of Clinical Oncology - Faculty of Medicine- Assiut- EGYPT
- **Coordinator (s):**
  - **Course coordinator: Prof. Samir Shehata**
    Assistant coordinator (s) Dr. Rehab Farouk
- **Date last reviewed: 5-2022**
- **Requirements (prerequisites) if any :**
  - None
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

1. Enable master degree students to master high level of clinical skills, in addition to update and advanced medical knowledge, integration and interpretation of different investigations, professional competence in the area of Clinical Oncology related disorders.
2. Provide candidates with enough general skills related to Clinical Oncology including, writing specialized medical reports, use of information technology in clinical decisions and research, teaching juniors and counseling patients and their families about Clinical Oncology related conditions.

3. Course intended learning outcomes (ILOs):

A-Knowledge and understanding

ILOs	**Methods of teaching/ learning**	***Methods of Evaluation***
A. Describe the etiology, clinical picture, diagnosis and management of the following diseases and clinical conditions: • **Breast cancer** • **Gastrointestinal cancer** • **Genitourinary Cancer** • **Gynecological Cancer** • **Hematological malignancy** • **Head and neck Cancer** • **Thoracic Cancer** • **Sarcoma and skin Cancer** • **Pediatric Cancer**	-Lecture -Self-directed learning -Case-based studies with discussion and problem solving.	OSCE at the end of each year -log book & portfolio - One MCQ examination at the second half of the second year -Written and oral

• **Oncological emergency**		examination
B. Mention the principles of (diagnostic/therapeutic/preventive tools) ☒ **<u>Imaging/staging techniques in diagnosis, staging, and follow-up</u>** • Radiographic • Computed tomography (CT) • Ultrasound • Magnetic resonance imaging (MRI) • Positron emission tomography (PET) • Endoscopic imaging techniques ☒ **<u>Surgical Oncology</u>** • Preoperative evaluation • Surgery for specific types and sites • Biopsy techniques a. Fine-needle aspiration b. Core, excision c. Needle localization biopsy ☒ **<u>Radiation Oncology</u>** • Principles of radiation biology • Normal tissue tolerance and toxicity • Interactions a. Chemotherapy b. Hormone therapy c. Biologic therapy d. Sequencing of therapy • Fractionation and dosing • Hyperthermia • Electron beam therapy • Brachytherapy • Focused radiation therapies a. 3-DCRth b. Gamma knife		

c. Sterotactic radiotherapy d. Intensity-modulated radiation therapy(IMRT) e. Cyberknife f. Image Guided Radiotherapy (IGRT) ☒ **Chemotherapy** • Indications and goals a. Primary cancer b. Recurrent cancer • Pharmacology a. Pharmacokinetics b. Pharmacodynamics c. Metabolism and clearance d. Pharmacogenomics e. List of drugs • Dose and schedule a. Metronomic b. Dose-density c. Dose-intensity d. High-dose • Cancer drug development and testing • Drug resistance • Predicting response and toxicity ☒ **Hormonal Therapies** • Estrogens • Selective estrogen response modifiers • Progestins and antiprogestins • Aromatase inhibitors • Androgens and antiandrogens • Gonadotropin-releasing hormone analogs • Glucocorticoids • Miscellaneous agents ☒ **Biologic/Targeted Therapy** • Basic concepts of targeted molecular • therapies		

- Monoclonal antibodies
- Tumor vaccines
- Cellular therapy
- Antiangiogenic agents
- Cytokines
- Gene-directed therapy

☒ **Cancer prevention**

- Lifestyle changes
- Chemoprevention
- Surgical role

☒ **Cancer Screening**

☒ **Breast cancer**

I. Epidemiologic and etiologic risk factors, tumor markers/molecular genetics for breast cancer.

J. Natural history, typical clinical presentations and diagnostic work-up, staging, clinico-pathologic manifestations and prognostic factors of breast cancer.

K. Principles of multidisciplinary treatment and management for early stage breast cancer, including:
   a. Ductal carcinoma in-situ (DCIS)
   b. Early stage invasive carcinoma
   c. The role of radiation therapy and systemic therapy in breast conservation therapy (BCT) for early stage breast cancer (DCIS and invasive)
   d. Surgical techniques: breast conserving surgery; axillary dissection; sentinel nodebiopsy
   e. Selection factors and contra-indications to BCT
   f. Appropriate management of lymph node regions

- Principles of multidisciplinary management and

treatment of: ❖ Locally advanced breast cancer ❖ Inflammatory breast cancer ❖ Types/use of systemic therapy (chemotherapy, hormonal therapy) ❖ Role of radiation therapy (post-mastectomy) • Radiation effects of the breast and surrounding normal tissue. • Expected therapeutic outcomes of treatments, including expected control rates. • Supportive care and follow up ☒ **Gastrointestinal cancer** • Epidemiologic and etiologic risk factors, tumor markers/molecular genetics, potential preventative and screening methods. • Natural history, typical clinical presentations, diagnostic workup and staging, clinico-pathologic manifestations and prognostic factors of GIT cancer. • Principles of multidisciplinary treatment and management and role(s) of radiation therapy for each of the disease sites and categories, including: Types/use of systemic therapy (chemotherapy, targeted therapy) Esophageal cancer: ❖ Definitive or palliative treatment for distal and proximal esophageal cancer, including surgery, radiation therapy alone, pre-operative and post-operative radiation therapy and chemotherapy and definitive chemoradiation therapy Pre-operative/post-operative radiation therapy for stomach cancer		

Pancreatic cancer: ❖ Post-operative radiation therapy/chemotherapy ❖ Chemoradiation for unresectability Rectal cancer: ❖ Adjuvant radiation therapy ❖ Pre-operative/post-operative radiation therapy Chemoradiation for anal canal cancer • Expected therapeutic outcomes of treatments, including expected control rates. • Principles of treatment of primary site lymph node region for each of the disease categories and stage of disease. • Principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories, including: Importance of time dose factors, including radiotherapy timing in relation to surgery; integration of radiotherapy and systemic therapy. Isodose distributions for various sized electron fields for different electron beam energies. Principles of chemoradiation sensitization. • In-depth knowledge of controversial areas or unusual situations in each of the disease categories, including: Adjuvant therapy of colon cancer Pros and cons of pre-operative and post operative radiation for rectal cancer Chemoradiation for anal canal cancer. • Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications.		

☒ **Genitourinary Cancer** • Epidemiologic and etiologic risk factors, tumor markers/molecular genetics, including prevention and screening methods. • Natural history, typical clinical presentations, diagnostic workup and staging, clinico-pathologic manifestations and prognostic factors of GIT cancer. • Principles of multidisciplinary treatment and management and role(s) of radiation therapy for each of the disease sites/categories, including: - Early stage/low risk prostate cancer: role of brachytherapy, external beam therapy, including 3-D CRT and IMRT - Intermediate risk and high risk (locally advanced) prostate cancer: role of external beam therapy, including 3-D CRT and IMRT, and/or brachytherapy; adjuvant use of hormonal therapy - Post-operative treatment of prostate cancer with radiation: adjuvant vs. salvage radiation +/- hormonal therapy - Metastatic prostate cancer: role of radiation and/or hormonal therapy - Bladder cancer: definitive radiation; pre-operative and post-operative radiation, role of definitive chemoradiation for invasive carcinoma - Testicular cancer: seminoma - Renal neoplasms: role of radiation for renal cell carcinoma • Treatment of primary site and lymph node regions for each of the disease sites and stage of disease.		

• Principles of radiological physics and radiobiology as appropriate to radiation therapy for each of the disease categories: - Importance of time-dose factors for bladder cancer - Principles of radiation sensitization with hormonal therapy (prostate cancer) and chemotherapy (bladder cancer) • Basic knowledge of areas of controversy in each of the disease categories: - Prostate cancer: ❖ Treatment of lymph node region for early stage prostate cancer; locally-advanced, post-operative prostate cancer ❖ Observation for early stage prostate cancer ❖ Hormonal therapy vs. observation vs. salvage for biochemical failure following radiation therapy or brachytherapy - Bladder cancer: ❖ Chemoradiation for invasive bladder carcinoma vs. Cystectomy. ❖ Pre/ postoperative radiation therapy - Testis: ❖ Surveillance in Stage I carcinoma ❖ Controversies in the determination of treatment volume and dose (para-aortic only vs. hockey-stick) ❖ Issue regarding sterility and second malignant tumor that may be associated with the disease and with radiation treatment. • Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications.		

☒ **Gynecological Cancer** • Epidemiologic and etiologic risk factors, tumor markers/molecular genetics. • Natural history, clinical presentation and diagnostic work-up, staging, clinico-pathological manifestation and prognostic factors of gynecologic malignancies. • Principles of multidisciplinary treatment and management for each site and stage: Cervical cancer Endometrial cancer Ovarian cancer Vulval cancer Vaginal cancer Including the use of chemotherapy, surgery, and other modalities of treatment. • Principles of radiological physics and radiobiology appropriate for radiation therapy to each of these sites: Time dose parameters, including treatment duration for cervical cancer Specific medical knowledge: ❖ Cervix: ✓ Time-dose parameters (treatment duration) ✓ Use of concomitant chemoradiation ✓ Use of neoadjuvant chemotherapy ✓ Role of post-operative radiation therapy ❖ Endometrial: ✓ Indications for pre-operative/post-operative XRT (pelvis and extended field) and brachytherapy ✓ Radiation therapy alone for endometrial cancer ❖ Vulva:		

✓ Definitive chemoradiation, including inguinal radiation ✓ Indications for post-operative radiation therapy ❖ Vaginal: ✓ Use of external beam radiation and brachytherapy ❖ Ovarian: ✓ Use of adjuvant chemotherapy ✓ Use of cytoreductive chemotherapy. ❖ Indications for whole abdominal/pelvic radiation post-operatively. • Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications. ☒ **Hematological malignancy** • Epidemiologic and etiologic risk factors, tumor markers/molecular genetics. • Natural history, clinical presentation and diagnostic work-up, staging, clinico-pathological manifestation and prognostic factors of hematological malignancies. • Principles of multidisciplinary management and treatment and, specifically, the role of chemotherapy and radiation therapy for each of the disease sites and according to disease stage: Lymphoma: use of radiation for non-Hodgkin's lymphoma and Hodgkin's Disease Hodgkin's Disease: appropriate use of irradiation +/- chemotherapy by stage of disease Non-Hodgkin's Lymphoma: use of radiation by stage/extent of disease +/- chemotherapy Multiple myeloma/leukemia: role of radiation		

therapy for bone marrow transplant or SC transplant. Role of chemotherapy - Acute Leukemias (ALL/AML): the use of different chemotherapy schedules according to risk adapted management. Role of BMT - Chronic Leukemias (CLL/CML): the use of chemotherapy and targeted therapy according to disease stage and symptoms (observation vs. Active treatment in CLL), the role of BMT • Principles of treatment of the lymph node region for each of the disease categories by stage of disease. • Principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories. • knowledge of controversial areas or unusual situations in each of the disease categories, including those regarding: • Hodgkin's Disease/Non-Hodgkin's Disease: doses and treatment fields according to each stage of disease • CNS lymphoma. • Radiation effects and response on organ of Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications. ☒ **<u>Head and neck Cancer</u>** • Epidemiologic and etiologic risk factors, tumor markers/molecular genetics. • Natural history, clinical presentation and diagnostic work-up(including ENT endoscopy and laryngescopy), staging, clinico-pathological manifestation and prognostic factors of head and neck tumors. • Principles of multidisciplinary management and		

treatment and, specifically, the role of chemotherapy and radiation therapy (including brachytherapy, altered fractionation 3-D CRT and IMRT, if appropriate)for each of the disease sites and according to disease stage: - Nasopharynx: ❖ Role of chemotherapy and radiation; altered vs. standard fractionation - Nasal cavity/paranasal sinuses: ❖ Role of surgery and radiation, including altered fractionation; role of brachytherapy - Salivary glands: ❖ Role of surgery and indications for treatment with post-operative radiation - Oral cavity: ❖ Indications for treatment with radiation and application of brachytherapy techniques - Tonsillar fossa and faucial arch, oropharynx, including base of tongue: ❖ Pre-operative/post-operative and definitive radiation therapy (including hyperfractionation) and use of chemotherapy - Hypopharynx: ❖ Use of surgery and/or radiation therapy for each sub-site by stage - Larynx: ❖ Use of definitive radiation therapy including altered fractionation and post-operative radiation for each sub-site and stage ❖ Chemoradiotherapy for laryngeal preservation ❖ Appropriate role of definitive radiation therapy vs. surgery for different disease locations. • Principles of treatment of primary site and lymph node regions for each of the disease sites and stage of disease; know indications for		

treatment for each site and stage of disease. • Principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories: Importance of time-dose factors Repopulation Principle of chemoradiation sensitization Principles of hyperfractionation/ altered fractionation Principles of field alignment; use of electron fields • Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications. ☒ **Thoracic Cancer** • Epidemiologic and etiologic risk factors, tumor markers/molecular genetics. • Natural history, clinical presentation and diagnostic work-up(includingrole of broncoscopy andmediastinoscopy), staging, clinico-pathological manifestation and prognostic factors of thoracic tumors. • Principles of multidisciplinary management and treatment and, specifically, the role of chemotherapy and radiation therapy (including brachytherapy, altered fractionation 3-D CRT and IMRT, if appropriate)for each of the disease sites and according to disease stage: Non-small cell lung cancer: ❖ Resectable tumor ✓ Role of pre-operative (chemo-) radiation ✓ Role of post-operation radiation ✓ Role of post-operation chemotherapy or chemoradiation ❖ Unrespectable tumors		

✓ Definitive and palliative radiation and chemoradiation options, including altered fractionation, hypofractionation and split course. ✓ Palliative chemotherapy in advanced disease. ❖ Surgery: ✓ types of surgery appropriate for lung cancer Small cell lung cancer: ❖ Chemoradiation for limited stage disease, sequencing of irradiation and chemotherapy (sequential vs. concurrent) ❖ Elective cranial radiation (pros and cons) ❖ Appropriate role of definitive radiation therapy vs. surgery for different disease locations. Mediastinal tumors (eg. Thymic tumors) ❖ Principles of Surgical Resection ❖ Principles of Radiation Therapy ❖ Principles of Chemotherapy ❖ Postoperative radiotherapy or chemoradiotherapy ❖ Unresectable Disease, Definitive and palliative radiotherapy. Pleural Mesothelioma: ❖ Role of surgery in resectable disease; Role of adjuvant radio or chemoradiotherapy. ❖ Role of palliative chemotherapy or radiotherapy in irresctable tumors • Principles of treatment of primary site and lymph node regions for each of the disease sites and stage of disease; know indications for treatment for each site and stage of disease. • Principles of radiological physics and radiobiology appropriate to radiation therapy		

for each of the disease categories: - Importance of time-dose factors - Repopulation - Principle of chemoradiation sensitization - Principles of hyperfractionation/altered fractionation - Principles of field alignment; use of electron fields • Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications. ☒ **Sarcoma and skin Cancer** • Epidemiologic and etiologic risk factors, tumor markers/molecular genetics. • Natural history, clinical presentation and diagnostic work-up(including role of broncoscopy and mediastinoscopy), staging, clinico-pathological manifestation and prognostic factors of sarcoma and skin cancer. - Principles of multidisciplinary management and treatment and, specifically, the role of chemotherapy and radiation therapy for each of the disease sites and according to disease stage: Soft tissue sarcomas, (extremitities sarcoma, retroperitoneal sarcoma, gastrointestinal stromal tumors (GIST): ❖ Role of postoperative radio/chemoradiotherapy in resectable tumors. ❖ Role of preoperative/definitive radiotherapy in irresctable tumor. Palliative systemic chemotherapy in metastatic disease. ❖ Role of targeted therapy in GIST. - Bone sarcoma (Osteosarcoma, Ewing's sarcoma, chondrosarcoma:		

❖ role of preoperative and postoperative chemotherapy in resectable tumors. ❖ Role of definitive and palliative radiotherapy in irresectable tumors. ❖ Role of chemtherapy in metastatic disease. skin cancers: ❖ Role of adjuvant, palliative and radical radiotherapy in non Melanoma skin cancers(NMSC) ❖ Role and different procedures of sentinel LN biopsy and surgery in MSC. ❖ Systemic treatment in MSC. • Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications. ☒ **Pediatric Cancer** • Epidemiologic and etiologic risk factors, tumor markers/molecular genetics. • Natural history, clinical presentation and diagnostic work-up(including role of broncoscopy and mediastinoscopy), staging, clinico-pathological manifestation and prognostic factors of pediatric cancers. • Principles of multidisciplinary management and treatment and, specifically, the role of chemotherapy and radiation therapy for each of the disease sites and according to disease stage: Childhood CNS: ❖ Medulloblastoma (PNET): role of craniospinal irradiation ❖ Ependymoma: role of involved field radiation therapy ❖ Glioma: low grade or high grade intact brain stem		

❖ Craniopharyngioma: role of post-operative radiation therapy ❖ Childhood solid tumors: ❖ Wilms: radiation therapy treatment by stage ❖ Neuroblastoma ❖ Retinoblastoma ❖ Rhabdomyosarcoma: known usual radiation treatment approach by site and disease extent ❖ Lymphoma: use of radiation for non-Hodgkin's lymphoma and Hodgkin's Disease • Pinciples of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories. • Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications. ☒ **Oncological emergency** • Septic shock • Febrile neutropenia • Cord compression • Superior vena cava obstruction. • Cardiac tamponade. • Convulsions. • Encephalopathy. • Renal failure. • Hypercalcemia. • Tumor lysis syndrome. • Bleeding.		
C. State update and evidence based Knowledge of • Breast Cancer. • Colorectal Cancer. • Lung Cancer. • Brain Tumors. • Nasopharyngeal Cancer.	Lecture -Self-directed learning -Case-based studies with discussion and problem	OSCE at the end of each year -log book & portfolio - One MCQ examination

• Lymphomas.	solving.	at the second half of the second year -Written and oral examination
D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to clinical oncology.		OSCE at the end of each year -log book & portfolio - One MCQ examination at the second half of the second year -Written and oral examination
E. Mention the basic ethical and medico-legal principles that should be applied in practice and are revenant to the Clinical Oncology.	Lecture -Self-directed learning -Case-based studies with discussion and problem solving.	OSCE at the end of each year -log book & portfolio - One MCQ examination at the second half of the second year -Written and oral examination

F. Mention the basics and standards of quality assurance to ensure good clinical practice in the field of Clinical Oncology.	Lecture -Self-directed learning -Case-based studies with discussion and problem solving.	OSCE at the end of each year -log book & portfolio - One MCQ examination at the second half of the second year -Written and oral examination
G. Mention the ethical and scientific principles of medical research methodology.	Lecture -Self-directed learning -Case-based studies with discussion and problem solving.	OSCE at the end of each year -log book & portfolio - One MCQ examination at the second half of the second year -Written and oral examination
H. State the impact of common health problems in the field of clinical oncology on the society and how good clinical practice improve these problems.	Lecture -Self-directed learning -Case-based studies with discussion and problem	OSCE at the end of each year -log book & portfolio - One MCQ examination

	solving.	at the second half of the second year -Written and oral examination

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases related toclinical oncology.	-Clinical rounds -Senior staff experience	-Procedure and case presentation -Log book & Portfolio
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to clinical oncology.	-Clinical rounds -Senior staff experience	-Procedure and case presentation -Log book & Portfolio
C. Design and /or present a case or review (through seminars/journal clubs.) in one or more of common clinical problems relevant to the field of clinical oncology.	-Clinical rounds -Senior staff experience	-Procedure and case presentation -Log book & Portfolio
D-Formulate management plans and alternative decisions in different situations in the field of the clinical oncology.	-Clinical rounds -Senior staff experience	-Procedure and case presentation -Log book & Portfolio

C-Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Take history, examine and clinically diagnose different conditions related to Clinical Oncology.	Didactic (lectures, seminars, tutorial) -Clinical rounds Clinical rotations (service teaching)	-OSCE at the end of each year -log book & portfolio - One MCQ examination at the second half of the second year -Clinical exam
B. Order the following non invasive and invasive diagnostic procedures • Routine appropriate Lab investigations related to Clinical Oncology • Cytology • Cultures and sensitivity • Blood gases • Serum electrolytes • Endocrinal profile • Protein electophresis • Bence jones protein • Tuberculin test • Hormonal receptors • Molecular receptors • Tumor markers • Immunophenotyping	Clinical round with senior staff Observation -Post graduate teaching -Hand on workshops -Perform under supervision of senior staff	Procedure presentation - Log book - Chick list

• Mammography • Breast US • Breast MRI • Chest X ray • CT chest • MRI chest • Abdominal US • CT abdomen • CT pelvis • MRI abdomen • MRI pelvis • Bone Scan • Thyroid scan • Renal scan • PET-CT • CT brain • MRI brain • Barium studies • Radiofrequancy • ECHO • Pulmonary function testing • Biopsy • Pleural aspiration • Paracentesis • Bronchoscopy • Thoracoscopy • Cystoscopy • Endoscopy (Upper, Lower, Pan, Fibro-optic) • TVUS • TRUS • Bone marrow aspirate • Bone marrow biopsy • CSF cytology		

C. Interpret the non invasive and invasive diagnostic procedures that mentioned in C.B		
D. Perform the following non invasive and invasive diagnostic procedures • Intravenous canulation • Blood gases		
E. Prescribe the following non invasive and invasive therapeutic procedures ☒ **Radiotherapy** • radiation therapy techniques (including 3-D conformal radiation therapy [3-D CRT] and intensity-modulated radiation therapy [IMRT], brachytherapy, Stereotactic radiosurgery and radiotherapy[SRS, SRT], image guided radiotherapy [IGRT] as they become integrated into the therapy of these patients • treatment plans and dosimetry including: - Determination of treatment volume clinically and on CT scans - Determination of appropriate doses and fractionation, depending on clinical/pathologic circumstances - Irradiation technique of regional lymphatic - Field arrangements and match line techniques, and doses, including use of electron fields vs. tangential fields - Set-up of different radiotherapy Techniques • A variety of palliative situations (CNS metastasis – brain, bone/spinal metastasis) • Learn basic critical organ dose parameters and begin to integrate this information into the patient's radiation therapy treatment plan.		

☒ **Chemotherapeutic regimens** • Methods of preparation and administration of different chemotherapy regimens • Managing different complications and side effects of chemotherapy • Lumbar puncture and intrathecal injections ☒ **Hormonal therapy** • Methods of preparation and administration of different hormonal therapy. • Managing different complications and side effects of hormonal therapy. ☒ **Target therapy** • Methods of preparation and administration of different target therapy. • Managing different complications and side effects of target therapy. ☒ **Cannula insertion.** ☒ **Aseptic venepuncture and use of infusion pump** ☒ **Central venous devises care.** ☒ **Ascitic tap and paracentesis** ☒ **Pleurodesis and handling of intercostals tube.** ☒ **Pleural tapping** ☒ **Urethral catheterization.** **Nasogastric tube placement and central feeding.**		
F. Perform the non invasive and invasive therapeutic procedures that mentioned in C.D	Observation -Post graduate teaching -Hand on workshops	
G. Develop and carry out patient management plans for the problems mentioned in A.A	Clinical round with senior staff	

H. Use information technology to support patient care decisions and patient education for Clinical Oncology related conditions	Clinical round with senior staff	
I. Provide health care services aimed at preventing the conditions mentioned in A.A in addition to: • Side effects of systemic therapy including [chemotherapy, hormonal therapy and target therapy] • Side effects of radiotherapy depending on the site and techniques.	Clinical round with senior staff	
J. Work with health care professionals, including those from other disciplines, to provide patient-focused care.	Clinical round with senior staff	
K. Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets (Write a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records).		

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology (share in audit and risk management activities and use logbook).	Simulations -Clinical round -Seminars -Lectures -Case presentation -Hand on workshops	Global rating -Procedure & case presentation -Log book & Portfolios - Chick list
B.Appraises evidence from scientific studies(journal club)		
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis using information technology to manage information, access on-line medical information; and support their own education.		
E. Facilitate learning of junior students and other health care professionals including their evaluation and assessment.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain therapeutic and ethically sound relationship with patients.	Simulations -Clinical round -Seminars -Lectures -Case presentation -Hand on workshops	- Global rating -Procedure & case presentation -Log book & Portfolios - Chick list
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in clinical oncology.		
K. Write a report in cases of clinical oncology.		
L. Council patients and families about Interpretation of the results of different investigations related to Clinical Oncology and discussion of different therapeutic options		

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation - Senior staff experience - Case taking	- Objective structured clinical examination - Patient survey - 360o global rating
N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		
O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems.	Observation - Senior staff experience	1. 360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		1. Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: Second part

Topic	Covered ILOs			
	Knowledge A	**Intellectual** B	**Practical skills** C	**General Skills** D
• **Section 1: Imaging/staging techniques in diagnosis, staging, and follow-up**	B-H	A-D	A-K	A-R
• Radiographic	B-H	A-D	A-K	A-R
• Computed tomography (CT)	B-H	A-D	A-K	A-R
• Ultrasound	B-H	A-D	A-K	A-R
• Magnetic resonance imaging (MRI)	B-H	A-D	A-K	A-R
• Positron emission tomography (PET)	B-H	A-D	A-K	A-R
• Endoscopic imaging techniques	B-H	A-D	A-K	A-R
• **Section 2: Surgical oncology**	B-H	A-D	A-K	A-R
• Preoperative evaluation	B-H	A-D	A-K	A-R
• Surgery for specific types and sites	B-H	A-D	A-K	A-R
• Biopsy techniques	B-H	A-D	A-K	A-R
• **Section 3: Radiation oncology**	B-H	A-D	A-K	A-R
• Principles of radiation biology	B-H	B-D	A-K	A-R
• Normal tissue tolerance and toxicity	B-H	B-D	A-K	A-R

• Interactions with Chemotherapy, Hormone therapy, Biologic therapy • Sequencing of therapy	B-H	B-D	A-K	A-R
• Fractionation and dosing	B-H	B-D	A-K	A-R
• Hyperthermia	B-H	B-D	A-K	A-R
• Electron beam therapy	B-H	B-D	A-K	A-R
• Brachytherapy	B-H	B-D	A-K	A-R
• Focused radiation therapies {3-DCRth, Gamma knife, Sterotactic radiotherapy, Intensity-modulated radiation therapy (IMRT), Cyberknife, Image Guided Radiotherapy (IGRT) }	B-H	B-D	A-K	A-R
• **Section 4: Chemotherapy**	B-H	-	-	-
• Indications and goals	B-H	-	-	-
• Pharmacology	B-H	-	-	-
• Dose and schedule	B-H	-	-	-
• Cancer drug development and testing	B-H	-	-	-
• Drug resistance	B-H	-	-	-
• Predicting response and toxicity	B-H	-	-	-
• **Section 5: Hormonal therapy**	B-H	-	-	-
• Estrogens	B-H	-	-	-
• Selective estrogen response modifiers	B-H	-	-	-
• Progestins and antiprogestins	B-H	-	-	-
• Aromatase inhibitors	B-H	-	-	-
• Androgens and	B-H	-	-	-

antiandrogens				
• Gonadotropin-releasing hormone analogs	B-H	-	-	-
• Glucocorticoids	B-H	-	-	-
• Miscellaneous agents	B-H	-	-	-
• **Section 6: Biologic/Targeted Therapy**	B-H	-	-	-
• Basic concepts of targeted molecular therapies	B-H	-	-	-
• Monoclonal antibodies	B-H	-	-	-
• Tumor vaccines	B-H	-	-	-
• Cellular therapy	B-H	-	-	-
• Antiangiogenic agents	B-H	-	-	-
• Cytokines	B-H	-	-	-
• Gene-directed therapy	B-H	-	-	-
• **Section 7: Cancer prevention**	B-H	A-D	A-K	A-R
• Lifestyle changes	B-H	A-D	A-K	A-R
• Chemoprevention	B-H	A-D	A-K	A-R
• Surgical role	B-H	A-D	A-K	A-R
• **Section 8 : Cancer Screening**	B-H	A-D	A-K	A-R
• **Section 9: Breast Cancer**	A-H	A-D	A-K	A-R
• Epidemiologic and etiologic risk factors, tumor markers/molecular genetics for breast cancer.	A-H	A-D	A-K	A-R
• Natural history, typical clinical presentations and diagnostic work-up, staging, clinico-pathologic manifestations and prognostic factors of breast	A-H	A-D	A-K	A-R

cancer.				
• Principles of multidisciplinary treatment and management for early stage breast cancer	A-H	A-D	A-K	A-R
• Principles of multidisciplinary management and treatment of: Locally advanced breast cancer, Inflammatory breast cancer, Types/use of systemic therapy (chemotherapy, hormonal therapy), Role of radiation therapy (post-mastectomy)	A-H	A-D	A-K	A-R
• Radiation effects of the breast and surrounding normal tissue.	A-H	A-D	A-K	A-R
• Expected therapeutic outcomes of treatments, including expected control rates.	A-H	A-D	A-K	A-R
• Supportive care and follow up	A-H	A-D	A-K	A-R
• **Section 10: Gastrointestinal Cancer**	A-H	A-D	A-K	A-R
• Epidemiologic and etiologic risk factors, tumor markers/molecular genetics, potential preventative and screening methods.	A-H	A-D	A-K	A-R
• Natural history, typical clinical presentations, diagnostic workup and	A-H	A-D	A-K	A-R

staging, clinico-pathologic manifestations and prognostic factors of GIT cancer				
• Principles of multidisciplinary treatment and managementand role(s) of radiation therapy for each of the disease sites and categories	A-H	A-D	A-K	A-R
• Expected therapeutic outcomes of treatments, including expected control rates.	A-H	A-D	A-K	A-R
• Principles of treatment of primary site lymph node region for each of the disease categories and stage of disease.	A-H	A-D	A-K	A-R
• Principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories	A-H	A-D	A-K	A-R
• In-depth knowledge of controversial areas or unusual situations in each of the disease categories, including: Adjuvant therapy of colon cancer, Pros and cons of pre-operative and postoperative radiation for rectal cancer, Chemoradiation for anal canal cancer.	A-H	A-D	A-K	A-R

• Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications.	A-H	A-D	A-K	A-R
• **Section 11: Genitourinary Cancer**	A-H	A-D	A-K	A-R
• Epidemiologic and etiologic risk factors, tumormarkers/molecular genetics, including prevention and screening methods.	A-H	A-D	A-K	A-R
• Natural history, typical clinical presentations, diagnostic workup and staging, clinico-pathologic manifestations and prognostic factors of GIT cancer.	A-H	A-D	A-K	A-R
• Principles of multidisciplinary treatment and management and role(s) of radiation therapy for each of the disease sites/categories.	A-H	A-D	A-K	A-R
• Treatment of primary site and lymph node regions for each of the disease sites and stage of disease	A-H	A-D	A-K	A-R
• Principles of radiological physics and radiobiology as appropriate to radiation therapy for each of the	A-H	A-D	A-K	A-R

disease categories				
• Basic knowledge of areas of controversy in each of the disease categories	A-H	A-D	A-K	A-R
• Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications.	A-H	A-D	A-K	A-R
• **Section 12: Gynecological Cancer**	A-H	A-D	A-K	A-R
• Epidemiologic and etiologic risk factors, tumor markers/molecular genetics.	A-H	A-D	A-K	A-R
• Natural history, clinical presentation and diagnostic work-up, staging, clinico-pathological manifestation and prognostic factors of gynecologic malignancies. •	A-H	A-D	A-K	A-R
• Principles of multidisciplinary treatment and management for each site and stage	A-H	A-D	A-K	A-R
• Principles of radiological physics and radiobiology appropriate for radiation therapy to each of these sites	A-H	A-D	A-K	A-R
• Specific medical knowledge Cervix	A-H	A-D	A-K	A-R
• Specific medical knowledge Endometrial	A-H	A-D	A-K	A-R

• Specific medical knowledge Vulva	A-H	A-D	A-K	A-R
• Specific medical knowledge Vaginal	A-H	A-D	A-K	A-R
• Specific medical knowledge Ovarian	A-H	A-D	A-K	A-R
• Indications for whole abdominal/pelvic radiation post-operatively	A-H	A-D	A-K	A-R
• Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications	A-H	A-D	A-K	A-R
• **Section 13: Hematological malignancy**	A-H	A-D	A-K	A-R
• Epidemiologic and etiologic risk factors, tumor markers/molecular genetics.	A-H	A-D	A-K	A-R
• Natural history, clinical presentation and diagnostic work-up, staging, clinico-pathological manifestation and prognostic factors of hematological malignancies.	A-H	A-D	A-K	A-R
• Principles of multidisciplinary management and treatment and, specifically, the role of chemotherapy and radiation therapy for each of the disease sites and according to disease stage:	A-H	A-D	A-K	A-R

• Lymphoma, Hodgkin's Disease, Non-Hodgkin's Lymphoma, Multiple myeloma/leukemia, Acute Leukemias (ALL/AML) and Chronic Leukemias (CLL/CML)				
• Principles of treatment of the lymph node region for each of the disease categories by stage of disease.	A-H	A-D	A-K	A-R
• Principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories.	A-H	A-D	A-K	A-R
• Knowledge of controversial areas or unusual situations in each of the disease categories, including those regarding: Hodgkin's Disease/Non-Hodgkin's Disease and CNS lymphoma.	A-H	A-D	A-K	A-R
• Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications.	A-H	A-D	A-K	A-R
• **Section 14: Head and neck Cancer**	A-H	A-D	A-K	A-R
• Epidemiologic and etiologic risk factors, tumor markers/molecular genetics.	A-H	A-D	A-K	A-R

• Natural history, clinical presentation and diagnostic work-up(including ENT endoscopy and laryngescopy), staging, clinico-pathological manifestation and prognostic factors of head and neck cancers.	A-H	A-D	A-K	A-R
• Principles of multidisciplinary management and treatment and, specifically, the role of chemotherapy and radiation therapy (including brachytherapy, altered fractionation 3-D CRT and IMRT, if appropriate)for each of the disease sites and according to disease stage	A-H	A-D	A-K	A-R
• Principles of treatment of primary site and lymph node regions for each of the disease sites and stage of disease; know indications for treatment for each site and stage of disease	A-H	A-D	A-K	A-R
• Principles of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories	A-H	A-D	A-K	A-R
• Radiation effects and response on organ of interest and surrounding normal	A-H	A-D	A-K	A-R

tissue: acute and chronic radiation effects; complications.				
• **Section 15: Thoracic Cancer**	A-H	A-D	A-K	A-R
• Epidemiologic and etiologic risk factors, tumor markers/molecular genetics.	A-H	A-D	A-K	A-R
• Natural history, clinical presentation and diagnostic work-up(including role of broncoscopy and mediastinoscopy), staging, clinico-pathological manifestation and prognostic factors of thoracic tumors	A-H	A-D	A-K	A-R
• Principles of multidisciplinary management and treatment and, specifically, the role of chemotherapy and radiation therapy (including brachytherapy, altered fractionation 3-D CRT and IMRT, if appropriate)for each of the disease sites and according to disease stage	A-H	A-D	A-K	A-R
• Principles of treatment of primary site and lymph node regions for each of the disease sites and stage of disease; know indications for treatment for each site and stage of disease.	A-H	A-D	A-K	A-R
• Principles of radiological	A-H	A-D	A-K	A-R

physics and radiobiology appropriate to radiation therapy for each of the disease categories				
• Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects; complications.	A-H	A-D	A-K	A-R
• **Section 16: Sarcoma and skin Cancer**	A-H	A-D	A-K	A-R
• Epidemiologic and etiologic risk factors, tumor markers/molecular genetics.	A-H	A-D	A-K	A-R
• Natural history, clinical presentation and diagnostic work-up(including role of broncoscopy and mediastinoscopy), staging, clinico-pathological manifestation and prognostic factors of sarcoma and skin cancer	A-H	A-D	A-K	A-R
• Principles of multidisciplinary management and treatment and, specifically, the role of chemotherapy and radiation therapy for each of the disease sites and according to disease stage	A-H	A-D	A-K	A-R
• Radiation effects and response on organ of interest	A-H	A-D	A-K	A-R

and surrounding normal tissue: acute and chronic radiation effects; complications.				
• **Section 17: Pediatric Cancer**	A-H	A-D	A-K	A-R
• Epidemiologic and etiologic risk factors, tumor markers/molecular genetics.	A-H	A-D	A-K	A-R
• Natural history, clinical presentation and diagnostic work-up(including role of broncoscopy and mediastinoscopy), staging, clinico-pathological manifestation and prognostic factors of pediatric cancers.	A-H	A-D	A-K	A-R
• Principles of multidisciplinary management and treatment and, specifically, the role of chemotherapy and radiation therapy for each of the disease sites and according to disease stage	A-H	A-D	A-K	A-R
• Pinciples of radiological physics and radiobiology appropriate to radiation therapy for each of the disease categories	A-H	A-D	A-K	A-R
• Radiation effects and response on organ of interest and surrounding normal tissue: acute and chronic radiation effects;	A-H	A-D	A-K	A-R

complications.				
• **Section 18: Oncological emergency**	A-H	A-D	A-K	A-R
• Septic shock	A-H	A-D	A-K	A-R
• Febrile neutropenia	A-H	A-D	A-K	A-R
• Cord compression	A-H	A-D	A-K	A-R
• Superior vena cava obstruction	A-H	A-D	A-K	A-R
• Cardiac tamponade.	A-H	A-D	A-K	A-R
• Convulsions.	A-H	A-D	A-K	A-R
• Encephalopathy.	A-H	A-D	A-K	A-R
• Renal failure.	A-H	A-D	A-K	A-R
• Hypercalcemia	A-H	A-D	A-K	A-R
• Tumor lysis syndrome.	A-H	A-D	A-K	A-R
• Bleeding.	A-H	A-D	A-K	A-R
• Male breast cancer	C	A-D	A-K	A-R
• Breast cancer in pregnancy	C	A-D	A-K	A-R
• Breast cancer in elderly women	C	A-D	A-K	A-R
• Breast cancer in very young women	C	A-D	A-K	A-R
• Breast cancer presenting as axillary metastases	C	A-D	A-K	A-R
• Phyllodes tumors	C	A-D	A-K	A-R
• Paget's disease of the nipple	C	A-D	A-K	A-R
• Peritoreal mesothelioma	C	A-D	A-K	A-R
• Bilateral renal tumors	C	A-D	A-K	A-R
• Oncocytoma	C	A-D	A-K	A-R
• Collecting system tumor	C	A-D	A-K	A-R
• Urachal carcinoma	C	A-D	A-K	A-R
• Small-cell carcinoma of	C	A-D	A-K	A-R

prostate				
• Penile Cancer	C	A-D	A-K	A-R
• Growing teratoma	C	A-D	A-K	A-R
• False-positive serum markers in germ cell tumors	C	A-D	A-K	A-R
• Tumor sanctuary sites (testes)	C	A-D	A-K	A-R
• Non–germ cell testicular tumors	C	A-D	A-K	A-R
• Secondary malignancies	C	A-D	A-K	A-R
• Uterine sarcoma	C	A-D	A-K	A-R
• Gestational trophoblastic disease	C	A-D	A-K	A-R
• Cervical cancer during pregnancy	C	A-D	A-K	A-R
• Nonepithelial ovarian cancer	C	A-D	A-K	A-R
• Low-malignant potential ovarian cancers	C	A-D	A-K	A-R
• Fallopian tube tumors	C	A-D	A-K	A-R
• Primary peritoneal tumors	C	A-D	A-K	A-R
• Richter’s syndrome	C	A-D	A-K	A-R
• Hypogammaglobulinemia and infection	C	A-D	A-K	A-R
• Autoimmune hemolytic anemia and thrombocytopenia	C	A-D	A-K	A-R
• Monoclonal gammopathy of uncertain significance (MGUS)	C	A-D	A-K	A-R
• Waldenstrom’smacroglobulinemia	C	A-D	A-K	A-R
• lymphoplasmacyticlympho	C	A-D	A-K	A-R

ma with serum immunoglobulin-M)				
• Esthesioneuroblastoma	C	A-D	A-K	A-R
• Adenoid optic carcinoma and pleomorphic adenoma	C	A-D	A-K	A-R
• Paragangliomas	C	A-D	A-K	A-R
• Glomus tumors	C	A-D	A-K	A-R
• Nasopharyngeal angiofibroma	C	A-D	A-K	A-R
• Ocular tumours	C	A-D	A-K	A-R
• Bronchoalveolar carcinoma	C	A-D	A-K	A-R
• Pancoast tumors	C	A-D	A-K	A-R
• Thymomas and Thymic Cancer	C	A-D	A-K	A-R
• Benign mesotheliomas	C	A-D	A-K	A-R
• GIST	C	A-D	A-K	A-R
• dermatofibrosarcoma protuberance	C	A-D	A-K	A-R
• Melanoma of Unknown primary	C	A-D	A-K	A-R
• Oral Melanoma	C	A-D	A-K	A-R
• Anorectal Melanoma	C	A-D	A-K	A-R
• Vaginal/vulvar Melanoma	C	A-D	A-K	A-R
• Neuroendocrine (carcinoid) Tumors	C	A-D	A-K	A-R
• Hepatoblastoma	C	A-D	A-K	A-R

5. Course methods of teaching/learning:

1. Didactic (lectures, seminars, tutorial)
2. Outpatient
3. Inpatient
4. Clinical rounds
5. Clinical rotations
6. Service teaching
7. Direct observation
8. Post graduate teaching
9. Hand on workshops
10. Perform under supervision of senior staff
11. Simulations
12. Present a case (true or simulated) in a grand round
13. Case Taking
14. journal club,
15. Critically appraised topic,
16. Educational prescription
17. Observation & supervision
18. Written & oral communications

6. Course methods of teaching/learning: for students with poor achievements

19. Extra Didactic (lectures, seminars, tutorial) according to their needs
20. Extra training according to their needs

7. Course assessment methods:

i. Assessment tools:

- Clinical examination
- Written
- Oral examination
- Chick list
- log book & portfolio
- Procedure/case presentation
- One MCQ examination in f the second year and one in the third year
- Objective structured clinical examination
- Check list evaluation of live or recorded performance
- Record review (report)

- Patient survey
- 360° global rating

ii. Time schedule: At the end of the second part

iii. Marks: 1200

8. List of references

a. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- DeVita, Hellman, and Rosenberg's Cancer: Principles & Practice of Oncologyed 2008.
- Perez and Brady's Principles and Practice of Radiation Oncologyed 2007.

iii. Recommended books

- Clinical Radiation Oncology (L.L. Gunderson et al), fourth edition , 2016.
- Manual of Clinical Oncology.Dennis A. Casciato et al 8th ed 2017.
- Cancer Management: A Multidisciplinary Approach. Richard Pazdur et al. 7th edition,2003.

iv. Periodicals, Web sites, … etc

- www.NCCN.com
- www.asco.org
- www.uicc.org
- www.EORTC.org
- www.medscape.com
- www.cancer.gov/
- http://annonc.oxfordjournals.org/
- www.redjournal.org/

9. Signatures

Head of the Department: ……	**Course Coordinator:** ……
Date: ……	**Date:** ……

ANNEX 2
Program Academic Reference Standards (ARS)

1- Graduate attributes for master degree in Clinical Oncology

***The Graduate (after residence training and master degree years of study) must*:**

1- Have the capability to be a scholar, understanding and applying basics, methods and toolsof scientific research and clinical audit in Clinical Oncology

2- Appraise and utilise scientific knowledge to continuously update and improve clinical practice in related speciality.

3- Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in the field of Clinical Oncology

4- Provide patient care that is appropriate, effective and compassionate for dealing with common health problems and health promotion using evidence-based and updated information.

5- Identify and share to solve health problems in his speciality.

6- Acquire all competencies –including the use of recent technologies- that enable him to provide safe, scientific, and ethical and evidence based clinical care including update use of new technology in Clinical Oncology

7- Demonstrate interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professions, the scientific community and the public.

8- Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.

9- Acquire decision making capabilities in different situations related to Clinical Oncology

10- Show responsiveness to the larger context of the health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.

11- Be aware of public health and health policy issues and share in system-based improvement of health care.

12- Show appropriate attitudes and professionalism.

13- Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in Clinical Oncology or one of its subspecialties.

2- Competency based Standards for clinical master degree graduates

2.1- Knowledge and understanding

By the end of the program, the graduate should demonstrate satisfactory knowledge and understanding of

2-1-A- Established basic, biomedical, clinical, epidemiological and behavioral sciences related conditions, problem and topics.

2-1-B- The relation between good clinical care of common health problems in the speciality and the welfare of society.

2-1-C- Up to date and recent developments in common problems related to Clinical Oncology.

2-1-D- Ethical and medicolegal principles relevant to practice inClinical Oncology

2-1-E -Quality assurance principles related to the good medical practice in Clinical Oncology

2-1-F- Ethical and scientific basics of medical research.

2.2- Intellectual skills:

By the end of the program, the graduate should be able to demonstrate the following:

2-2-A- Correlation of different relevant sciences in the problem solving and management of common diseases of Clinical Oncology

2-2-B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Clinical Oncology

2.2- C- Demonstrating systematic approach in studying clinical problems relevant to Clinical Oncology

2-2-D- Making alternative decisions in different situations inClinical Oncology

2.3- Clinical skills

By the end of the program, the graduate should be able to

2-3-A - Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

2-3-B- Demonstrate patient care skills relevant to ClinicalOncology for patients with common diseases and problems.

2-3- C- Write and evaluate reports for situations related to the field of Clinical Oncology.

2.4- General skills

By the end of the program, the graduate should be able to

- ***Competency-based outcomes for Practice-based Learning and Improvement***

2-4-A- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence,, improvements in patient care and risk management.

2-4-B- Use all information sources and technology to improve his practice.

2-4-C- Demonstrate skills of teaching and evaluating others.

- ***Competency-based objectives for Interpersonal and Communication Skills***

2-4-D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals.

- ***Competency-based objectives for Professionalism***

2-4-E- Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

- ***Competency-based objectives for Systems-based Practice***

2-4-F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively use system resources to provide care that is of optimal value.

2-4-g- Demonstrate skills of effective time management.

2-4-H- Demonstrate skills of self and continuous learning.

Annex 3, Methods of teaching/learning

Annex 3, Methods of teaching/learning

	Patient care	**Medical knowledge**	**Practice-based learning/ Improvement**	**Interpersonal and communication skills**	**Professionalism**	**Systems-based practice**
Didactic (lectures, seminars, tutorial)	X	X		X	X	X
journal club,	X	X	X			
Educational prescription	X	X	X	X	X	X
Present a case (true or simulated) in a grand round	X	X	X	X	X	
Observation and supervision	X		X	X	X	X
conferences		X	X	X		X
Written assignments	X	X	X	X	X	X
Oral assignments	X	X	X	X	X	X

Teaching methods for knowledge

- ❖ Didactic (lectures, seminars, tutorial)
- ❖ journal club
- ❖ Critically appraised topic
- ❖ Educational prescription (a structured technique for following up on clinical questions that arise during rounds and other venues).
- ❖ Present a case (true or simulated) in a grand round
- ❖ Others

Teaching methods for patient care

- ❖ Observation and supervision /Completed tasks procedure/case logs
- ❖ On-the-job" training without structured teaching is not sufficient for this skill (checklists).
- ❖ Simulation is increasingly used as an effective method for skill/ teamwork training.

Teaching methods for other skills

- ❖ Written communication (e.g., orders, progress note, transfer note, discharge summary, operative reports, and diagnostic reports).
- ❖ Oral communication (e.g., presentations, transfer of care, interactions with patients, families, colleagues, members of the health care team) and/or non verbal skills (e.g., listening, team skills)
- ❖ Professionalism, including medical ethics, may be included as a theme throughout the program curriculum

that includes both didactic and experiential components (e.g., may be integrated into already existing small group discussions of vignettes or case studies and role plays, computer-based modules) and may be modeled by the faculty in clinical practice and discussed with the resident as issues arise during their clinical practice.

Annex 4, Assessment methods

Annex 4, ILOs evaluation methods for Master Degree students.

Method	Practical skills	K	Intellectual	General skills			
	Patient care	K	I	Practice-based learning/ Improvement	Interpersonal and communication skills	Professionalism	Systems-based practice
Record review	X	X	X		X	X	X
Checklist	X				X		
Global rating	X	X	X	X	X	X	X
Simulations	X	X	X	X	X	X	
Portfolios	X	X	X	X	X		
Standardized oral examination	X	X	X	X	X		X
Written examination	X	X	X	X			X
Procedure/ case log	X	X					
OSCE	X	X	X	X	X	X	X

Annex 4, Glossary of Master Degree doctors assessment methods

- Record Review – Abstraction of information from patient records, such as medications or tests ordered and comparison of findings against accepted patient care standards.

- Chart Stimulated Recall – Uses the MSc doctor's patient records in an oral examination to assess clinical decision-making.

- Mini clinical evaluation: Evaluation of Live/Recorded Performance (single event) – A single resident interaction with a patient is evaluated using a checklist. The encounter may be videotaped for later evaluation.

- Standardized Patients (SP) – Simulated patients are trained to respond in a manner similar to real patients. The standardized patient can be trained to rate MSc doctor's performance on checklists and provide feedback for history taking, physical examination, and communication skills. Physicians may also rate the MSc doctor's performance.

- Objective Structured Clinical Examination (OSCE) – A series of stations with standardized tasks for the MSc doctors to perform. Standardized patients and other assessment methods often are combined in an OSCE. An observer or the standardized patient may evaluate the MSc doctors.

- Procedure or Case Logs – MSc doctors prepare summaries of clinical experiences including clinical data. Logs are

useful to document educational experiences and deficiencies.

- PSQs – Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by a MSc doctors.

- Case /problems – assess use of knowledge in diagnosing or treating patients or evaluate procedural skills.

- Models: are simulations using mannequins or various anatomic structures to assess procedural skills and interpret clinical findings. Both are useful to assess practice performance and provide constructive feedback.

- 360 Global Rating Evaluations – MSc doctors, faculty, nurses, clerks, and other clinical staff evaluate MSc doctors from different perspectives using similar rating forms.

- Portfolios – A portfolio is a set of project reports that are prepared by the MSc doctors to document projects completed during the MSc study years. For each type of project standards of performance are set. Example projects are summarizing the research literature for selecting a treatment option, implementing a quality improvement program, revising a medical student clerkship elective, and creating a computer program to track patient care and outcomes.

- Examination MCQ – A standardized examination using multiple-choice questions (MCQ). The in-training examination and written board examinations are examples.

- Examination Oral – Uses structured realistic cases and patient case protocols in an oral examination to assess clinical decision-making.

- Procedure or Case Logs – MSc doctors prepare summaries of clinical experiences including clinical data. Logs are useful to document educational experiences and deficiencies.

- PSQs – Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by MSc doctors.

Annex 5, program evaluation tools

sample	Method	By whom
#	Reports Field visits	Quality Assurance Unit
#	Reports Field visits	External Evaluator (s):According to department council External Examiner (s): According to department council
#	Reports Field visits questionnaires	Stakeholders
#	Questionnaires	Senior students
#	Questionnaires	Alumni

Annex 6, program Correlations:

مصفوفة توافق المعايير القومية القياسية العامة لبرامج الماجستير مع المعايير الأكاديمية المعتمدة من كلية الطب جامعة أسيوط لدرجة الماجستير في طب الاطفال

I- General Academic Reference Standards (GARS) versus Program ARS

1- Graduate attributes

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
1- Have the capability to be a scholar, understanding and applying basics, methods and tools of scientific research and clinical audit in Pediatrics.	1- إجادة تطبيق أساسيات و منهجيات البحث العلمي و استخدام أدواته المختلفة
2- Appraise and utilise scientific knowledge to continuously update and improve clinical practice in Pediatrics.	2-تطبيق المنهج التحليلي و استخدامه في مجال التخصص
3- Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in Pediatrics.	3-تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
4- Provide patient care that is appropriate, effective and compassionate for dealing with common health problems and health promotion using evidence-based and update information.	4-إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
5- Identify and share to solve health problems in Pediatrics.	5-تحديد المشكلات المهنية و إيجاد حلو لا لها
6- Acquire all competencies that enable him to provide safe, scientific, ethical and evidence based clinical care including update use of new technology in Pediatrics.	6-إتقان نطاق مناسب من المهارات المهنية المتخصصة، و استخدام الوسائل التكنولوجيةالمناسبة بما يخدم ممارسته المهنية

7- Demonstrate interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professions, the scientific community and the public. 8- Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.	7–التواصل بفاعلية و القدرة على قيادة فرق العمل
9- Acquire decision making capabilities in different situations related to Pediatrics.	8–اتخاذ القرار في سياقات مهنية مختلفة
10- Show responsiveness to the larger context of the health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.	9– توظيف الموارد المتاحة بما يحقق أعلي استفادة و الحفاظ عليها
11- Be aware of public health and health policy issues and share in system-based improvement of health care.	10–إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
12- Show appropriate attitudes and professionalism.	11–التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
13- Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in Pediatrics or one of its subspecialties.	12–تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

2. Academic standard

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.1.A -Established basic, biomedical, clinical, epidemiological and behavioral sciences related conditions, problems and topics.	2-1-أ-النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة.
2.1.B- The relation between good clinical care of common health problems in Pediatrics and the welfare of society.	2-1-ب-التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة.
2.1. C- Up to date and recent developments in common problems related to Pediatrics..	2-1-ج-التطورات العلمية في مجال التخصص.
2.1. D- Ethical and medicolegal principles relevant to practice in the Pediatrics..	2-1-د-المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص.
2.1. E-Quality assurance principles related to the good medical practice in Pediatrics.	2-1-هـ- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
2.1. F- Ethical and scientific basics of medical research.	2-1-و- أساسيات وأخلاقيات البحث العلمي
2.2. A-Correlation of different relevant sciences in the problem solving and management of common diseases of Pediatrics. 2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Pediatrics.	2-2-أ- تحليل و تقييم المعلومات في مجال التخصص والقياس عليها لحل المشاكل

2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Pediatrics	2-2-ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
2.2. A-Correlation of different relevant sciences in the problem solving and management of common diseases of Pediatrics.	2-2-ج- الربط بين المعارف المختلفة لحل المشاكل المهنية
2.2. C- Demonstrating systematic approach in studying clinical problems relevant to the Pediatrics.	2-2-د- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
2.4.A-Demonstrate practice-based learning and Improveent skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	2-2هـ- تقييم المخاطر في الممارسات المهنية في مجال التخصص
2.4.A-Demonstrate practice-based learning and Improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	2-2-و- التخطيط لتطوير الأداء في مجال التخصص
2.2.D- Making alternative decisions in different situations in the field of Pediatrics.	2-2-ز- اتخاذ القرارات المهنية في سياقات مهنية متنوعة
2.3.A- provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. 2.3.B- Demonstrate patient care skills relevant to Pediatrics for patients with common diseases and problems.	2-3-أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
2.3.C- Write and evaluate reports for	2-3-ب- كتابة و تقييم التقارير المهنية

Situation related to Pediatrics..	
2.3.A- provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. 2.3.B- Demonstrate patient care skills relevant to that speciality for patients with common diseases and problems.	2-3-ج- تقييم الطرق و الأدوات القائمة في مجال التخصص
2.4.D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals.	2-4-أ-التواصل الفعال بأنواعه المختلفة
2.4.A-Demonstrate practice-based learning and improvement skills that investigation and involves evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management 2.4.B- Use all information sources and technology to improve his practice.	2-4-ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
2.4.A-Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management 2.4.B- Use all information sources and technology to improve his practice. 2.4.E-Demonstrate professionalism behavior, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.	2-4-ج- التقييم الذاتي وتحديد احتياجاته التعلمية الشخصية

2.4.A-Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, , improvements in patient care and risk management.	2-4-د- استخدام المصادر المختلفة للحصول على المعلومات و المعارف
2.4. C- Demonstrate skills of teaching and evaluating others.	2-4-هـ- وضع قواعد ومؤشرات تقييم أداء الآخرين
2.4. F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively use system resources to provide care that is of optimal value.	2-4-و- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة
2.4.G- Demonstrate skills of effective time management.	2-4-ز- إدارة الوقت بكفاءة
2.4.H- Demonstrate skills of self and continuous learning.	2-4-ح- التعلم الذاتي و المستمر

Comparison between ARS and ILOS for master degree in Clinical Oncology

(ARS)	(ILOs)
2-1- Knowledge and understanding **2-1-A-** Established basic, biomedical, clinical, epidemiological and behavioral sciences related conditions, problem and topics.	***2-1- Knowledge and understanding*** **2-1-A**- Explain the essential facts and **K.** principles of relevant basic sciences including, , Physics of radiation, Pathology of tumors, Basics of Nuclear medicine and Radioisotopes techniques, Radiobiology related to Clinical oncology related to Clinical Oncology. **2-1-B-** Mention essential facts of clinically supportive sciences including Internal Medicine and General Surgery related to *Clinical Oncology* **2-1-C-** Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention and treatment of the common diseases and situations related to *Clinical Oncology*
2-1-B The relation between good clinical care of common health problem in the *Clinical Oncology* and the welfare of society.	**2-1-H-** State the impact of common health problems in the field of *Clinical Oncology* on the society and how good clinical practice improve these problems.
2-1-C- Up to date and recent developments in common problems related to the field of *Clinical Oncology*	**2-1-C-** Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention and treatment of the common diseases and situations related to *Clinical Oncology* **2-1-D-** Give the recent and update developments in the pathogenesis, diagnosis, prevention and treatment of common diseases related to

	Clinical Oncology
2-1-D- Ethical and medicolegal Principles relevant to practice in the *Clinical Oncology* field.	**2-1-E-** Mention the basic ethical and medicolegal principles that should be applied in practice and are relevant to the field of *Clinical Oncology*
2-1-E-Quality assurance principles related to the good medical practice in the *Clinical Oncology* field.	**2-1-F-** Mention the basics and standards of quality assurance to ensure good clinical practice in the field *Clinical Oncology*
2-1-F- Ethical and scientific basics of medical research.	**2-1-G-** Mention the ethical and scientific principles of medical research methodology**.**
***2-2- Intellectual skills*:** **2-2-A**-Correlation of different relevant sciences in the problem solving and management of common diseases of the *Clinical Oncology*	***2-2- Intellectual skills:*** **2-2-A-** Correlate the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases of the *Clinical Oncology*
2-2-B-Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to *Clinical Oncology*	**2-2-B**-Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical situations related to *Clinical Oncology*
2-2-C- Demonstrating systematic approach in studding clinical problems relevant to the *Clinical Oncology* field.	**2-2-C-** Design and /or present a case or review (through seminars/journal clubs.) in one or more of common clinical problems relevant to the *Clinical Oncology* field.
2-2-D Making alternative decisions in different situations in the field of the *Clinical Oncology*	**2-2-D-** Formulate management plans and alternative decisions in different situations in the field of the *Clinical Oncology*

continuous (ARS)	Continuous (ILOs)
2-3- Clinical skills:	***2/3/1/Practical skills (Patient Care :)***
2-3-A- Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. **2-3-B-** Demonstrate patient care skills relevant to that *Clinical Oncology* for patients with common diseases and problems.	**2-3-1-A-** Obtain proper history and examine patients in caring and respectful behaviors. **2-3-1-B-** Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment for common conditions related to *Clinical Oncology* **2-3-1-C-** Carry out patient management plans for common conditions related to *Clinical Oncology* **2-3-1-D-** Use information technology to support patient care decisions and patient education in common clinical situations related to *Clinical Oncology* **2-3-1-E-** Perform competently non invasive and invasive procedures considered essential for the *Clinical Oncology* **2-3-1-F-** Provide health care services aimed at preventing health problems related to *Clinical Oncology* **2-3-1-G-** Provide patient-focused care in common conditions related to *Clinical Oncology* while working with health care professionals, including those from other disciplines.
2-3-C- Write and evaluate reports for situations related to the field of	**-3-1-H** Write competently all forms of patient charts and sheets including reports evaluating these charts and

Clinical Oncology	sheets. (Write a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and maintaining medical records).
2-4- General skills **2-4-A-** Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	***2/3/2 General skills*** **2-3-2-A-** Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks). **2-3-2-B-** Appraises evidence from scientific studies. **2-3-2-C-** Conduct epidemiological studies and surveys.
2-4-B- Use all information sources and technology to improve his practice.	**2-3-2-C-** Conduct epidemiological studies and surveys. **2-3-2-D**.Perform data management including data entry and analysis and using information technology to manage information, access on-line medical information; and support their own education.
2-4-C- Demonstrate skills of teaching and evaluating others.	**2-3-2-E-** Facilitate learning of students other health care professionals including their evaluation and assessment.
2-4-D- Demonstrate interpersonal and communication skills that result in effective information exchange and	**2-3-2-F-** Maintain therapeutic and ethically sound relationship with patients. **2-3-2-G-** Elicit information using effective

teaming with patients, their families, and other health professionals.	nonverbal, explanatory, questioning, and writing skills. **2-3-2-H-** Provide information using effective nonverbal, explanatory, questioning, and writing skills. **2-3-2-I-** Work effectively with others as a member of a health care team or other professional group.
2-4-E-Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.	**2-3-2-J-** Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society. **2-3-2-K**- Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices. **2-3-2-L**-Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.
2-4-F-Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively use system resources to provide care that is of optimal value.	**2-3-2-M**-Work effectively in relevant health care delivery settings and systems including good administrative and time management **2-3-2-N-** Practice cost-effective health care and resource allocation that does not compromise quality of care.

	2-3-2-O- Assist patients in dealing with system complexities.
2-4-G- Demonstrate skills of effective time management	**2-3-2-M**-Work effectively in relevant health care delivery settings and systems including good administrative and time management
2-4-H-Demonstrate skills of self and continuous learning.	**2-3-2-A-** Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).

III-Program matrix
Knowledge and Understanding

Course	Program covered ILOs							
	2/1/A	2/1/B	2/1/C	2/1/D	2/1/E	2/1/F	2/1/G	2/1/H
Course 1 : Physics of radiation	✓							
Course 2: Cancer Pathology	✓							
Course 3 : Basics of Nuclear medicine and Radioisotopes techniques	✓	✓	✓					
Course 4: Radiobiology	✓	✓	✓					
Course 5 Internal Medicine and General surgery	✓	✓	✓	✓	✓	✓	✓	✓
Course 6 : Clinical Oncology	✓	✓	✓	✓	✓	✓	✓	✓

Intellectual

Course	Program covered ILOs			
	2/2/A	2/2/B	2/2/C	2/2/D
Course 1 : Physics of radiation	✓			
Course 2: Cancer Pathology	✓	✓		
Course 3 : Basics of Nuclear medicine and Radioisotopes techniques	✓	✓	✓	✓
Course 4: Radiobiology	✓	✓	✓	✓
Course 5 Internal Medicine and General surgery	✓	✓	✓	✓
Course 6 : Clinical Oncology	✓	✓	✓	✓

Practical Skills (Patient Care)

Course	Program covered ILOs							
	2/3/1/A	2/3/1/B	2/3/1/C	2/3/1/D	2/3/1/E	2/3/1/F	2/3/1/G	2/3/1/H
Course 1 : Physics of radiation				✓				
Course 2: Cancer Pathology				✓	✓			
Course 3 : Basics of Nuclear medicine and Radioisotopes techniques	✓	✓	✓	✓	✓	✓		
Course 4: Radiobiology	✓	✓	✓	✓	✓	✓		
Course 5 Internal Medicine and General surgery	✓	✓	✓	✓	✓	✓	✓	✓
Course 6 : Clinical Oncology	✓	✓	✓	✓	✓	✓	✓	

General Skills

Course	Program covered ILOs							
	2/3/2/ A	2/3/2/ B	2/3/2/ C	2/3/2/ D	2/3/2/ E	2/3/2/ F	2/3/2/ G	2/3/2/ H
Course 1 : Physics of radiation				✓				✓
Course 2: Cancer Pathology				✓				✓
Course 3 : Basics of Nuclear medicine and Radioisotopes techniques	✓	✓		✓	✓	✓	✓	✓
Course 4: Radiobiology				✓				✓
Course 5 Internal Medicine and General surgery	✓	✓	✓	✓	✓	✓	✓	✓
Course 6 : Clinical Oncology	✓	✓	✓	✓	✓	✓	✓	✓

General Skills

Course	Program covered ILOs						
	2/3/2/I	2/3/2/J	2/3/2/K	2/3/2/L	2/3/2/M	2/3/2/N	2/3/2/O
Course 1 : Physics of radiation			✓		✓		
Course 2: Cancer Pathology			✓		✓		
Course 3 : Basics of Nuclear medicine and Radioisotopes techniques	✓	✓		✓	✓	✓	✓
Course 4: Radiobiology			✓		✓		
Course 5 Internal Medicine and General surgery	✓	✓	✓	✓	✓	✓	✓
Course 6 : Clinical Oncology	✓	✓	✓	✓	✓	✓	✓

Annex 7,
Additional information:

Department information

Equipments and Specialized Units:

- ☒ Clinical Oncology patients' wards: 40 beds.
- ☒ Daily one clinical oncology out patients' clinics (new patients, follow up post discharge appointments, discharged critical care patients Follow up clinic)
- ☒ Daily radiotherapy out patient clinic.
- ☒ Daily chemotherapy out patient clinic.
- ☒ Simulator unit
- ☒ Cobalt unit
- ☒ Linear Accelerator unit
- ☒ Scientific Library (Chest Text Books and periodicals), MD, MSc thesis,
- ☒ Seminar room with data show
- ☒ Electronic Library of Scientific Seminars, case presentations

Data base filing of all the cases, procedures and out patient clinic data.

Staff members

Head of the Department: Prof. Samir Shehata Mohamad

Staff members

Prof. AmenaMohamadMostafa

Prof. MohamadAbd-ElhakeemMekkway

Prof. SamiaAbd-Elkareem Ali

Prof. Samir Shehata

Prof. TahaZakyMohran

Prof. AmalEmamKhaliefa

Prof. MostafaSayedMostafa

Prof. HussinRabeeSaleh

Prof. SamyMahmood Ali

Prof. HananGamalEldeenMostafa

Prof. Huda Hassan Essa

Assistant Prof.

Dr. Ashraf FaragMohamad

Dr. MervatMohamad Omar

Dr. MohamadAlaaEldeen Hassan

Dr. Waleed Ahmad Dyab

Dr. Abeer Fayek Ameen

Dr. Ola Nabeih Abdel-Fatah

Dr. Rehab Farok Mohamad

Dr. Mohamad HosnyMohamad

Dr. MarwaEsmaeelKhalaf

Dr. Amal Ryan Ibraheen

Dr. LamyaaMahmood El-otefy

Dr. Maha Salah El-nagar

Dr. Tarek Salah Ahmad

Dr. Aiat Morsy

Dr. Nadia Khalifa

Lecturer:

Dr. Samar El Morshedy

Dr. Doaa Ail Gamal

Dr. Asmaa Abd Eltawab

Dr. Ereny Smwael

Dr. Heba Baky

Opportunities within the department

- ☒ Clinical Oncology patients' wards: 40 beds.
- ☒ Daily one clinical oncology out patients' clinics (new patients, follow up post discharge appointments, discharged critical care patients Follow up clinic)
- ☒ Daily radiotherapy out patient clinic.
- ☒ Daily chemotherapy out patient clinic.
- ☒ Simulator unit
- ☒ Cobalt unit
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- ☒ Scientific Library (Chest Text Books and periodicals), MD, MSc thesis,
- ☒ Seminar room with data show
- ☒ Electronic Library of Scientific Seminars, case presentations

Data base filing of all the cases, procedures and out patient clinic data.

Department quality control insurance for completing the program

- Evaluation by the Department head and staff members.
- Regular assessments.
- Log book monitoring.
- Recent equipments and Specialized Units.

(End of the program specifications)