Course Specification

RARD 629: Introduction to Radiotherapy Oncology

Institution Name: Mahidol University

Campus/Faculty/Department: Faculty of Medicine Ramathibodi Hospital, Department of Diagnostic and Therapeutic Radiology

Section 1: General information

1. ***Course number and name***
   Course number: RARD 629
   Course name: Introduction to Radiotherapy Oncology

2. ***Credits: 1(1-0-2)***

3. ***Curriculum and type of course***

   3.1 Curriculum: Introduction to Radiotherapy Oncology

   3.2 Type of course: Required course in Major of Radiation Therapy field

4. ***Instructors***
   4.1 Course Coordinator: Assoc. Prof. Dr. Thiti Swangsil
   4.2 Instructors

Assoc.Prof.Dr. Mantana	Dhanachai
Assoc.Prof.Dr. Putipun	Puataweepong
Assoc.Prof.Dr.Thiti	Swangsilpa
Asst.Prof.Dr.Chomporn	Sitathanee
Lect.Dr.Keeratikarn	Boonyawan
Lect.Dr.Chuleeporn	Jiarpinitnun
Lect.Dr.Poompis	Pattaranutaporn
Lect.Dr.Rawee	Rungkanchanasetr
Lect.Dr.Rasin	Worawongsakul
Lect.Dr.Thanwa	Sudsang
Lect.Dr Sasiprapa	Rongthong

5. ***Semester/Year:*** 1st Semester, Academic Year 2020, 2nd year students

6. ***Pre-requisite:*** RARD 520: Radiation Biology
7. ***Co-requisite:*** RARD 631: Radiobiology in Radiotherapy
8. ***Classroom:*** To be announced
9. ***Revision Date:*** Nov 2019 ***By:*** Committee

   Note: Revised course learning outcome, course description, and evaluation

Section 2: Purpose and objective

1. Course Learning Outcomes

1. Be able to describe, compare and classify all of the following topics; image used and applied in radiotherapy, neoplasia, carcinogenesis, cancer biology, molecular basis of cancer, normal tissue tolerance, cell dead, tumor response, and host against tumor.
2. Be able to relate theory to the radiation therapy management of GI, Head and Neck, lung, breast, GU, and brain tumor.

Section 3: Course details

1. Course description

Imaging used and applied in radiotherapy; neoplasia; carcinogenesis: epidemiology, mechanism of carcinogenesis, cancer prevention and screening; cancer biology: oncogene and tumor suppressor gene; molecular basis of cancer: angiogenesis, invasion and metastasis; overview of normal tissue tolerance, complication and management in radiotherapy; Radiation therapy management, techniques, and modalities according to common cancers: GI, Head & Neck, Lung, Breast, GU, Brain; cancer cell dead and tumor response to radiotherapy; host defense against tumor: tumor immunity.

2. ***Hours per semester:*** Lecture 15 hours

3. ***Assignment feedback:*** No assignment

Section 4: Course Learning Outcomes

Course level learning outcomes	Programme level learning outcomes	Methods	Assessment
1.Be able to describe, compare and classify all of the following topics; image used and applied in radiotherapy, neoplasia, carcinogenesis, cancer biology, molecular basis of cancer, normal tissue tolerance, cell dead, tumor response, and host against tumor.	ELO 2, 6	- Lecture	- Paper Examination
2. Be able to relate theory to the radiation therapy management of GI, Head and Neck, lung, breast, GU, and brain tumor.	ELO 2, 6		

Section 5: Lesson plan and assessment

1. Lesson plan

Time	Topics	Instructors	Method	Assessment
2	Imaging used and applied in radiotherapy	Lect.Dr.Thanwa / Lect.Dr Sasiprapa	Lecture	Paper examination
2	Carcinogenesis : Epidemiology, mechanism of carcinogenesis, Cancer prevention and screening	Assoc. Prof. Dr. Mantana		
1	Neoplasia	Lect.Dr. Chuleeporn		
1	Cancer biology:Oncogene and tumor suppressor gene	Lect.Dr.Poompis		
1	Cell dead and tumor response to radiotherapy	Assoc.Prof.Dr.Thiti		

Time	Topics	Instructors	Method	Assessment
1	Molecular basis of cancer : Angiogenesis, invasion and metastasis	Lect.Dr.Rawee		
1	Radiation therapy management, techniques, and modalities according to common cancers : GI cancer	AssistProf. Dr.Chomporn		
1	Radiation therapy management, techniques, and modalities according to common cancers : **Lung, Breast cancer**	Lect.Dr.Poompis		
1	Host defense against tumor : tumor immunity	Assoc. Prof. Dr. Thiti		
1	Overview of normal tissue tolerance, complication and management in radiotherapy	Lect.Dr.Keeratikarn		-
1	Radiation therapy management, techniques, and modalities according to common cancers : Head &neck cancer	Lect.Dr. Chuleeporn		
1	Radiation therapy management, techniques, and modalities according to common cancers : GU cancer	Lect.Dr.Rasin		
1	Radiation therapy management, techniques, and modalities according to common cancers : Brain cancer	Assoc. Prof. Dr. Putipun		

2. Measurement and Evaluation of Student Achievement

2.1 Theory (short answer questions) 100%

Section 6: Assessment and improvement of the course operation

1. Strategies to assess the effectiveness of the courses by the students
    - Assessment of instructor's teaching by student

2. Strategy to assess the instruction
    - Assessment of students' learning records
    - Assessment of instructor's teaching by student

3. Improvement of Instruction
    - Consider the students' learning records
    - Consider the students' assessment of instructor's teaching
    - Consider the program committee's comment

4. Verification of student achievement in the subject
    - By program committee and faculty-level academic committee

5. Review and action plan to improve the effectiveness of the course
    - Using the results from 1 - 4 as inputs to the instruction improvement

Learning Resources

1. Perez & Brady, Principles And Practice Of Radiation Oncology, 2013