

Radiation Protection RAD 222

1 st year Semester Two				
Course Title	Lecture	Tutorial	Practical	Credit Hours
Radiation protection	2	-	1	2

Course Description:-

The course develops an awareness of the potential hazards in Radiology departments and its immediate surroundings. It ensure that the student takes reasonable preventive remedial measures, and that he knows the action he should take when an accident occurs, having due regard to the result of this action on the normal functioning of the department.

It provides students with the basic theory of hazards of radioactivity and precaution taken to minimize the risk.

It provides students with radiation measurement how to deal with radiation accident and emergencies in nuclear medicine department.

Prerequisite

None

Text Book

- (1) (Code of practice in Radiation protection against Ionizing Radiations for Medical and Dental Use)
- (2) Cember, (Introduction to Health Physics).
- (3) Ashworth, (X-ray Physics & Equipment).
- (4) John Harbert (1984), Textbook of Nuclear Vol. (1,2) Second edition.
- (5) Lombardi, M. Radiation Safety in nuclear medicine: CRC Press
- (6) Bernier DR et al (1997) Nuclear Medicine Techniques and Technology, Fourth Edition, Mosby.
- (7) Statkiewicz, Visconti and Ritenour: Radiation protection in Medical radiography.
- (8) [http : Library kee. Hawii.eu/external/radiologic-technology.](http://Library.kee.hawaii.edu/external/radiologic-technology)
- (9) Bernier DR et al (1997) Nuclear Medicine Techniques and technology, Fourth Edition, Mosby.
- (10) Stathiewicz, Visconti and Ritenour; Radiation protection in Medical radiography.
- (11) [http : Library kee. Hawii.eu/external/radiologic-technology.](http://Library.kee.hawaii.edu/external/radiologic-technology)

Course Objective:-

To make the student aware of the possible dangers that exist in a radiological or therapeutic department or any area where ionizing radiation is

used for medical or dental use. Also, to enable the student to deal correctly and effectively with these dangers.

On completion of this course the student will be able to monitor radiation and contamination and be able how to deal with, and will be able to understand basic principles of radiation safety.

Topics Covered:

Lecture 1

Introduction

Lecture 2

Source and Type of radiation

Lecture 3

External and internal exposures

Lecture 4

Cardinal principals of protection (time , distance, shield,)ALARA principals,HVL

Lecture 5

Interaction of radiation with living cells and phases of interaction

Lecture 6,7

Biological effects of ionizing radiation

Lecture 8,9,10

Detection and measurement devices

Lecture 11

Radiation Units

Lecture 12

Classification of radiation work area

Lecture 13

Radiation and pregnancy ,and radiation effects on fetus

Lecture 14

Departmental Protection

Lecture 15

Revision and Test

Class/Lab. Schedule

2-hours lecturers ,1 hour practical

Computer Application

None.

Laboratory Projects

Demonstration in the X-ray department

Contribution of Course to Meeting the Professional Component

Basic science 2credit hours.

Relationship of Course to Program Outcomes

This course will enhance the students:

- Ability to apply knowledge of the radiation physics and have knowledge about all the radiation protection methods and devices

Prepared by

- Ustaz Salah Ali Fadlalla

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