Course Specifications

General Information

Course name	Radiation Physics
Course number	PHYS3219
Faculty	
Department	
Course type	Major Needs
Course level	3
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - To provide the different types of interaction of radiation with matter.

2 - Understand the distinctions between the units of radiation quantity, exposure and dose.

3 - To a provide a basic fundamental knowledge on radiation dosimetry to medical physicists and be familiar with some of the methods used to measure radiation dose.

4 - To provide the different techniques of radiation detection.

5 - To a provide a basic fundamental knowledge on radiation shielding to medical physicists.

Intended Learning Outcomes

Knowledge and Understanding

* 1- Describe the different methods of nuclear transformation
* Describe and explain the interactions ionizing radiation with matter and the
* Describe and explain the interactions non-ionizing radiation with matter and
* State the units of activity of radioactive sources , exposure and dose
* Calculate the Dose absorbed in matter from alpha , beta, gamma photons

Course Contents

1 - Types of radiation (EM, X rays and cosmic rays), Radiation activity, Matter-radiation interaction,

2 - Radiation doses, absorption of radiation, Harmful of radiation, Radiation detection and detectors, Radiation protection.

Teaching and Learning Methods

1 - Lectures

2 - Seminars

Teaching and Learning Methods for the Disabled Students

1 - oral lectures

Students Assessment

Assessment Method	TIME	MARKS
First Mid Term	5 weeks	20
second Mid term	12 weeks	20
Homeworks		5
Attendance		5
Final Exam	16 weeks	50

Books and References

Course note	Recommended books Physics for Radiation Protectionn, James E. Martin, 2006 WILEY-VCH Verlag GmbH & Co.KGaA, Weinheim Radioactivity • Radionuclides • Radiation, Joseph Magill and Jean Galy, Springer-Verlag Berlin Heidelberg and European Communities 2005, Printed in Germany Radioactivity • Radionuclides • Radiation, Joseph Magill and Jean Galy, Springer-Verlag Berlin Heidelberg and European Communities 2005, Printed in German