

مختصر توصيف المقرر

(Course Information)

معلومات المقرر *

اسم المقرر:	الفيزياء الصحية
رقم المقرر:	فيز 2612
اسم ورقم المتطلب السابق:	فيز 1022
اسم ورقم المتطلب المرافق:	--
مستوى المقرر:	الثالث
الساعات المعتمدة:	3 (0+0+3)
Module Title:	Health Physics
Module ID:	PHYS 2612
Prerequisite:	PHYS 1022
Co-requisite:	--
Course Level:	Third
Credit Hours:	3 (3+0+0)

Module Description

وصف المقرر :

<p>Review of the sources of radiation, basic dosimetry, and hazards of ionizing radiation, Radiation safety guides and codes in the environment, industry, medical and nuclear facilities .</p> <p>Radioactivity and transformation mechanisms, Alpha emission, Beta emission, Positron emission, Orbital electron capture, Gamma rays, Internal conversion.</p> <p>Transformation kinetics, Half-life, Average life.</p> <p>Activity, The Becquerel, The Curie, Specific activity.</p> <p>Interaction of radiation with matter, Beta rays (Range-Energy relationship), mechanisms of energy loss (Ionization and excitation, Bremsstrahlung), Alpha rays (Range-Energy relationship), Gamma rays (Exponential absorption), interaction mechanisms (Pair production, Compton scattering, Photoelectric absorption, Photodisintegration), Neutrons (Production, Interaction, Scattering and Absorption).(</p> <p>Radiation dosimetry, Absorbed dose (Gray and Rad), Exposure (Roentgen), Exposure-dose relationship.</p>

Module Aims

أهداف المقرر :

1	The student expected to understand: A- Principles of Health physics. B- Basic applications.	
2	C- Brief description for plans concerning course developments such as; the use of materials, references depending on internet network and search works).	
3	D- Seeking for recent research works relevant to the course.	
4	E- Making workshops at the department.	

Learning Outcomes:**مخرجات التعليم:**

1	The student will be expected to know; 1- Principles of health physics 2- Radioactive materials 3- Basic scientific and experimental background on radiation protection.	
2	Skills, the student will be expected to: 1- Differentiate between radioactive non-radioactive materials. 2- Differentiate between types of radiations. 3- Know the different types of protection from radioactive materials.	
3	Relationship skills, the student will be expected to: 1- The ability to make workgroups and distribution of missions. 2- The ability for presentation skills. 3- The ability for discussions with others. 4- Distinguishing good answers and talks. 5- The ability to show clear opinions.	
4	Communication skills, the student will be expected to: 1- The ability to use the e-mail with the lecturer and colleagues. 2- The ability to reach the useful links on the internet. 3- Writing reports using computer.	

Course Contents:**محتوى المقرر:**

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
6	2	Review of the sources of radiation, basic dosimetry, and hazards of ionizing radiation, Radiation safety guides and codes in the environment, industry, medical and nuclear facilities.
6	2	Radioactivity and transformation mechanisms, Alpha emission, Beta emission, Positron emission, Orbital electron capture, Gamma rays, Internal conversion.
6	2	Transformation kinetics, Half-life, Average life. Activity, The Becquerel, The Curie, Specific activity.
9	3	Interaction of radiation with matter, Beta rays (Range-Energy relationship), mechanisms of energy loss (Ionization and excitation, Bremsstrahlung), Alpha rays (Range-Energy relationship), Gamma rays (Exponential absorption), interaction mechanisms (Pair production, Compton scattering Photoelectric absorption, Photodisintegration), Neutrons (Production, Interaction, Scattering and Absorption).
6	2	Radiation dosimetry, Absorbed dose (Gray and Rad), Exposure (Roentgen), Exposure-dose relationship.

Textbook and References:**المقرر والمراجع المساندة:**

سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم الكتاب المقرر Textbook title
(2008) ASIN: B001UX79LO	McGraw-Hill Medical	Thomas E. Johnson and Herman Cember	Introduction to Health Physics
سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
(1999) ISBN:0471297119	Wiley- Interscience	Joseph John Bevelacqua	Basic Health Physics: Problems and Solutions