مدونة المناهج السعودية

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الموقع التعليمي لجميع المراحل الدراسية

في المملكة العربية السعودية

مختصر توصيف المقرر

معلومات المقرر * **(Course Information)**

اسم المقرر:	الفيزياء الصحية
رقم المقرر:	فيز 2612
اسم ورقم المتطلب السابق:	فيز 1022
اسم ورقم المتطلب المرافق:	--
مستوى المقرر:	الثالث
الساعات المعتمدة:	3 (3+0+0)

Module Title:	Health Physics
Module ID:	PHYS 2612
Prerequisite:	PHYS 1022
Co-requisite:	--
Course Level:	Third
Credit Hours:	3 (3+0+0)

وصف المقرر : **Module Description**

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 .
Radioactivity and transformation mechanisms, Alpha emission, Beta emission, Positron emission, Orbital electron capture, Gamma rays, Internal conversion.
Transformation kinetics, Half-life, Average life.
Activity, The Becquerel, The Curie, Specific activity.
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.(
Radiation dosimetry, Absorbed dose (Gray and Rad), Exposure (Roentgen), Exposure-dose relationship.

أهداف المقرر : **Module Aims**

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