

مختصر توصيف المقرر

(Course Information)

معلومات المقرر *

اسم المقرر:	فيزياء الجسيمات الأولية
رقم المقرر:	فيز 4832
اسم ورقم المتطلب السابق:	فيز 3812
اسم ورقم المتطلب المرافق:	--
مستوى المقرر:	السابع
الساعات المعتمدة:	3 (0+0+3)
Module Title:	Elementary Particles Physics
Module ID:	PHYS 4832
Prerequisite (Co-requisite) :	PHYS 3812
Co-requisite :	--
Course Level:	Seventh
Credit Hours:	3 (3+0+0)

Module Description

وصف المقرر :

Elementary particles: properties, classifications and detections. Fundamental forces between elementary particles. Symmetries and their role in studying elementary particle physics. Strong force. Electromagnetic force. Weak force. Relativistic quantum mechanics. Feynman diagram.
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Module Aims

أهداف المقرر :

1	The knowing of Ernestine law and the dual nature of the material.	
2	To know the fundamental forces in nature.	
3	To show the Quarks theory and the forces between Nucleons.	
4	Nuclear reactions at high energies.	
5	Sources and classifications of elementary particles.	
6	Expand the student's perceptions in the fine branches of elementary particles and how to address them for instance: high energy quantum mechanics, field theory, Feynman diagrams.	

Learning Outcomes:

مخرجات التعليم:

1	Knowledge	1
	<ul style="list-style-type: none"> • To know the meaning of elementary particles. • To classify the elementary particles. • To explain Quarks theory. • To explain the meaning of nuclear reactions. • To explain the meaning of dual nature of the material. • To know the nuclear forces. • To know the importance of high energy quantum mechanics. • To know Feynman diagrams. 	
2	Cognitive Skills	2
	<ul style="list-style-type: none"> • To distinguish between the different elementary particles. • To distinguish between the different types of forces (strong, weak, and electromagnetic). • To conclude the different mathematical relations describing the motion of elementary particles. • To distinguish between wave and particle natures of an object. • To explain Feynman diagrams. 	
3	Interpersonal Skills and Responsibility	3
	<ul style="list-style-type: none"> • The ability to interact professionally with others, to engage effectively in teamwork, and to function productively on multidisciplinary group projects. • To develop in each student good writing skills so that they are able to communicate effectively and clearly • To develop in each student good oral communication skills so that they are able to communicate effectively with others <p style="text-align: center;">The ability to present their opinions clearly, and to accept the others opinions.</p>	
4	Communication, Information Technology and Numerical Skills	4
	<ul style="list-style-type: none"> • To be able to use the email and employ it in communicating with the instructor and the other students. • Search the web to get any update information concerning the course topics. 	
5		5

Course Contents:

محتوى المقرر:

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
9	3	Elementary particles: properties, classifications and detections.
9	3	Fundamental forces between elementary particles.
9	3	Symmetries and their role in studying elementary particle physics.
6	2	Strong force. Electromagnetic force. Weak force.
6	2	Relativistic quantum mechanics.
3	1	Feynman diagram.

Textbook and References:

الكتاب المقرر والمراجع المساندة:

سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم الكتاب المقرر Textbook title
4 th Ed. (2000); ISBN-10: 0521621968	Cambridge University Press	<i>D. Perkins</i>	Introduction to High Energy Physics
سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
1 st ed. (1984); ISBN-10: 0471887412	Wiley	<i>F. Halzen and A. D. Martin</i>	Quarks & Leptons
3 rd Ed. (1991); ISBN-10: 0521407397	Cambridge University Press	<i>I. S. Hughes</i>	Elementary Particles