

مختصر توصيف المقرر

(Course Information)

معلومات المقرر \*

الفيزياء النووية 2	اسم المقرر:
فيز 4822	رقم المقرر:
فيز 3812	اسم ورقم المتطلب السابق:
--	اسم ورقم المتطلب المرافق:
السابع	مستوى المقرر:
(0+0+3) 3	الساعات المعتمدة:
Module Title:	Nuclear Physics II
Module ID:	PHYS 4822
Prerequisite (Co-requisite) :	PHYS 3812
Co-requisite :	--
Course Level:	Seventh
Credit Hours:	3 (3+0+0)

Module Description

وصف المقرر :

The fundamental forces in nature, quark theory and the origin of nuclear force, inter nucleon force, nuclear reactions and reaction cross section (Coulomb scattering, optical model, resonance reactions and Breit-Wigner formula), nuclear models (liquid drop model, shell model, collective model), elementary particles, fundamental symmetries and gauge theory, lepton-hadrons interactions, quantum chromo dynamics, electro-weak interactions.

Module Aims

أهداف المقرر :

In this course students are expected to learn about elementary particles, nuclear models, nuclear forces.

Learning Outcomes:

مخرجات التعليم:

The fundamental forces in nature, quark theory and the origin of nuclear force, inter nucleon force, nuclear reactions and reaction cross section (Coulomb scattering, optical model, resonance reactions and Breit-Wigner formula), nuclear models (liquid drop model, shell model, collective model), elementary particles, fundamental symmetries and gauge theory, lepton-hadrons interactions, quantum chromo dynamics, electro-weak interactions, physics of modern accelerators.  
Students solve problems on the smart board. I giving them group assignments and home works and encourage group projects, but I can say that technology has become an integral part of their lives, and use computer programs to draw and solve mathematical equations, derivation and integration and they feel confident in this area.

## Course Contents:

محتوى المقرر:

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
15	5	The fundamental forces in nature, quark theory and the origin of nuclear force, inter nucleon force, nuclear reactions and reaction cross section (Coulomb scattering, optical model, resonance reactions and Breit-Wigner formula)
15	5	Nuclear models (liquid drop model, shell model, collective model)
15	5	Elementary particles, fundamental symmetries and gauge theory, lepton-hadrons interactions, quantum chromo dynamics, electro-weak interactions, physics of modern accelerators.

## Textbook and References:

المقرر والمراجع المساندة:

سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم الكتاب المقرر Textbook title
(1993) ISBN: 0201627299	Westview Press	M. A. Preston & R. K. Bhaduri	Structure of the Nucleus
سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
(1998) ISBN: 0198520085	Oxford University Press	T. Ericson & W. Weise	Pions and Nuclei
(2001) ISBN: 0521657334	Cambridge University Press	W. N. Cottingham & D. A. Greenwood	An Introduction to Nuclear Physics