Fizik Bölümü / PHYSICS /

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-2002	Modern Physıcs	4.00	2.00	0.00	5.00	8.00

Course Detail

Course Language	:	Turkish
Qualification Degree	:	Bachelor
Course Type	:	Compulsory
Preconditions	:	Not
Objectives of the Course	:	It is the course of an introduction to Quantum physics.
Course Contents	:	The introduction to Quantum physics: Blackbody radiation, photoelectric effect, Compton effect, atomic spectrums, uncertainty relation, wave-particle duality, Bohr atom model, Schrödinger's equation, particle in a box, tunneling, harmonic oscillator, Pauli exclusion principle, hydrogen atom, molecules, structure of nucleus.
Recommended or Required Reading	:	Arthur Beiser, Concepts of Modern Physics, 6th edition, 2003, McGraw-Hill Inc.
Planned Learning Activities and Teaching Methods	:	Computer, projector, other
Recommended Optional Programme Components	:	YOK
Instructors	:	Prof. Dr. Esin Soydugan
Instructor's Assistants	:	YOK
Presentation Of Course	:	Oral lectures with interactive discussions, Homeworks, Applications

Course Outcomes

Upon the completion of this course a student :

1 Understand the physics of particles moving at a speed close to that of light.

2 recognize the situations that classical physics can not be applied.

3 Have knowledge about the concepts of Modern Physics

4 obtain introductory knowledge about the Quantum physics

Preconditions

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Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods
1.Week	*Relativity				
2.Week	*Special relativity				
3.Week	*Blackbody radiation				
4.Week	*Photoelectric effect				
5.Week	*Compton effect				
6.Week	*Atomic spectrum				
7.Week	*Wave-particle duality				
8.Week	*Wave-particle duality				
9.Week	*Bohr atomic model				
10.Week	*Schrödinger's equation, uncertainty principle				
11.Week	*Particle in a box, Tunneling effect				
12.Week	*Harmonic oscillator, Pauli exclusion principle				
13.Week	*Hydrogen atom				
14.Week	*Moleküller, çekirdeğin yapısı				

Assesment Methods %

1 Mid Term Exam 1 : 40.000

2 Final : 60.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize	1	2.00	2.00
Ödev	5	2.00	10.00
Final	1	2.00	2.00
Individual study after lecture	16	2.00	32.00
Preparation for midterm	1	25.00	25.00

Activities	Count	Time(Hour)	Sum of Workload
Preparation for final	1	25.00	25.00
Make-up	1	2.00	2.00
Problem Çözme	10	2.00	20.00
Rapor	6	3.00	18.00
Class Hours (14 weeks)	14	6.00	84.00
Presentation/Seminar	1	10.00	10.00
		Total :	230.00
		Sum of Workload / 30 (Hour) :	8
		ECTS :	8.00

Program And OutcomeRelation

	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20	P.O. 21	P.O. 22	P.O. 23	P.O. 24
L.O. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L.O. 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ders/Program Çıktıları İlişkisi

P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20	P.O. 21	P.O. 22	P.O. 23	P.O. 24	P.O. 2