

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-4035	Spectrometry	3.00	0.00	0.00	3.00	6.00
Course Detail						
Course Language	: Turkish					
Qualification Degree	: Bachelor					
Course Type	: Optional					
Preconditions	: Not					
Objectives of the Course	: In the lecture, it is aimed to learn the structure of atomic and molecular spectra, line formation, structure of the spectrographs, spectra of stars and other celestial objects.					
Course Contents	: Lecture topics to be covered in the lecture will include structure of atom and molecular spectra, spectral line formation, effects of electric and magnetic fields to the structure of the atom and its spectra, stellar spectra and its formation.					
Recommended or Required Reading	: 1. Lecture notes 2. Optical Astronomical Spectroscopy, Kitchin, C.R., IOP Publishing, 1995. 3. Astronomical Spectroscopy, Tennyson, J., Imperial College Press, 2005 1. Spectroscopy: The key to the stars: Robinson, K., Springer, 2007 2. Stellar Photospheres, Gray, D.F., Cambridge Press, 2005					
Planned Learning Activities and Teaching Methods	: Oral lectures with interactive discussions, Homeworks, Applications, Practice					
Recommended Optional Programme Components	: Observing physics phenomena, reading books and exercising on a large number of sample problems to increase problem solving abilities.					
Instructors	: Prof. Dr. Caner Çiçek					
Instructor's Assistants	: --					
Presentation Of Course	: Face to Face					

Course Outcomes

Upon the completion of this course a student :

- 1 will be able to explain mechanism of spectral formation using physical laws
- 2 Will be able to explain the basic structure of the spectrograph and its usage with the telescopes
- 3 will be able to recognise and explain various forms of stellar spectra.
- 4 Recognizes and comprehends spectral applications in different branches of science.

Preconditions

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Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods
1.Week	*Structure and spectrum of hydrogen, helium ve complex atoms				
2.Week	*Atomic transition probabilities				
3.Week	*Molecular structure and spectra				
4.Week	*Structure of the spectrographs				
5.Week	*Forming stellar spectra				
6.Week	*Spectral classification of the stellar spectra and differences				
7.Week	*Spectral line structure of stars and broadening mechanisms				
8.Week	*Investigating stellar spectra taking from the public archives				
9.Week	*Analysis of the stellar spectra and related stellar parameters				
10.Week	*Applications about stellar spectra				
11.Week	*Spectra of nebulae and galaxies				
12.Week	*Spectra of the accretion disks and stellar winds				
13.Week	*Spectral applications in different science areas				
14.Week	*General Practice and applications				

Assesment Methods %

- 1 Final : 60.000
- 2 Vize : 40.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize	2	2.00	4.00

Activities	Count	Time(Hour)	Sum of Workload
Ödev	10	3.00	30.00
Proje	3	5.00	15.00
Application / Practice	14	1.00	14.00
Individual study before lecture	14	1.00	14.00
Individual study after lecture	14	1.00	14.00
Individual study after Application / Practice	14	1.00	14.00
Research presentation	0	0.00	0.00
Assignment 2	0	0.00	0.00
Application/Practice	14	1.00	14.00
Final Exam	1	2.00	2.00
Class Hours (14 weeks)	14	3.00	42.00
Research&Project	3	3.00	9.00
Report Writing	3	2.00	6.00
Presentation of the Report	3	1.00	3.00
			Total : 181.00
			Sum of Workload / 30 (Hour) : 6
			ECTS : 6.00

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	2	2	3	2	2	2	3	2	1	1	1	2	2	3	3	0	0	0	0	0	0	0	0	0	0
L.O. 2	2	3	3	3	3	3	4	2	2	3	2	2	3	4	4	0	0	0	0	0	0	0	0	0	0
L.O. 3	4	4	4	3	4	4	4	3	4	3	3	3	4	4	4	0	0	0	0	0	0	0	0	0	0
L.O. 4	3	3	4	4	3	3	3	4	3	4	4	4	3	4	3	0	0	4	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	
5	5	4	5	5	5	5	4	5	4	4	4	5	5	5	5	4	4	4	4	4	4	5	5	4	4