

Course Name/Kode: ILT 526 MODERN SPECTROSCOPY					ADVANCED TECHNOLOGIES				
Semester	Teaching and Learning Methods							Credit	
	Theory	App.	Lab.	Project	Homework	Other	Total	Credit	ECTS Credit
1-2	42				100	46	188	3	7.5
Language	Turkish								
Compulsory/ Elective	Elective								
Prerequisites	None								
Course Content	Basic Principles of Spectroscopy. Molecular Symmetry and Group Theory. Nuclear Magnetic Resonance Spectroscopy. Mössbauer Spectroscopy. Electron Spin Resonance Spectroscopy. Infrared Spectroscopy. X-Ray Spectroscopy. EDXRF Spectroscopy. WDXRF Spectroscopy. Mass Spectrometry. Analyzing of spectrum obtained from relevant spectrometers.								
Course Objectives	<p>The objectives of course shall be to enable students to:</p> <ul style="list-style-type: none"> • to learn experimental techniques, • to understand theory and • to learn of applications of spectrometers by means of basic spectroscopic knowledges. 								
Learning outcomes and competences	<ul style="list-style-type: none"> • Ability to use technical /modern materials to be required in her/his Works, • Ability to present oral and written forms in her/his field, • Ability to work on interdisciplinary studies, • Ability to rapidly distinguish the true an required knowledge, • Ability to do analyze of results. 								
Textbook and /or References	<ul style="list-style-type: none"> • Raymond Chang, Basic Principles of Spectroscopy. McGraw-Hill Kogakusha Ltd, International Student Edition, Catalog Card Number 74-132340 (1971) • J. Michael Hollas, Modern Spectroscopy. John Wiley & Sons; 3 rd ed., (2002) • Donald L. Paiva, Gary M. Lampman, George S. Kryz, Introduction of Spectroscopy. Sounders College; Catalog Card Number 77-11348 (1979) 								
Assessment Criteria								<i>If any, mark as (X)</i>	Percentage (%)
	Midterm Exams							X	30
	Quizzes								
	Homeworks							X	
	Projects								
	Term paper							X	20
	Laboratory Work								
	Other								10
Final Exam							X	40	
Prepared by	Doç. Dr. Elif ORHAN								
Week	Subject								
1	Basic principles of spectroscopy; Linewidth, Resolution, Absorbtion photometry								
2	Spectroscopic transitions, Selection rules, Signal to noise ratio								
3	Molecular Symmetry								
4	Group Theory: Point groups, Representation of groups,								
5	Character table, Applications of group theory								
6	Nuclear Magnetic Resonance Spectroscopy(Theory, Experimental Techniques, Applications)								
7	Midterm Exam								

8	Electron Spin Resonance Spectroscopy (Theory, Experimental Techniques, Applications)
9	Infrared Spectroscopy (Theory, Experimental Techniques, Applications)
10	Mössbauer Spectroscopy (Theory, Experimental Techniques, Applications)
11	X-Ray Spectroscopy (Theory, Experimental Techniques, Applications)
12	EDXRF Spectroscopy (Theory, Experimental Techniques, Applications)
13	WDXRF Spectroscopy (Theory, Experimental Techniques, Applications)
14	Mass Spectrometry