Course Syllabus

Code - Course Title	**KİM336 - Surface and Thermal Analysis Methods**
Course Type	V. SEMESTER
Laboratory + Practice	1+2
ECTS	**3.0**
Language of Instruction	Türkçe
Course Type	Elective Courses
Course Instructor(s)	DOÇ. DR. MURAT ERDEM

Mode of Delivery	The mode of delivery of this course is Face to face
Prerequisites	There is no prerequisite or co-requisite for this course.
Courses Recomended	There is no recommended optional programme component for this course.
Recommended Resources	-
Work Placement	Not Applicable

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 1		Adsorption, Adsorption Isotherms, Solid-Gas Interface Interactions, Surface Analysis with Gas Adsorption, BET Theory, Porosity Concept, Applications	
Week - 2		An experiment	
Week - 3		An experiment	
Week - 4		Dynamic Light Scattering (DLS), Brownian Motions, Static Light Scattering (SLS), Rayleigh Scattering, Electrophoretic Mobility, Zeta Potential, Isoelectric Point, Electrical Double Layer, Stern Layer, Electrophoresis, Henry Equation, Smoluchowski Approximation, Applications	
Week - 5		An experiment	
Week - 6		An experiment	
Week - 7		Thermal Analysis Methods, Thermogravimetry, Differential Thermal Analysis, Thermograms, Applications	
Week - 8		An experiment	
Week - 9		An experiment	
Week - 10		Differential Scanning Calorimetry, Applications	
Week - 11		An experiment	
Week - 12		An experiment	

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 13		Surface Characteristics of a Solid, Surface Analysis of Solids with Spectroscopy and Microscopy, Atomic Force Microscopy and Its Usage	
Week - 14		An experiment	

Learning Outcomes

#	Learning Outcome
1	realize experimentally processes of total surface area measurement and pore characterization of a porous solid sample with Gas Sorption Analyzer.
2	realize experimentally the processes of hydrodynamic size measurement, zeta potential measurement, and molecular weight measurement of proteins, polymers, and nanoparticles using Particle Size/Molecular Weight/Zeta Potential Analyzer.
3	organize both theorically and practically the processes of Thermogravimetric Analysis, Differential Thermogravimetric Analysis, and Differential Scanning Calorimetric Analysis concerned with a sample.
4	identify topographic three dimensional images of surface of solid sample using Atomic Force Microscope (AFM).

Sustainable Development Goals

No content has been provided.

Course Theme

No content has been provided.

AKTS Workload

Activity	Duration (Hour)	Count	Workload
Teorik Derse Katılım	0	0	0
Sınıf Dışı Çalışma (Ön Hazırlık & Pekiştirme Amaçlı)	0	0	0
Ödevler	0	0	0
Proje - Rapor - Sunum Hazırlama	0	0	0
Ara Sınav Hazırlığı (sınav süresi dahil)	0	0	0
Final Sınavı Hazırlığı (sınav süresi dahil)	0	0	0
Uygulama (Laboratuvar, Müzik/Enstrüman Uygulaması, Atölye/Saha Çalışması vb.)	0	0	0
Staj Uygulaması	0	0	0
		Calculated ECTS	**0**

Assessment Method and Passing Requirements

No content has been provided.

Assessment Method and Passing Requirements	Quamtity	Percentage (%)
1.Midterm Exam	1	30
Final Exam	1	40
	Sum (%)	**70**