AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	The Purification Techniques								
Course Code	KZM203		Couse Level	Short Cycle (Associate's Degree)					
ECTS Credit	4	Workload	95 *(Hours)*	Theory	3	Practice	1	Laboratory	0
Objectives of the Course	To have knowledge about purification techniques used in cosmetics industry								
Course Content	Properties of separation and purification techniques and general strategy								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Individual Study								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading	
1	Protein purification ISBN: 0-387-96555-6

Week	Weekly Detailed Course Contents	
1	Theoretical	An overview of bioseparations
2	Theoretical & Practice	Properties of separation and purification techniques and general strategy
3	Theoretical & Practice	Removal of insoluble substances
4	Theoretical & Practice	Filtration and centrifugation techniques, environmental conditioning
5	Theoretical & Practice	Cell disruption, extraction, product enrichment
6	Theoretical & Practice	Product purification, Product isolation
7	Theoretical & Practice	Principles of chromatographic separations, Elution chromatography
8	Intermediate Exam	Midterm examination
9	Theoretical & Practice	Ion exchange chromatography, gel permeability chromatography
10	Theoretical & Practice	Hydrophobic interaction chromatography, adsorption chromatography, affinity chromatography
11	Theoretical & Practice	High performance liquid chromatography
12	Theoretical & Practice	Ultrafiltration
13	Theoretical & Practice	Electrophoresis
14	Theoretical & Practice	Protein purity analysis
15	Theoretical & Practice	An overview
16	Final Exam	Final examination

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Lecture - Practice	14	1	1	28
Midterm Examination	1	9	1	10
Final Examination	1	14	1	15
			Total Workload (Hours)	95
			[Total Workload (Hours) / 25*] = **ECTS**	4
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	Understands purification techniques used in processes
2	Learn hydrophobic interaction chromatography, adsorption chromatography, affinity chromatography
3	Learn high performance liquid chromatography

4	Understands the principles of chromatographic separations
5	Learn the analysis of protein purity

Programme Outcomes *(Cosmetic Technology)*	
1	To define and classfify cosmetics.
2	To learn the classification of cosmetic raw materials, purposes, products to use and what properties should be carried.
3	To describe and classify toxicity, to learn toxic substances and analyze methods.
4	To learn laboratory safety, to apply safety precautions when working with dangerous chemicals.
5	To learn and apply necessary tests for cosmetic raw materials, intermediates and finished products.
6	To perform a scientific study, analyze study and report results of study scientifically.
7	To interpret experimental results, to evaluate data in point of cosmetic science.
8	To act in accordance with the principles of ethics, to have awareness of professional and ethical responsibility.
9	To be individuals who are committed to Atatürk's Principles and Revolutions, contemporary, democratic, secular, protecting and developing their country, protecting their nation, respecting human rights, protecting nature, non-discriminatory, adhering to their traditions and customs, and protecting their values.
10	To be an individual who has completed his personal development, can adapt to society and contribute positively

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P3	5	5	5	5	5
P5	5	5	5	5	5
P7	5	5	5	5	5