



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title	Food Emulsions								
Course Code	GMP604		Course Level		Third Cycle (Doctorate Degree)				
ECTS Credit	8	Workload	200 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	This course introduces the latest technologies in food emulsion assessment for excellence in food product design and focuses on methods of emulsion characterization and investigation.								
Course Content	This course covers the emulsion science in food industry, understanding and manipulation of bulk properties of emulsion systems, physicochemical and sensory properties of food emulsions, emulsion ingredients, biopolymers, emulsion stability and characterization of emulsion properties.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Project Based Study, Individual Study, Problem Solving								
Name of Lecturer(s)	Prof. Asli YORULMAZ								

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	15
Final Examination	1	60
Assignment	1	10
Term Assignment	1	15

Recommended or Required Reading

1	Food Emulsions (1999), David Julian McClements, CRC Press.
2	Analytical Techniques for Studying the Physical Properties of Lipid Emulsions (2012), Edited by Richard W. Hartel, Springer.

Week Weekly Detailed Course Contents & Teaching Methods

Week	Weekly Detailed Course Contents & Teaching Methods	
1	Theoretical	Emulsion science in food industry
2	Theoretical	Food emulsions and properties
3	Theoretical	Molecular interactions and conformation
4	Theoretical	Colloidal interactions
5	Theoretical	Emulsion ingredients
6	Theoretical	Biopolymers
7	Theoretical	Interfacial properties and their characterization
8	Theoretical	Emulsion formation
9	Theoretical	Emulsion stability (Energetics of Emulsion Stability, gravitational separation, flocculation)
10	Theoretical	Emulsion stability (Coalescence, Ostwald ripening, phase inversion)
11	Theoretical	Emulsion rheology
12	Theoretical	Emulsion appearance and flavor
13	Theoretical	Characterization of emulsion properties (Emulsifier efficiency)
14	Theoretical	Characterization of emulsion properties (Microstructure analysis and droplet size distribution)

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	4	3	98
Assignment	2	10	3	26
Term Project	1	20	3	23
Midterm Examination	1	27	3	30
Final Examination	1	20	3	23
Total Workload (Hours)				200
[Total Workload (Hours) / 25*] = ECTS				8
*25 hour workload is accepted as 1 ECTS				



Learning Outcomes

1	
2	
3	
4	
5	

Programme Outcomes (Food Engineering Doctorate)

1	Developing and investigating the details of current and advanced knowledge in the field of Food Engineering by original thought and/or research on the level of expertise based on the graduate qualification and reaching to the original definitions that bring innovation to science.
2	Gain of ability of develop strategies, policies and implementation plans in the field of food engineering and evaluate the results within the framework of quality processes.
3	Gain of ability to perceive, design, evaluate and finish an original process by using and following the knowledge of the recent developments in the engineering fields.
4	Gain of ability of making critical analysis, synthesis and evaluation of ideas and development in food engineering field
5	Having advanced knowledge of food science and its applications based on doctoral level qualifications.

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

	L1	L2	L3	L4	L5
P1	3	3	3	3	3
P2	2	2	2	2	2
P3	3	3	3	3	3
P4	3	3	3	3	4
P5	4	4	4	4	4

