



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Water and Water Activity in Foods							
Course Code		GMP612		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	8	Workload	200 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		This course aims to give knowledge about water and water activity in foods and sorption isotherm. Also it aims to examine the effect of these properties along the processes.							
Course Content		Definition and importance of water and ice chemical properties; chemical formulation of water molecule; type of water; water activity and shelf life; water activity and packaging; water activity and food processes.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Discussion, Case Study, Individual Study					
Name of Lecturer(s)		Prof. Hilal ŞAHİN NADEEM							

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	50
Assignment	1	20

Recommended or Required Reading	
1	1. Fontana Jr, A. J., Schmidt, S. J., & Labuza, T. P. (Eds.). (2008). Water activity in foods: fundamentals and applications (Vol. 13). John Wiley & Sons

Week	Weekly Detailed Course Contents & Teaching Methods	
1	Theoretical	The importance of water in foods (Introduction)
2	Theoretical	Water and its properties
3	Theoretical	Water phase diagram and mathematical modelling
4	Theoretical	Vapor pressure
5	Theoretical	Surface tension
6	Theoretical	Water activity
7	Theoretical	Water activity
8	Intermediate Exam	Midterm
9	Theoretical	Food components and active front end
10	Theoretical	Definition of sorption isotherm
11	Theoretical	Calculation of first order sorption isotherm equations (BET and GAB)
12	Theoretical	The importance of monolayer moisture content and thermal constants
13	Theoretical	Calculation of sorption enthalpy
14	Theoretical	Calculation of shelf life
15	Theoretical	Selection of packing material
16	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	8	3	154
Term Project	1	20	2	22
Midterm Examination	1	10	2	12
Final Examination	1	10	2	12
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					5
P2				5	5
P3	5	5	5	5	5

