

TECHNIQUES APPLIED IN FOOD PACKAGING

1	Course Title:	TECHNIQUES APPLIED IN FOOD PACKAGING	
2	Course Code:	GMB5022	
3	Type of Course:	Optional	
4	Level of Course:	Second Cycle	
5	Year of Study:	3	
6	Semester:	7	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	none	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Doç.Dr. ARZU AKPINAR BAYİZİT	
15	Course Lecturers:	yok	
16	Contact information of the Course Coordinator:	Uludağ Üniversitesi Ziraat Fakültesi Gıda Mühendisliği Bölümü 16059 Görükle/Bursa Tel: 0224 2941496 Fax: 0224 2941402 e-posta: abayizit@uludag.edu.tr	
17	Website:		
18	Objective of the Course:	The aim of the course is to inform about principles of food packaging and the importance as well as applications of packaging in food industry.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	To define packaging and understand its importance in food industry
		2	To have knowledge about packaging materials used in food industry
		3	To apprehend and apply food packaging methods
		4	To choose the appropriate packaging material for each food type
		5	To be informed on the parameters that has to be taken into consideration during food packaging (the properties of foods, the properties of food packaging material, packaging systems etc)
		6	To comprehend the relation between food packaging and shelflife
		7	To comprehend the relation between food packaging and nutritional loss
		8	To understand the packaging related risks and relation between packaging and environment
		9	To follow the innovations in food packaging
		10	

21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Definition of Packaing and Its Functions Spoilage of Foods and Kinetic Reactions Gıdalaradaki Bozulmalar ve Kinetic Reactions	
2	Determination of Shelflife of Foods	
3	Packaging Materials: Paper-based Packaging Materials Glass-based Packaging Material	
4	Packaging Materials: Tin-based Packaging Materials Tin Quality; Tin Can Production; Corrosion of Tin Can Aluminium-based Packaging Material Corrosion of Aluminium Can	
5	Packaging Materials: Plastic-based Packaging Materials Multilayer Combinations used in Food Packaging	
6	Packaging of Foods with Gases (Controlled or Modified Atmosphere Packaging)	
7	Aseptic Packaging in Food Industry	
8	Active/Intelligent Packaging; Biosensor Systems Edible Films and Coatings	
9	Filling Equipments and Technology; Automation Barcode System	
10	Package Control; Safety and legal Issues in Packaging	
11	Food-Package Interactions	
12	Innovations in Packaging Technology and the Environmental Issues (waste management, recycling)	
13	Packaging of Different Food Types (student presentations)	
14	Packaging of Different Food Types (student presentations)	
22	Textbooks, References and/or Other Materials:	<p>Food Packaging (Assist. Prof. Dr. Arzu AKPINAR BAYİZİT, unpublished lecture notes)</p> <ol style="list-style-type: none"> 1. ÜÇÜNCÜ, M. 2011. Gıda Ambalajlama Teknolojisi. Sidas Medya Ltd. Şti., 896 s. 2. ROBERTSON, G.L. 2006. Food Packaging: Principles and Practice. CRC Press/Taylor & Francis Group, 550 pp. 3. ROBERTSON, G.L. 2009. Food Packaging and Shelf Life: a practical guide, CRC Press/Taylor & Francis Group, 388 pp. 4. AHVENAINEN, R. 2003. Novel Food Packaging Techniques. Woodhead Publishing, 590 pp. 5. HAN, J.H. 2005. Innovations in Food Packaging. Academic Press, 517 pp. 6. KIRWAN, M.J., McDOWELL, D., COLES, R. 2003. Food Packaging Technology. Blackwell, 346 pp. 7. Gıda ile Temasta Bulunan Madde ve Malzemelerin Özellikleri ve Denetimine dair Yönetmelikler. 8. Ambalaj Sanayicileri Derneği (ASD) Ambalaj Bülteni 9. www.ambalaj.org.tr 10. www.ambalajsektoru.com

23	Assesment		
TERM LEARNING ACTIVITIES		NUMBE R	WEIGHT
Midterm Exam		0	0.00
Quiz		0	0.00
Home work-project		2	40.00
Final Exam		1	60.00
Total		3	100.00
Contribution of Term (Year) Learning Activities to Success Grade			40.00
Contribution of Final Exam to Success Grade			60.00
Total			100.00
Measurement and Evaluation Techniques Used in the Course			
24	ECTS / WORK LOAD TABLE		

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	2.00	28.00
Homeworks	2	25.00	50.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	0	0.00	0.00
Final Exams	1	60.00	60.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	5	4	5	3	3	3	3	3	4	0	0	0	0	0	0
ÖK2	3	3	3	2	2	3	3	3	2	3	0	0	0	0	0	0
ÖK3	5	5	5	5	5	4	5	5	3	5	0	0	0	0	0	0
ÖK4	3	3	3	4	5	5	4	5	3	4	0	0	0	0	0	0
ÖK5	5	5	4	3	4	5	4	4	3	3	0	0	0	0	0	0
ÖK6	5	5	4	3	4	5	4	4	3	3	0	0	0	0	0	0
ÖK7	5	5	4	3	4	5	4	4	3	3	0	0	0	0	0	0
ÖK8	5	5	5	4	4	4	4	4	3	3	0	0	0	0	0	0

ÖK9	5	5	5	4	4	4	4	4	5	4	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contrib ution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			