Tarih: 28 Ağustos 2025 14:09

Department of Food Engineering / Department of Food Engineering /

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
GM583	REOLOGY AND TEXTURE IN FOODS AND ANALYSIS METHODS	3.00	0.00	0.00	3.00	6.00

Course Detail

Course Language	:	Turkish
Qualification Degree	:	Master
Course Type	:	Optional
Preconditions	:	Not
Objectives of the Course	:	To provide knowledge of rheological behavior and textural properties of foods, To teach analytical methods used in rheological and texture measurements, To develop skills in interpreting results for product development and quality control in food engineering
Course Contents	:	This course covers the fundamental principles of understanding the rheological and textural properties of foods and the analytical techniques used to measure these properties. Topics include flow behavior, viscosity, rheological models, texture profile analysis, and the operating principles of rheometers and texture analyzers. Furthermore, rheological and textural characteristics of various food groups such as bakery products, dairy, fruits and vegetables, and meat products will be examined in terms of quality control and product development.
Recommended or Required Reading	:	Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020
Planned Learning Activities and Teaching Methods	:	lectures, discussions, laboratory practices
Recommended Optional Programme Components	:	.....
Course Instructors	:	Doç. Dr. Kamil Emre Gerçekaslan
Instructor's Assistants	:	.....
Presentation Of Course	:	Face to face
Update Date	:	8/27/2025 1:22:47 PM
Dosya İndirilme Tarihi	:	8/28/2025

Course Outcomes

Upon the completion of this course a student :

1 Explain the fundamental concepts of rheology and its applications to foods.

2 Identify texture analysis techniques and their applications.

3 Evaluate rheological behavior of different foods.

4 Interpret analysis results in terms of quality control and product development.

5 Operate instruments used in rheology and texture analyses effectively.

Preconditions

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS

Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
1.Week	*Importance of rheology in foods, basic concepts			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.1
2.Week	*Importance of rheology in foods, basic concepts			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.1
3.Week	*Flow behavior: Newtonian and non-Newtonian			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.1
4.Week	*Viscosity and measurement techniques			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.1 Ö.Ç.2 Ö.Ç.3

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
5.Week	*Rheological models			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.1 Ö.Ç.2
6.Week	*Texture concepts			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.1
7.Week	*Texture Profile Analysis - TPA			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.2 Ö.Ç.3
8.Week	*Midterm exam					
9.Week	*Texture Profile Analysis - TPA			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.2 Ö.Ç.3
10.Week	*Force-deformation relationships and measurement techniques			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.3 Ö.Ç.4 Ö.Ç.5
11.Week	*Texture analyzer			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.3 Ö.Ç.4 Ö.Ç.5
12.Week	*Texture analyzer			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.3 Ö.Ç.4 Ö.Ç.5
13.Week	*Texture analyzer			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.3 Ö.Ç.4 Ö.Ç.5
14.Week	*Texture analyzer			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.3 Ö.Ç.4 Ö.Ç.5
15.Week	*Current developments and literature discussions *Current developments and literature discussions			*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	Ö.Ç.3 Ö.Ç.4 Ö.Ç.3 Ö.Ç.4
16.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
17.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
18.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
19.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
20.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
21.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
22.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
23.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
24.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
25.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
26.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
27.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
28.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
29.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
30.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
31.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
32.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
33.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
34.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
35.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	
36.Week				*Lecture notes; Bourne, M.C. (2002). Food Texture and Viscosity: Concept and Measurement., Texture in Foods, Meryem Göksel Saraç, Nobel Yayınevi 2020	*Lectures, laboratory practices	

Assesment Methods %

1 Final : 60.000

3 Uygulama / Pratik : 20.000

4 Vize : 20.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize	1	2.00	2.00
Final	1	3.00	3.00
Derse Katılım	14	3.00	42.00
Uygulama / Pratik	10	2.00	20.00
Ara Sınav Hazırlık	7	3.00	21.00
Final Sınavı Hazırlık	7	3.00	21.00
Ders Sonrası Bireysel Çalışma	12	2.00	24.00
Ders Öncesi Bireysel Çalışma	14	1.00	14.00
Uygulama / Pratik Sonrası Bireysel Çalışma	10	2.00	20.00
		Total :	167.00
		Sum of Workload / 30 (Hour) :	6
		ECTS :	6.00

Program And OutcomeRelation

	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14
L.O. 1	5	0	0	0	0	0	3	0	0	4	0	0	0	0
L.O. 2	5	0	0	0	0	0	3	0	0	4	0	0	0	0
L.O. 3	5	0	0	0	0	0	3	0	0	4	0	0	0	0
L.O. 4	0	4	0	4	0	5	4	0	0	4	4	0	0	5
L.O. 5	0	5	0	0	0	5	4	0	0	4	4	0	0	5
Avarage	3.00	1.80	0	0.80	0	2.00	3.40	0	0	4.00	1.60	0	0	2.00