Ministry of Higher Education and Scientific research



# **Department of Food Technology**

## **College of Agricultural Engineering Sciences**

## University of Salahaddin - Erbil

## Subject: Butter and Ice cream

## Course Book – (Year 4)

## Lecturer's name: PhD.Narin Mohammedamin Wally

### Msc. Nawa Nawras Rashid

## Academic Year: 2022/2023

### **Course Book**

1. Course name	Butter	Butter and Icecream (Theory & Practical)					
2. Lecturer in charge		Dr.NarinMohammedamin wally					
3. Department/ College		Food Technology/ Agriculter college					
4. Contact		e-mail:Narin. <u>wally@su.edu.krd</u> Tel:07504623277					
	e-mail:	e-mail: Nawa.Nawras@su.edu.krd Tel:07504881523					
5. Time (in hours) per week	For exa	For example Theory: 2 Thursday 10:30-12:30 a.m					
	Practica	al: 3 We	ednesday	<mark>/ 8:30 – 11:30</mark> a	.m.		
6. Office hours	Sunday	– Mon	day – Tu	esday (8:30 – 1:3	30)		
7. Teacher's academic profile							
	Name	Name		Narin Mohammedamin Wally			
	Date o	Date of Employment		1998			
	Years	of Servi	ce	22 years Agricultural Engineering sciences			
	College	е					
	Depar	tment		Food Technology			
	Educa	Education and Certificates					
	Degrees	Degrees Department		University	Country	Date of Completion	
	BSc	MSc Food technology		Sallahaddin University-Erbil	Erbil	1998	
	MSc			Sallahaddin University-Erbil	Erbil	2002	
	PhD	Dairy so	ciences	Mousl University	Mousl	2008	
7. Teacher's academic profile			1				
	Name	Name Nawa N		lawras Rashid			
	Date of Emplo	oyment	2009	5			
	Years of	Service	12 years				

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	College	lege Agricultural Engineering sciences				
	Departme	ent Food T	echnology			
	<b>Educa</b>	tion and	<b>Certificate</b> University	2 <b>S</b> Country	Date of	
					Completion	
	BSc	Food technology	Sallahaddin University-Erbil	Erbil	2009	
	MSc	Dairy technology		Egypt	2015	
8. Keywords	-	e Cream,Cor	ning,Butter Pro nposition of Bu	-		of Making run of Butter &
9 Course overview:						

### 9. Course overview:

1. Provide the students with the definition of the butter types, theories of butter formation, methods of butter production, and the training of students on the steps the industry and the accounts of revenue and also give the student the skills of the work of a small project for this product.

2. Provide the students with the definition of the ice cream types and how the different mixtures and the training of students on the steps the industry and the accounts of revenue and also give the student the skills of the work of a small project for this product.

#### 10. Course objective:

Provide the students with scientific knowledge about dairy fats and related products.

+ define and specify chemical composition and standards

- + state the food and nutritive value
- + explain the principle of making
- + comprehend the churning theories
- + identify the churning devices/type of churns
- + outline the features of continuous butter making...etc.

#### 11. Student's obligation

At the end of this course, the learner will be able to :

Knowledge of the most important components of the milk and their relation of Butter & Icecream.

Identify factors affecting the quantity and quality of Butter &Icecream and the effect of nutrition, Yeildand over run .

Knowledge of the chemical composition of each component, its ratio, its influence on the Butter &Icecreamproperties.

**12.** Forms of teaching

Word Microsoft - Power point - Data show - White board

#### **13.** Assessment scheme

40% (Theory +Practical)

25%Theory: - 20% Exams (at least two) + 5% Quizzes, daily activity and homework.

15%Practical: - 10% Exams + 5% Quizzes and homework.

60% final examination: - 40% theory + 20% practically.

#### 14. Course Reading List and References:

Main references	Useful references	Magazines and review (Internet)	
1. Dairy fats and related products.	1. Dairy processing handbook	1. www.gigapedia.org	
2. Milk fat processing.	2.Rural Dairy Technology	2. www.4shared.com	
3. The science of icecream.	3. The technology of dairy products	3. www.osun.com	

#### **15. The Topics: Theory**

No.	Title of the Subject	Lecture's name
1	The History of Butter Butter-making with fresh milk or cream Butter Structure Methods Of Butter Manufacture :- A. Traditional Method:-	Dr. Narin M. Nanakali

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B. Batch Method         ** quiz or homework         Nutritional information         2         Butter Characteristics         Making Butter         ** quiz or homework         Principle of churning         Basic Scienceof Butter Theory         Type or Kinds Of Butter         Composition of Butter         General steps of butter making by churning:-         1       The separation of milk.         2. Cream neutralization.         3       Pasteurization         4       Cooling         5       Churning of cream         6       Draining the butter milk         ** quiz or homework         7       Working the butter         10. Packing the butter         11. Storage of butter         ** quiz or homework         5       ** quiz or homework         6       Over Run         ** quiz or homework         7       Common Defectsin Butterand Their Control         *** quiz or homework         7       Common Defectsin Butterand Their Control         *** quiz or homework         7       Common Defectsin Butterand Their Control         *** quiz or homework         9       Nutriti		Ministry of Higher Education and Scientific research	
** quiz or homework         Nutritional information         Butter Characteristics         Making Butter         ** quiz or homework         Principle of churning         Basic Scienceof Butter Theory         Type or Kinds Of Butter         Composition of Butter         General steps of butter making by churning:-         1. The separation of milk.         2. Cream neutralization.         3. Pasteurization         4. Cooling         5. Churning of cream         6. Draining the butter milk         *** quiz or homework         7. Washing the butter         8. Salting         9. Working the butter         11. Storage of butter         ** quiz or homework         5         6         7         ** quiz or homework         6         6         9. Working the butter         11. Storage of butter         *** quiz or homework         7         6         Over Run         ** quiz or homework         7         7         ** quiz or homework         8       Nutritonal values of ice cream         <		B. Batch Method	
2       Nutritional information         2       Butter Characteristics         Making Butter       ** quiz or homework         Principle of churning       Basic Scienceof Butter Theory         Type or Kinds Of Butter       Composition of Butter         General steps of butter making by churning:-       1. The separation of milk.         3       1. The separation of milk.         2. Cream neutralization.       3. Pasteurization         4. Cooling       5. Churning of cream         6. Draining the butter milk       ** quiz or homework         7. Washing the butter       8. Salting         9. Working the butter       10. Packing the butter         10. Packing the butter       11. Storage of butter         ** quiz or homework       6         5       Butter Yield         *** quiz or homework       Dr. Narin M. Nanakali         7       Common Defectsin Butterand Their Control         ** quiz or homework       Dr. Narin M. Nanakali         8       Nutritional values of ice cream         Types of ice cream       Types of ice cream         8       Nutritional values of ice cream         8       Nutritional values of ice cream         9-10       Mix Calculations for Ice Cream		C. Continuous Method :-	
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What is ice cream         Types of ice cream         Nutritional values of ice cream         Ice Cream Ingredients         Function of each ingredient         ** quiz or homework         9-10         Mix Calculations for Ice Cream         ** quiz or homework			4
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Function of each ingredient         ** quiz or homework         9-10         Mix Calculations for Ice Cream         ** quiz or homework	8		
** quiz or homework       9-10       Mix Calculations for Ice Cream       ** quiz or homework		-	
9-10 Mix Calculations for Ice Cream ** quiz or homework		<b>C</b>	
9-10 ** quiz or homework			4
** quiz or homework	9-10		
11-12 Ice Cream Manufacture			4
	11-12	Ice Cream Manufacture	

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	** quiz or homework	
	Overrun Calculation	
12-14	Ice Cream Defects	
	** quiz or homework	
		1
15. The	Topics: Practical	
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No.	Title of the Subject	Lecture's name
	Butter quality (Butter characteristics)	
1	Quiz or homework	
	Milk separation :A-Gravity separation	
	B-Centrifugal separation.	
2	Separation of cream	Nawa Nawras Rashid
	Quiz or homework	
	Cream	
3	Types of cream	
5	Quiz or homework	
	Butter	
4		
4	Butter manufacturing Quiz or homework	
	Neutralization of sour cream for butter	
5	manufacturing Principle of neutralization	
3	Principle of neutralization Procedure	
(	Quiz or homework	
6	Exam	
	Buttermilk	
7	Production of cultured buttermilk	
	Health benefits of buttermilk	Nawa Nawras Rashid
	Quiz or homework	
	Butter oil	
8	Requirement of high grad butter oil	
Ũ	Ghee	
	Quiz or homework	
	Ice cream	
9-10	History of ice cream	
7-10	Composition of ice cream	
	Quiz or homework	
11-12	Completing of ice cream composition	

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	Quiz or homework		
	Calculation of ice cream mixes		
13-14	-simple mixes		
13-14	-complex mixes		
	Quiz or homework		
19. Exai	minations:		
Some b	ind of examination		
	the following blanks :		
~/	•		
Q) Give the reasons of the following .			
Q) Define (4) of the following terms:			
	it are the :-		
~	ine the :-		
	merate all kinds of		
Q) Diffe	erentiate between		