



Department of: Food Technology

College of Agriculture Engineering Sciences

University of Salahaddin

Subject: Liquid milk (Theory +Practical)

Course Book – (Year 2)

**Lecturer's name: MSc. Dina Suad Ali,
Chnar Sulaiman Hadi, Parzhen Sherzad Ibrahim**

Academic Year: 2023/2024

Course Book/ 1St semester: 2nd Stage

1. Course name	Liquid milk
2. Lecturer in charge	Dina Suad Ali
3. Department/ College	Food Technology dept.- College of Agricultural Engineering sciences.
4. Contact	e-mail 1 - dina.ali@su.edu.krd 2- chnar.hadi@su.edu.krd (tel: 07504731180) 3- parzhen.ibrahim@su.edu.krd (tel : 07504936425)
5. Time (in hours) per week	Theory:2 Practical: 3
6. Office hours	thursday(8:30-10:30) Tuesday (10:30-1:30)
7. Course code	
8. Teacher's academic profile	Got bachelor degree at Food Sciences- college of Agriculture /Baghdad university. Got bachelor degree at computer - college of science mustansiria university. Got master degree at Baghdad university. now teaches as lecturer in (Food technology department) Salahaddin university.
9. Keywords	

8. Course overview:

Theory:

- This course should comprehensively aim at various constituents of milk and milk types standards to make students competent to meet the needs of liquid milk.
- The course will motivate them to carry out research and facilitate hands on training.
- This course should impart sound knowledge on various aspects of dairy science, , chemistry and microbiology so as to enable the veterinary graduate to assist the poor farmer or animal owner in augmenting his income.

9. Course objective:

Milk derived from cattle species is an important food. It has many nutrients and the precise nutrient composition of raw milk vary by species and by a number of other factors. Cow milk is available for marketing and utilization in the preparation of various products world over in a large proportion Milk derived from cattle species is an important food. It has many nutrients and the precise nutrient composition of raw milk vary by species and by a number of other factors. Cow milk is available for marketing and utilization in the preparation of various products world over in a large proportion.

11. Forms of teaching:

Teaching Methods: Self Study, Word Microsoft, Power point presentation, Data show and White board.

Practical A form of teaching is Data show with power point program and laboratory tests.

12. Assessment scheme:

Theory 65% (midterm exam 15% + final exam 50%)

Practical 35% (quiz 5% + 30% exam)

13. Student learning outcome:

1- Attendance at lectures and labs is required.

2-The student will write notes on their notebook which are written on whiteboard besides the lecture on the data show.

3-Every lecture have a quiz.

14. Course Reading List and References:

1-.Dairy Science and Technology by Pieter Walstra Jan T. M. Wouters Tom J. Geurts(2006)

2.Dairy Processing Improving quality by Gerrit Smit (2003)

3- Milk and Dairy Product Technology by Edgar Spreer (2017).

15. The topics	Lecturers name
<p>1- Milk as Raw Material- Types of Milks, General Characteristics of milk</p>	<p>Dina suad ali (2 hrs)</p>
<p>2- Chemical Composition of Milk.</p>	<p>Dina suad ali (2 hrs)</p>
<p>3- Milk Production in the farm</p>	<p>Dina suad ali (2 hrs)</p>
<p>4 - Factors Effecting Quality of Raw milk</p>	<p>Dina suad ali (2 hrs)</p>

7 th	Heat Treatments Process in the Dairy Industry		
8th	Condensed Dairy Products	Dina suad ali (2 hrs))	
9th	Milk Powder		
10th	Special Milk Products including Imitation	Dina suad ali (2 hrs))	
11th	Flavored Milk Drinks- Dietetic Milk Products		
12th	Infant Milk		
13th	Judging of Milk and Products		
14th	Cleaning and Disinfection of dairy Factories		

16. Practical Topics:		
Weeks	The curriculum	The Target
1-	Milk Sampling	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
2	Quality control tests	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
3	Milk Acidity determination	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
4-	Milk Density and total solids	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
5	Milk fat separation and skim milk	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
6	Milk fat determinatio	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim

7	Milk standardization	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
8	yoghurt making(Traditional and Industrial)	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
9	Exams	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
10	fermented dairy products	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
11	chesse making	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
12	halloumi chesse	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
13	flavoured milk	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
14	mastitis	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim
15	milk adulteration &gymaq making	Chnar Sulaiman Hadi& Parzhen Sherzad Ibrahim

In this section The lecturer shall write titles of all practical topics he/she is going to give during the term. This also includes a brief description of the objectives of each topic, date and time of the lecture

17. Examinations:

Typical questions:

19. Examinations:

Q1/ Define the following: .

UHT milk , Bactofugation , Sediment test , Spray drier, Sterilized Milk, Alizarine test , Milk specific heat , Soymilk, Toned milk .

Q2 / Select the correct subjects from the following: .

1-The main component of milk which is responsible for cooked flavor is:

a- Casein b-Triglycerides c-Lactose d-Beta lacto globulin

2-The brown color of sterilized milk produced as a result of:

a- Millard reaction b- Caramelization c- Both a & b d- Bacteria growth

3-Caseins are precipitate at

a- pH 6 b- pH6.5 c- pH4.6 d- pH5.8

4- The main component of milk which is responsible for whey yellowish green color is

a- Riboflavin b-Triglycerides c-Lactose d-No one of them

5-Milk is poor in

a- Iron b- Protein c-Calcium d- Phosphate

6- The consternation of ethanol which used in Alcohol test is

b- Absolute c- 70% d-Both b & c a- 85%

7-Milk separation achieved at

c°c d- 40°c c-25°c b-30°c a-35°c

8- The viscosity of cow milk is

a- One time more than of water b- Two times more than of water c-Equal to water

viscosity

d- Two times less than water

9- Milk adulteration by water addition detected by measuring of

a- Freezing point b- Acidity c -Specific gravity d-Both a & c

10-The white color of milk is due to the

a- dispersion of reflected light by fat globules and the casein b-Carotene
c- Vitamin A d- Vitamin B₁

11- The common cause of Mastitis is bacteria

a- *Staphylococcus aureus* b- *Streptococcus agalactiae*
c-*Escherichia coli* d-*Streptococcus uberis*

12-human milk contain high amount of

a-Lactose b-Fat c-Whey protein d-casein

Q3/List the following

1-The percentage and components in milk which provide normal milk natural acidity.

2- Factors influenced on efficiency of milk separation.

3- The objective of milk compositions standardization.

4- The membrane separation techniques

5- Milk reception operations.

Q4A-/What is the importance of the following during processing of milk

1-Heat under vacuum in condensed milk manufacturing

Q4A-/What is the importance of the following during processing of milk

1-Heat under vacuum in condensed milk manufacturing.

2-Production of free- lactose milk.

3-Milk Clarification.

4- Production of organic milk.

B- The fat content of 500 kg of sheep whole milk must be reduced from 6.5% to 3% using skim milk containing 0.1% fat. Calculate the weight of skim milk added and the final weight.

Q-5 – Enumerate Dye-reduction tests then write the principle and milk grading according to one of them.