



Beni-Suef University
Faculty of Veterinary Medicine

Course specification

1-Basic information

Course Code:	MKST-4147
Course title :	Milk safety and Technology
Academic year:	4th Academic year
Program title:	B. Sc. Veterinary Medical sciences
Contact hours/ week	4 hours/week, (2 Lect./week, 2 Practical/week)
Approval Date	

2-Professional information

Overall aims of course:

By the end of this course, the student should gain the knowledge about:

- 1- Hygienic production of Milks.
- 2- Microbiology of milk.
- 3- Assessing the quality and safety of milk at both farm and plant.
- 4- Contaminants in milk.
- 5- HACCP system and quality assurance.

3- Intended learning outcomes of course (ILOs)

A-Knowledge and understanding:

By the end of this course the student should be able to:

- a1. Recall the milk composition and its nutritive value.
- a2. Outline the relationship between the milk production and the sources of contamination.
- a3. Recognize the production of clean milk and milking procedures.
- a4. Identify the quality and safety of milk.
- a5. Recognize the chemical residues in milk.
- a6. Explain the application of HACCP system in production of milk.
- a7. Describe the different forms of milk spoilage.
- a8. Recognize microbial ecology and isolation.
- a9. Describe the base for construction of dairy farm.

b- Intellectual skills

By the end of this course the student should be able to:

- b1. Identify the quality of good milk.
- b2. Differentiate between normal & abnormal milk.
- b3. Examine the milk with the judgment on different defects which present.
- b4. Identify milk & milk borne disease, food poisoning and suitable control measures.
- b5. Discuss the chemical pollutants & suitable control measures.
- b6. Discuss the impact of heat treatment on quality of milk .



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c- Professional and practical skills

By the end of this course the student should be able to:

- c1. Collect milk samples for physical and chemical examination of milk.
- c2. Assess the quality of milk.
- c3. Demonstrate the critical points during milk.
- c4. Detect and isolate contaminating and food poisoning microorganisms in milk
- c5. Practice the technology of milk.
- c6. Perform full microbiological examination of milk.
- c7. Detect residues in milk.
- c8. Get experience in detection of the adulteration of milk.
- c9. Examine milk for detection of subclinical mastitis.

d- General and transferable skills

By the end of studying the course, the student should be able to:

- d1. Decision making.
- d2. Manage time.
- d3. Work in group teams.

4-Topics and contents

Course	Topic	No. of hours	Lectures	Practical
Title (Lec. 3 h./week, Pract. 2h./week) 4th year first term	Introduction	1	1	-
	Sampling	5	3	2
	Milk composition and its examination	7	1	6
	Physical properties	3	1	2
	Sanitary tests	6	2	4
	Detection of preservatives in milk	3	1	2
	Milk fermentation	2	2	-
	Detection of abnormal milk	4	2	2
	Sources of milk contamination and Factors affecting microbial growth	2	2	-
	Milk borne diseases	2	2	-
	Food poisoning	2	2	-
	Isolation of pathogenic M.Os, fecal pollution and indicators M.Os	6	2	4
	Clean milk production	1	1	-
	Heat treatment of milk	4	2	2
	Construction and sanitation of dairy farm and plant	4	2	2
	Milking process	4	2	2
	Food safety management	2	2	2
Total		52	30	30



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5-Teaching and learning methods

- 5.1- Lectures depending on the sharing efforts of the students and supported with macromedia and multimedia aids.
- 5.2- Training visits to dairy farms as well as milk processing plants.
- 5.3- Practical sections: Laboratory examination of milk by chemical and microbiological methods.
- 5.4- Self learning (Electronic learning, Seminars, scientific search on related websites, international, national and local journals, related books in faculty library).
- 5.5- Summer training course
- 5.6- Assays and reviews
- 5.7- Discussion groups

6-Teaching and learning methods for the students with disabilities

Office hours and special meeting

7-Student assessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Final Exam	a1 to a9	b1 to b6		
Practical Exam			c1 to c9	
Oral Exam	a1 to a9	b1 to b9	c1 to c9	d1 to d3

7.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	14 th week
Final exams	managed by administrations
Oral Exam	managed by the department
Student activities	-

7.3. Weight of assessments:

Assessment	Weight of assessment
Practical exams	30%
Final exams	50%
Oral Exam	%20
	100%

8- List of references

8.1. Essential books:

- Milk and milk products, 1997 (Sutherland & Varnam)
- Dairy microbiology Vol. I, 2nd , 1990edition, (Robinson, R.K)



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- Dairy microbiology Vol. II, 2nd , 1990edition, (Robinson, R.K)

8.2. Recommended texts

- Principles of dairy science (G.H. Schmidt. 1988)
- Microbial food poisoning (A.R. Eley, 1992)
- Fundamental food microbiology (B. Ray, 1996)
- Milk composition, production and biotechnology (1997)
- Manuals of food quality (FAO, 1997)
- Technology of dairy products (J.V. Patikh)
- Food microbiology (W.C. Frazier, 1978)

8.4. Journals, Websitesetc

Journals:

- Journal of food protection
- International journal of food microbiology
- Journal of dairy science
- Journal of Food science

Websites:

- cms.nelc.edu.eg
- www.pubmed.com
- www.foodprotection.org
- www.directscience.com
- www.IDF.com

Course Coordinators

Prof. Dr. Arafa meshref

Head of Department

Prof. Dr. Arafa meshref



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Topics		Week	Intended learning outcomes of course (ILOs)			
			K&U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
1.	Introduction	1	-	-	-	
2.	Sampling	1	a9	-	c1	
3.	Milk composition and its examination	2	a1	-	c8	
4.	Physical properties	2,3	-	-	c1	
5.	Sanitary tests	3	a4	b1	-	
6.	Detection of preservatives in milk	4	-	-	-	
7.	Milk fermentation	5	a9	-	-	
8.	Detection of abnormal milk	6	-	b2	c9	
9.	Sources of milk contamination and Factors affecting microbial growth	7	a2	-	-	
10.	Milk borne diseases	8	-	b4	-	
11.	Food poisoning	9	-	b4	c4	
12.	Isolation of pathogenic M.Os, fecal pollution and indicators M.Os	10	a8	b3	c4,c6	
13.	Clean milk production	11	a3	b5	c3	
14.	Heat treatment of milk	11, 12	a8	b6	-	
15.	Construction and sanitation of dairy farm	12	a9	-	-	
16.	Quality assurance &HACCP, food safety management	, 14, 15, 10	a7	-	C3	
17.	Milking process	13	a3	-	-	
18.	Residues in milk	10, 11	a6	b5	c7	
19.	Student activities: - Dairy plants visits. - Writing assays - Internet search		-	-	-	d1-d3



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