



Dairy Hygiene and Control

DIPLOMA COURSE SPECIFICATION

A. BASIC INFORMATION

University:	University of Sadat City
Faculty:	Veterinary Medicine
Program on which the course is given:	Diploma of Food Hygiene and Control
Department offering the Course:	Food Hygiene and Control
Course code:	902
Course title:	Dairy Hygiene and Control
Lecture (hr/week):	2
Practical (hr/week):	2
Course coordinator:	Dr. Ahmed Moustafa Hammad

B. PROFESSIONAL INFORMATION

1) Overall aims of course

Upon successful completion of the course, the student will be able perceive the basic concepts about safety and quality of milk, dairy products, egg, fat and oils.

2) Intended learning outcomes of course (ILOs)

a) KNOWLEDGE AND UNDERSTANDING

By the end of this course, the graduate should be able to:

- a.1. Describe milk synthesis and recognize the physical and chemical properties of milk, dairy products, fat and oils.
- a.2. Summarize different types of spoilage microorganisms of raw milk and dairy products.
- a.3. Recognize steps of milk reception and manufacturing of heat treated milk and dairy products.
- a.4. Recognize different types of cleaning programs, types of detergent and disinfectant and
- a.5. Sanitary requirements for production of safe and clean milk, eggs, and dairy.
- a.6. Describe the micro flora of normal raw milk and the changes of microbial load of raw milk from diseased animal (mastitis).
- a.7. Recognize the basic and recent information of the role of milk in transmission of diseases worldwide and how to prevent them.

b) INTELLECTUAL SKILLS

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

- b.1. Determine the effect of processing on chemical components of milk.
- b.2. Compare between normal and spoiled milk, dairy products and egg.
- b.3. Track and control the sources of milk contamination with spoilage and foodborne pathogens in order to produce clean milk.
- b.4. Determine different Critical Control Points (CCP) in the steps of manufacturing of different dairy products and application of HACCP system.
- b.5. Evaluate the deterioration and hygienic status of eggs, fat and oils.

c) PROFESSIONAL AND PRACTICAL SKILLS

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

- c.1. Examine and prepare milk, egg, fat and oil samples for physical, chemical and/or microbiological characteristics.
- c.2. Analysis milk and dairy products for their physical and chemical properties.
- c.3. Perform the required tests for detection of adulteration of milk, fat and oils.
- c.4. Apply the microbiological tests to determine the safety and hygienic quality of milk and eggs and causative agents of mastitis.
- c.5. Carry out tests to detect the physical and chemical analytical constants of fat and oils.

d) GENERAL AND TRANSFERABLE SKILL

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

- d.1. Work effectively as part of a team.
- d.2. Efficiently make use of library facilities and IT tools.
- d.3. Explore appropriate computer / keyboard skills.
- d.4. Processing, spreadsheets, presentation packages and graph plotting.

३) Topics and contents

Topic	No. of hours		
	Lect.	Pract.	Total
Introduction of milk hygiene and control	1	-	1
Effect of milk composition on the quality of milk	2	-	2
Physical properties of milk	2	-	2
Chemical properties of milk	4	-	4
Spoilage of milk	10	-	10
Reception, pretreatment and heat treatment of milk	5	-	5
Clean milk production	7	-	7
Cleaning and sanitizing milk utensils and equipment	6	-	6
Cleaning and sanitization program for airy utensils and equipment in dairy farm	7	-	7
Effect of mastitis on quality of milk	5	-	5
Prevention of spread of diseases through milk	5	-	5
Manufacturing of dairy products	14	-	14
Principles of HACCP system	8	-	8
Hygiene and control of eggs.	7	-	7
Basic concept about deterioration of fats and oils.	5	-	5
Sampling of milk and dairy products	-	1	1
Preparation of collected samples for chemical and microbial examination	-	1	1
Physical examination of Milk and its products	-	5	5
Chemical examination of milk and dairy products	-	10	10
Detection of adulteration of milk, dairy products, fat and oils	-	15	15
Microbial and sanitary examination of milk, dairy products and eggs	-	18	18
Detection of mastitis causing microorganisms	-	8	8
Sampling of eggs and its products	-	1	1
Examination of eggs for freshness	-	8	8
Assessment the quality of the eggs	-	9	9
Examination of fat and oils:) Physical analytical constant) Chemical analytical constant) Detection of rancidity	-	12	12
Total	88	88	176

ξ) Teaching and learning methods

- 4.1. Lectures.
- 4.2. Practical.
- 4.3. Self-learning activities.

ο) Student assessment

a. METHODS:

1- Written examination	For assessment of knowledge, back calling and Intellectual skills
2- Practical examination	For assessment of practical and professional skill.
3- Oral examination	For assessment of knowledge and Intellectual skills
4- Student activities	For assessment of knowledge and general and transferable skills

b. MATRIX ALIGNMENT OF THE MEASURED ILOs/ ASSESSMENTS METHODS:

Method	K.U (a)	I.S (b)	P.P.S (c)	G.S (d)
Written exam	1-7	1-5	-	-
Oral exam	1-4	1,2,3	-	-
Practical exam	-	2	1-5	-
Student activities (assay, seminar, etc.)	2,4	-	-	1-4

c. WEIGHT OF ASSESSMENTS:

Assessment	Allocated Mark	Evidence
Final written exam	50%	Marked and signed written paper
Practical exam	20%	Marked and signed practical exam paper
Oral exam		Signed list of oral exam marks
Student assignments	10%	Representative samples of presented materials

η) List of references

6.1. Essential textbooks

- J WC Frazier & DC Westhoff. 2006. Food Microbiology. IVth edition. Tata McGraw Hill Publishing Co.
- J James M Jay. 2005. Modern Food Microbiology. IVth Edition. CBS publishers and Distributors, New Delhi.

-) H. Michael Wehr, Joseph F. Frank.2004. APHA Standard Methods for the Examination of Dairy Products. 17th Edition. American Public Health Association.
-) Bibek Ray. 2000. Fundamental Food Microbiology. CRC Press, New York.
-) MR Adams and MO Moss. 2000. Food Microbiology. New Age International (P) Ltd, Publishers.
-) F. P. Downes, Keith Ito. 2001. Compendium of Methods for the Microbiological Examination of Foods. IVth Edition. American Public Health Association.

6.2. Periodicals

-) J. of food science
-) J. of milk and food technology.
-) J. of Food Protection
-) J. Food Microbiology
-) J. of Dairy Science

6.3. Web sites

-) www.who.org
-) www.idf.org
-) www.fao.org
-) www.fda.org

√) Facilities required for teaching and learning

- √, 1 Data-show.
- √, 2 PCR unit
- √, 3 Network for technology transfer.
- √, 4 Visit to dairy farms and dairy plants
- √, 5 Computer.

	Course coordinators	Head of department
Name	Dr. Ahmed Moustafa Hammad	Prof. Dr. Abdel Rahman El Bagoury
Signature		

Matrix alignment of course topics and ILOs

Topic	No. of hours /week		Hours for Lect.	Hours for Pract.	Total hours	ILOs			
	Lect.	Lect.				K.U	I.S	P.P.S	G.T.S
						(a)	(b)	(c)	(d)
Introduction of milk hygiene and control	2		1	-	1	1	-	-	1-4
Effect of milk composition on the quality of milk	2		2	-	2	1	1	-	1-4
Physical properties of milk	2		2	-	2	1	-	-	1-4
Chemical properties of milk	2		4	-	4	1	-	-	1-4
Spoilage of milk	2		10	-	10	2	2	-	1-4
Reception, pretreatment and heat treatment of milk	2		5	-	5	3	1	-	1-4
Clean milk production	2		7	-	7	4	3	-	1-4
Cleaning and sanitizing milk utensils and equipment	2		6	-	6	4	3	-	1-4
Cleaning and sanitization program for dairy utensils and equipment in dairy farm	2		7	-	7	4	3	-	1-4
Effect of mastitis on quality of milk	2		5	-	5	5	3	-	1-4
Prevention of spread of diseases through milk	2		5	-	5	6, 7	3	-	1-4
Manufacturing of dairy products	2		14	-	14	3	4	-	1-4
Principles of HACCP system	2		8	-	8	6	4	-	1-4
Hygiene and control of eggs.	2		7	-	7	4	5	-	1-4
Basic concept about deterioration of fats and oils.	2		5	-	5	-	5	-	1-4
Sampling of milk and dairy products		2	-	1	1	-	-	1	-
Preparation of collected samples for chemical and microbial examination		2	-	1	1	-	-	1	-
Physical examination of Milk and its products		2	-	5	5	-	2	2	-
Chemical examination of milk		2	-	10	10	-	2	2	-
Detection of adulteration of milk, dairy products, fat and oils		2	-	15	15	-	2	3	-
Microbial and sanitary examination of milk, dairy products and eggs		2	-	18	18	-	3	4	-
Detection of mastitis causing microorganisms			-	8	8	-	3	4	-

Topic	No. of hours /week		Hours for Lect.	Hours for Pract.	Total hours	ILOs			
	Lect.	Lect.				K.U	IS	P.P.S	G.T.S
						(a)	(b)	(c)	(d)
Sampling of eggs and its products			-	1	1	-	-	4	-
Examination of eggs for freshness			-	8	8	-	5	4	-
Assessment the quality of the eggs			-	9	9	-	5	4	-
Examination of fat and oils:									
) Physical analytical constant									
) Chemical analytical constant									
) Detection of rancidity									
Total			88	88	176	-	-	-	-