Specification for Milk Control, Hygiene, Safety and Technology course (A)

2025/2026

1-Basic information

1.	**Course title**	**Milk Control, Hygiene, Safety and Technology (A)**							
2.	**Course code**	FHC.317							
3.	**Department offering the course**	Food Hygiene and Control							
4.	**Number of hours**	Theoretical	2	Practical	1(2)	Other	0	Total	3(4)
5.	**Course Type**	√ **Obligatory** **Elective**							
6.	**Level**	3rd year							
7.	**Semester**	Fall							
8.	**Academic program**	Bachelor of Veterinary Medicine (BVM)							
9.	**University**	Benha University							
10	**Faculty**	Veterinary medicine							
11.	**Name of course coordinator**	Prof. Dr. Ekbal M.A. Ibrahim							
12	Course Specification Approval Date	Faculty council/ 27-8-2025							
13.	**Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)**	Department council /8-7-2025							

2-Course overview

- **Course contents written in the program bylaw:**

Physical properties of milk; chemical composition; chemical examination; adulteration of milk sanitary and bacteriological examination of mik; milk enzymes; Microorganisms associated with mik, sources of contamination normal fermentation, taints and abnormal condition of milk; milk residues; milk borne diseases, clean milk production; changes in milk due to mastitis; Heat treatment of milk; sanitizinig milk utensils and dairy equipment.

3- Course Learning Outcomes CLOs

	NARS ILOS		Course ILOS	
	Code	**Content**	**Code**	**Content**
	2.8	Veterinary medications, uses, marketing, the impact of drug residues on human health and quality control of pharmaceutical practices	a1	Recall the composition and physical properties of milk.
Knowledge and understanding Intellectual skills			a2	Outline microbial infection andintoxication, sources logy of the study food items regarding source of contamination, products defects, public health hazards and their control.
	2.13	Public health, including food hygiene of animal origin and zoonotic diseases that are transmitted from animals to humans.	a3	Discuss milk biosynthesis and principles of clean milk production
			a4	- Summarize the steps of manufacture of heat-treated milk
			a.5	- Discuss the detection of milk adulteration.
			a.6	Describe briefly the methods of milk adulteration
			a.7	Draw a HACCP diagram for milk
	2.14	Basics of law and ethical codes relevant to animals and food hygiene.	a.8	Recall specific criteria for evaluation of milk
Intellectual skills	4.1	Foster critical thinking and scientific curiosity	b1	Interpret laboratory and sensory findings correctly for the evaluation of fluid milk.
			b2	- Categorize types of food poisoning according to etiology, public health hazards and control measures.
			b3	Develop a systemic approach for tracing source of contamination and spoilage in milk
			b4	Integrate GMP, the HACCP principles and QA systems in fluid milk

	4.5	Remain committed to life – long learning and updating / upgrading their biochemical sense and clinical skills	b5	Concise hot milk hygiene issues to educate the general community
Professional and practical skills	3.6	Write a report about hygiene and safety of food of animal origin for human consumption	c1	Obtain representative samples of fluid milk for sensory, chemical and microbiological examination.
			c2	Prepare samples of fluid milk examinations safety
			c3	- Examine milk organoleptically, chemically and microbiologically by different devices and equipment carefully.
	3.12	Correctly deal with procedures related to food Hygiene, public health issues, notifiable diseases and disposal of animal wastes.	c4	-Apply GMP programs on dairy farm and plant basis to sustain and improve milk quality
	3.13	Minimize the risk of contamination, cross infection and predisposing factors of diseases.	c.5	Write reports professionally in milk hygiene
General skills	5.1	Work under pressure and / or contradictory conditions	d1	Work under pressure during lab cession
	5.3	Communicate appropriately verbally and nonverbally	d2	Communicate effectively with lab colleague
	5.5	Search for new	d3	Search for new information in field of milk

		information and technology as well as adopt life–long self- learning ethics.		hygiene
	5.6	Utilize computer and internet skills	d4	Utilize computer and internet skills, read paper via internet in field of milk hygiene

4- Teaching and learning methods					
Lectures	√	**Discussion & seminar**	√	**Practical**	√
Presentation & movies	√	**Problem solving**	√	**Brainstorming**	√
Others					

5- Course contents:

Week [W]	Topics	Theoretical	Laboratory [practical]	Self-learning (Tasks/ Assignments/ Projects/ ...)	Total
W1	-Introduction and overview about milk biosynthesis -Sampling of milk	**2**	**1(2)**	**0**	**(3)**
W2	Properties of milk1 (Physical and chemical)	**2**	**1(2)**	**0**	**(3)**
W3	Properties of milk2 (Physical and chemical)	**2**	**1(2)**	Formative quiz	**(3)**
W4	Properties of milk3 (Physical and chemical)	**2**	**1(2)**	**0**	**(3)**
W5	- Nutritive value of milk - Sources of adulteration of milk preservatives and adulteration of milk	**2**	**1(2)**	**0**	**(3)**
W6	- Dairy microbiology1 - Sanitary and keeping quality	**2**	**1(2)**	Formative quiz	**(3)**

	tests				
W7	Semester work (one hour exam)	-	-	-	-
W8	- Dairy microbiology2 - Sanitary and keeping quality tests	**2**	**1(2)**	**0**	**(3)**
W9	- Dairy microbiology3 - Sanitary and keeping quality tests	**2**	**1(2)**	**0**	**(3)**
W10	- Dairy microbiology4 - Microbiological examination of milk	**2**	**1(2)**	Formative quiz	**(3)**
W11	- Clean milk production & heat treatment1 - Microbiological examination of milk	**2**	**1(2)**	**0**	**(3)**
W12	- Heat treatment2 - Testing for efficiency of heat treatment and sterilization	**2**	**1(2)**	**0**	**(3)**
W13	Criteria for evaluation of milk and hazard analysis1	**2**	**1(2)**	**0**	**(3)**
W14	Criteria for evaluation of milk and hazard analysis2 Quality assurance & safety of milk	**2**	**1(2)**	Formative quiz	**(3)**
W15	Practical exam	-	-	-	-

6- Methods of students' assessment

a- Assessment methods (summative and formative)

1. **Formative assessment**: including (weekly quizzes, homework assignments and surveys).
2. **Summative assessment** including (quizzes, class activities, semester work (one hour exam) exam, practical exam, oral exams, and final written exams).

b- Assessment schedule and weight

Assessment method	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
Semester work including one hour exam	7th week	10	10%
Formative assessment	Throughout the semester	------	-------
Practical exam	15th week	30	30%
oral exam	End of semester	10	10%
Written exam	End of semester	50	50%
Assignments / Project /Portfolio/ Logbook	--------	-------	-------
Field training	--------	----------	-------
Other (Mention)	-------	--------	-------
Total		100	100%

7- Learning resources and supportive facilities:

Learning resources	**Main reference**	**Student handbook**: Department notes on Milk Hygiene Edit by Staff members Essential Laboratory of Dairy Hygiene, Edit by Staff members
	Essential books (text books)	1- Robert, W., 2006: Microbiology and Technology of Fermented Foods. Blackwell publishing, USA. 2- Snmahindru, 2009: Milk and Milk Products. Publishing Corporation, Dehi.
	Recommended books	-Tamime, AY. 2009: Milk Processing and Quality Management, First Edition, Wiley Blackwell publishing, UK.
	Periodicals, Web sites, . . . etc	1-Journal of Dairy Science 2-Journal of Dairy Technology 3-Benha Veterinary Medical Journal 4-www.idf.org

		5-www.ekb.eg
	Learning platform	Thinqi
supportive facilities	**Devices & instruments**	Devices: ▪ Autoclave ▪ Hot air oven ▪ Incubator ▪ Water bath ▪ Magnetic stirrer ▪ Laminar air flow ▪ Lactometer ▪ Milk Butyrometer Instruments ▪ Petri dishes ▪ Pipette ▪ Cylinders ▪ Beakers ▪ Porcalein dishes ▪ Burettes
		1- Data show 2- Whiteboard 3- Food control laboratory 4- Educational farm

Matrices:

A- Content and ILOs matrix:

Topic	A) Knowledge and understanding	B) Intellectual skills	C) Professional and practical skills	D) General and transferable skills
-Introduction and overview about milk biosynthesis	-	-	-	-

-Sampling of milk				
Properties of milk1 (Physical and chemical)	a1,3,,6, 8	b1	-	d1,2,3,4
Properties of milk2 (Physical and chemical)	a2, ,6,7	b1	-	d1,2,3,4
Properties of milk3 (Physical and chemical)	a2, 4,7,8	b 2,3, 5	-	d1,2,3,4
- Nutritive value of milk Sources of adulteration of milk preservatives and adulteration of milk	a,3, 5,	b1, 4,	-	d1,2,3,4
- Dairy microbiology1 Sanitary and keeping quality tests	a7,8	b4,	-	d1,2,3,4
- Dairy microbiology2 Sanitary and keeping quality tests	-	-	c1, 4	d1,2,3,4
- Dairy microbiology3 Sanitary and keeping quality tests	-	-	c1,5	d1,2,3,4
- Dairy microbiology4 Microbiological examination of milk	-	-	c2,3, 5	d1,2,3,4
- Clean milk production & heat treatment1 Microbiological examination of milk	-	-	c2,3, 5	d1,2,3,4
- Heat treatment2 Testing for efficiency of heat treatment and sterilization	-	-	c 2,3,4,5	d1,2,3,4
Criteria for evaluation of milk and hazard analysis1	-	-	c,3, ,5	d1,2,3,4
Criteria for evaluation of milk and hazard analysis2 Quality assurance &	a7,8	-		d1,2,3,4

safety of milk				

B- Teaching and learning methods and ILOs matrix:

ILOs		Teaching and Learning methods						
		L	P&M	D	P	Ps	Bs	Fv
Knowledge and understanding	a1	√	√					
	a2	√	√				√	
	a3	√	√	√			√	
	a4	√	√	√				
	a5	√	√	√				
	a6	√	√					
	a7	√	√					
	a8	√	√				√	
Intellectual skills	b1	√	√			√	√	
	b2	√	√	√		√	√	
	b3	√	√	√		√	√	
	b4	√	√			√	√	
	b5	√	√			√	√	
Professional and practical	c1		√		√	√		
	c2		√		√	√		
	c3		√		√	√		
	c4		√		√	√		√
	c5		√		√	√		√
Genera	d1	√	√	√	√	√	√	√
	d2		√			√		
	d3	√				√		

L**: Lecture,** P&M**: Presentations & Movies,** D&S: **Discussions & Seminars P: Practical** Ps: **Problem solving,** Bs: **Brainstorming**

C- Assessment methods and ILOs matrix:

ILOs		Assessment method				
		Formative assessment	Semester	oral	practical	Written
Knowledge and understanding	a1	√	√	√		√
	a2	√	√	√		√
	a3	√	√	√		√
	a4	√	√	√		√
	a5	√		√		√
	a6	√		√		√

	a7	√		√		√
	a8	√		√		√
Intellectual skills	b1		√	√		√
	b2		√	√		√
	b3		√	√		√
	b4			√		√
	b5			√		√
Professional and practical	c1			√	√	
	c2			√	√	
	c3			√	√	
	c4			√	√	
	c5			√	√	
Genera	d1			√		
	d2			√		
	d3			√		

Course coordinator: Prof Dr. Ekbal M.A. Ibrahim

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