Specification for Meat and their product hygiene and control course 2019/2020

A-Affiliation

1.	**Relevant program**	Bachelor of Veterinary Medical Science (BVMSc)
2.	**Department offering the course**	Food hygiene and control

Date of specification approval: ministerial decree No. 1727 on 26/4/2017
(Approved in this template by the department council on 1/10/2019**)**

B-Basic information

1.	**Course title**	Meat and their hygiene and control
2.	**Course code**	501 (A) I
3.	**Level**	5th year
4.	**Semester**	First term
5.	**Total hours/week**	4
6.	**Lecture hours/week**	2
7.	**Practical hours/week**	2

C-Professional Information

1- Course learning objectives

- Help the students to understand the task of meat Hygiene.
- Provide the students with an over view on abattoir constructions.
- Study the Methods of slaughter.
- Provide the students with the required knowledge about Pre-slaughter care.
- Provide the students with strategies to protect against meat borne bacterial, viral and parasitic diseases.
- Studying the Abnormal condition of food animals.
- Practical description and application of anti- mortem inspection and post- mortem inspection

2- Intended learning outcomes of the course (ILOs):

a- Knowledge and understanding

After successful completion of the course the students should be able to:

a.1- Specify the task of meat Hygiene.
a.2-Describe the different procedures of antimortem and postmortum examination.
a.3- Describe the different abattoir constructions.
a.4. Enumerate different methods of slaughter
a.5- Define and explain Affection of specific parts.
a.6- List the steps involved in rigor mortem.
a.7-Identify factors affecting rigor mortem.
a.8- Define and describe the types and number of lymph nodes in different species.

a.9- Define and illustrate the animal bleeding .
a.10- Enumerate factors affecting bleeding .
a.11- Describe the different bacteria which leads to food poisoning and its symptoms of poisoning with prevention and control of this bacteria.
a.12- Define and explain different methods of meat preservation

b- Intellectual skills

After successful completion of the course the students should be able to:
b.1- Distinguish well bled from ill bled slaughtered animals.
b.2- Evaluate the slaughtering process of the bled animals..
b.3- Compare between bleeding of slaughtered live(worm) and dead(cold) animals..
b.4- Interpret the signs of abnormal odour and color and their use in final judgment of carcass.
b.5- Correlate the steps of rigor mortis with meat quality.
b.6- Differentiate between ritual and non ritual slaughtering methods.
b.7- Link between the Pre-slaughter care at market and its effect on meat quality.
b.8- Suggest methods for Pre-slaughter care at abattoir.
b.9- Choose the most susceptible abattoir construction facilitate high performance and production rate

c- Professional and practical skills

After successful completion of the course the students should be able to:

c.1- Skills during sampling:

c.1.1- Collect samples at right time, right site, right condition and complete right data (case history &labeling of sample).
c.1.2- Preserve suspected carcasses and organ sample using suitable methods of preservation.
c.1.3- Prepare different forms of samples under complete aseptic conditions.

c.2- Skills during application Lab. Test of judgment of animal bleeding :

c.2.1- Prepare Chemical reagent of chemical tests .
c.2.2- Apply proper procedure of physical & Chemical tests to differentiate between well bled and ill bled slaughtered animals.
c.2.3- Detect results of tests.

c.3- Skills during application Lab. Test for detection of abnormal odour and color :

c.3.1- Apply boiling & Roasting and Rotheras test for detection of abnormal odour
c.3.2- Apply Rapid phase ,Martins and alcohol ether tests detection of abnormal color .
c.3.3- Detect results of tests and give judgment.

c.4- Skills during application Lab. Test for measurement of pH of muscle:

c.4.1- Manipulate different equipments used in measurement of pH of muscle.
c.4.2- Identify different methods used in measurement of pH of muscle.

c.4.3- Standardize pH meter in buffer solution .
c.4.4- Examine and detect the changes in pH of muscle in normal and abnormal (spoiled)meat.
c.4.5- Describe change of color of colorimetric method used in measurement of pH of muscle with change of pH degree during different phases of rigor mortis.

c.5- Skills during application Lab. Test for detection of inhibitory substances:

c.5.1-identify the different significances of inhibitory substances.
c.5.2-prepare test strain and media.
c.5.3-applly technique used for detection of inhibitory substances
c.5.4-Describe results and give judgments.

c.6- Skills during application of Lab. Test for detection of meat borne parasites:

c.6.1- identify the different meat borne parasites .
c.6.2-examine meat for presence of viable cysticerci.
c.6.3- examine meat for presence of trichenella spiralis.
c.6.4- examine meat for presence of sarcosporidia.

c.7- Skills during application of Lab. Test for detection of freshness of meat:

c.7.1- Describe organoleptic changes in spoiled meat.
c.7.2- Apply bacteriological techniques used for detection of spoilage of meat.

C.8.- Skills during application of Lab. Test for identification of animal species :

c.8.1- differentiate among carcasses of slaughtered animal.
c.8.2- identify different significances of stamping.
c.8.3-differntiate meat cuts and organs of different species.
c.8.4- biological differentiation of meat cuts and organs of different species.
c.8.5- Chemical differentiation of meat cuts and organs of different species.

c.9- Skills during bacteriological examination of carcass :

c.9.1- Collect samples and site of samples collection from slaughtered animals for bacteriological examination.
c.9.2- Apply proper procedure to obtain samples from slaughtered animals for bacteriological examination.
c.9.3- Detect results and judgment of obtained samples.

c.10- Skills during application control of hygienic measures:

c.10.1- Apply different methods for evaluation of hygienic measures in surface of laboratory or food.
c.10.2- Apply Total bacterial count, TEC , Resazurine cystien HCL strip method and procedures of isolation of *E.coli* and Salmonella from food .
c.10.3- Detect results of tests and give judgment

d- General and transferable skills

After successful completion of the course the students should have the following skills
d1- Work under pressure and / or contradictory condition in contain codes

d2- Communicate verbally and non-verbal with lecturers and class-mates
d3- Function in a multidisciplinary team during conducting a research paper.
d4- Search and presentation skill.
d5- Interact with other graduates all over the world.

3- Course contribution in the program ILOs:

Course ILOS		Program ILOS
A	**Knowledge and understanding**	$a^{13,14}$
B	**Intellectual skills**	b^{10}
C	**Professional and practical skills**	c^{12}
D	**General and transferable skills**	$d^{1,2,3,5,6}$

3.1- Course contents:

Topic	**Lecture hours**	**Practical hours**
Introduction of meat hygiene	2	-
Abattoirs	2	2
Pre-slaughter care	2	-
Ante-mortem inspection	2	2
Methods of slaughter	2	2
Bleeding	2	-
Post-mortem examination	-	6
Meat chemistry and composition	4	4
Abnormal condition of food animals	4	4
Bacterial, viral and parasitic diseases	6	4
Affection of specific parts	2	4
Midterm exam	**2**	**-**
Practical exam	**-**	**2**
Total	**30**	**30**

The midterm and practical exams are included during the semester

3.2- ILOs matrix:

Topic	A) Knowledge and understanding	B) Intellectual skills	C) Professional and practical skills	D) General and transferable skills
Introduction of meat hygiene	**a1,**	-	-	d1
Abattoirs	**a3**	**b9,**	c1,c2,	d2 to d5
Preslaughter care	**a1**	**b7, b8**	-	d2 to d5
Ante-mortem inspection	**a2,**	**b2, b3,**	c1,c2,	d2 to d5
Methods of slaughter	**a4**	**b6,**	c1,c2,	d2 to d5
Bleeding	**a9, a10**	**b1, b2, b3**	c1,c2,	d2 to d5
Post-mortem	**a2, a6,a7,a8**	**b4,b5,**	c1,c2,c3,c4,c5,c6,c7	d2 to d5

examination			,c8,c9,c10,	
Meat chemistry and composition	**a2, a6,a7,a8**	**b4,b5,**	c1,c2,c3,c4,c5,	d2 to d5
Abnormal condition of food animals	**a2, a6,a7,a8**	**b4,b5,**	c1,c2,c3,c4,c5,	d2 to d5
Bacterial, viral and parasitic diseases	**a11**	**b4,**	c1,c2,c3,c4,c5,c6, c9,c10,	d2 to d5
Affection of specific parts	**a5**	**b3,b4,**	c1,c2,c3,c4,c5,c6,c7 ,c8,c9,c10	d2 to d5

4- Teaching, learning and assessment methods:

ILOs		Teaching and Learning methods							assessment method				
		L	P&M	D&S	P	Ps	Bs	Av	semester	midterm	oral	practical	written
Knowledge and understanding	a1	x	x	x	0	0	x	0	x	x	x	0	x
	a2	x	x	x	0	0	x	0	x	x	x	0	x
	a3	x	x	x	0	0	x	x	x	x	x	0	x
	a4	x	x	x	0	0	x	x	x	x	x	0	x
	a5	x	x	x	0	0	x	x	x	0	x	0	x
	a6	x	x	x	0	0	x	x	x	0	x	0	x
	a7	x	x	x	0	0	x	x	x	0	x	0	x
	a8	x	x	x	0	0	x	x	x	0	x	0	x
	a9	x	x	x	0	0	x	x	x	0	x	0	x
	a10	x	x	x	0	0	x	x	x	0	x	0	x
	a11	x	x	x	0	0	x	x	x	0	x	0	x
	a12	x	x	x	0	0	x	x	x	0	x	0	x
Intellectual skills	b1	x	x	x	0	x	x	x	x	x	x	0	x
	b2	x	x	x	0	x	x	x	x	x	x	0	x
	b3	x	x	x	0	x	x	x	x	x	x	0	x
	b4	x	x	x	0	x	x	x	x	x	x	0	x
	b5	x	x	x	0	x	x	x	x	x	x	0	x
	b6	x	x	x	0	x	x	x	x	x	x	0	x
	b7	x	x	x	0	x	x	x	x	x	x	0	x
	b8	x	x	x	0	x	x	x	x	x	x	0	x
	b9	x	x	x	0	x	x	x	x	x	x	0	x
Professional and practical skills	c1	0	x	0	x	x	x	x	x	0	x	x	x
	c2	0	x	0	x	x	x	x	x	0	x	x	x
	c3	0	x	0	x	x	x	x	x	0	x	x	x
	c4	0	x	0	x	x	x	x	x	0	x	x	x
	c5	0	x	0	x	x	x	x	x	0	x	x	x
	c6	0	x	0	x	x	x	x	x	0	x	x	x
	c7	0	x	0	x	x	x	x	x	0	x	x	x
	c8	0	x	0	x	x	x	x	x	0	x	x	x
	c9	0	x	0	x	x	x	x	x	0	x	x	x
	c10	0	x	0	x	x	x	x	x	0	x	x	x
General skills	d1	x	0	0		0	0	0	x	0	x	0	x
	d2	x	0	0	x	0	0	0	x	0	x	0	x

	d3	x	x	0	x	0	0	0	x	0	x	0	x
	d4	x	x	x	0	0	0	0	x	0	x	0	x
	d5		0	0	0	0	0	0	x	0	x	0	x

L **:Lecture,** P&M**: Presentations & Movies,** D&S: **Discussions & Seminars PT: Practical training,** Ps: **Problem solving,** Bs: **Brain storming, Av: abattoir visit**

5- Assessment timing and grading:

Assessment method	timing	grade
Mid-term exam and semester work	6th week	15
Practical exam	14th week	20
oral exam	End of semester	15
Written exam	End of semester	50
total		100

6- List of references

6.1- Course notes:

A concise guide of meat hygeine edited by staff members

6.2- Essential books (text books)

- Bn Kowale (2008) Methods in Meat Science
- Potter, N.N. (2001) Food science

6.3- Recommended books

- Course note
- Bn Kowale (2008) Methods in Meat Science.

6.4- Periodicals, Web sites, . . . etc

- J. of food protection.
- J. of food technology
- Benha veterinary medical journal
- www.WHO.int.org
- www.ekb.eg

7- Facilities required for teaching and learning

- Teaching hall (Data show and White board)
- Equipped Department laboratory
- Farm animal education
- Central laboratory.

Course coordinator: **Prof Dr** HEMMAT MOSTAFA IBRAHIM

Head of department **Prof Dr MOHAMED AHMED MOHAMED**

Signature …… Date 1/10/2019