COURSE LEARNING PLAN

	UNIVERSITY OF BRAWIJAYA FACULTY OF ANIMAL SCIENCE DEPARTMENT OF ANIMAL SCIENCE UNDERGRADUATE STUDY PROGRAM OF ANIMAL SCIENCE LEARNING PLAN OF EVEN SEMESTER OF 2019/2020

Course	Code	Weight (credits)	Semester	Compilation Date
Quality Control and Assurance	PET60011	2-1	Even in 2019/2020	January 7, 2020

Authorization	Course Coordinator	Ka PS S1	Vice Dean 1
	Prof. Dr.Ir. Lilik Eka Radiati MS.	Dr. Herly Evanuarini, S.Pt, MP.	Dr. Ir. M. Halim Natsir, S.Pt., MP., IPM., ASEAN Eng.

Learning Outcomes (LO)	PLO
	After taking this course, the students are expected to be: LO 5: Able to implement and evaluate effective and efficient animal production systems, both individually and in teamwork with a multidisciplinary approach, and are responsible for the achievement of organizational work LO 6: Able to show performance, both independently and in teamwork (inter- and multi-disciplinary), identify and analyze to solve problems in quality and measurable way LO 7: Able to provide alternative solutions to various problems that arise in the community, nation, country, and world
	CLO

	1. Know and understand the quality standardization in the field of animal science 2. Understand the quality management system including ISO 9000, IS0 14000, and ISO 22000 3. Analyze the application of Hazard Analysis Critical Control Point (HACCP) and monitoring the HACCP system. 4. Provide skills in making the Compilation of Quality Assurance Plans and compiling ISO documents	
Brief Course Description	The Quality Control course discusses 1) Definition of quality, classification, quality components, quality policies, including codex, ISO-9000, SNI, and GMP (Good Manufacturing Practices), 2) Assessment of permissible *(halal),* expired, organoleptic food quality control and quality control of types of raw materials and processed products.	
Topics	1. Development of the quality system 2. Indonesian National Standard (SNI) 3. Veterinary Control Number (VCN) 4. Quality management system - SNI ISO 9001:2015 5. Environmental management system - ISO 14000 6. Food safety management system - ISO 22000 7. Permissible *(halal)* product guarantee system 8. Determining the shelf life	
References	British Retail Consortium (BRC) Global Standard for Food Safety: Issue 5. TSO. Norwich, United Kingdom. Mudambi, S.R., S.M. Rao and M.V. Rajagopal. 2006. Food Science. New Age International Publishers. New Delhi. Toldra, F. 215. Handbook of Fermented Meat and Poultry. 2nd Ed. Wiley Blackwell. UK. Arvanitoyannis, I.S., 2009. HACCP and ISO 22000 Application to Food of Animal Origin. First Edition. Wiley Blackwell. USA Pieternel A. Luning, W. J. Marcelis, W. M. F. Jongen. 2002. Food Quality Management: A Techno-managerial Approach. Wageningen Academic Publishers, 2002 - 323 pages. Dhanasekharan Natarajan. 2017. ISO 9001 Quality Management Systems (Management and Industrial Engineering) 1st ed. 2017 Edition Springer. Bizmanualz. 2008. ISO 22000 Standard Procedures for Food Safety Management Systems. Bizmanualz, Inc. 392 pages.	
Learning Media	Software	Hardware
	Video	LCD Laptop/Computer

Teaching Team	1. Prof. Dr.Ir. Lilik Eka Radiati MS. 2. Dr. Herly Eva Nuarini, SPt., M.P. 3. Dr. Ir. Purwadi, MS. 4. Prof. Dr. Ir. Djalal Rosyidi, MS 5. Dr. Ir. Imam Thohari, MP. 6. Dr. Agus Susilo, S.Pt., MP. 7. Dr. Ir. Mustakim, MP. 8. Dr. Khotibul Umam Al-Awwaly, S.Pt., M.Si. 9. Dr. Ir. Manik Erry Sawitri, MP. 10. Dr. Abdul Manab, S.Pt, MP 11. Dr. Dedes Amertaningtyas, S.Pt, MP 12. Dr. Premy Puspitawati Rahayu, S.Pt, MP 13. Ria Dewi Andriani, S.Pt, M.Sc 14. Mulia Winirsya Apriliyani, S.Pt, MP 15. Dicky Tri Utama, S.Pt., PhD
Prerequisite Courses	Microbiology, Biochemistry, Introduction to Animal Product Technology

Week	Sub-CLO	Indicator	Learning Materials / Topics	Learning Methods	Criteria & Form of Assessment	Weighted Score (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Able to explain the development of the quality system coherently and correctly	Correct understanding of the development of the quality system	Development of the quality system	Lectures and demonstrations on the development of the quality system	● Get to know group members and get to know other groups ● Ability to explain the development of the quality system coherently and correctly	5

2	Able to explain the Indonesian National Standard (SNI)	Correct understanding of the Indonesian National Standard, including the definition, types of SNI (systems and products) and Codex	● Indonesian National Standard (SNI) ● Definition of SNI ● Types of SNI (systems and products) ● Codex	● Lectures ● Discussions ● Group assignment: provide examples of SNI for animal products	● Able to understand the quality system based on standards ● Able to explain and identify product quality based on standards	5
3	Able to understand the Veterinary Control Number (NKV)	Correct understanding of the Veterinary Control Number (NKV)	Veterinary Control Number (VCN) Regulation of the Minister of Agriculture number: 381/Kpts/OT.140/10/2005	● Lectures ● Discussions	● Able to understand the applicable regulations on NKV	5
4	Able to understand the quality management system of SNI ISO 9001:2015	Correct understanding of the quality management system of SNI ISO 9001:2015, including the Definition of ISO, History of ISO, Benefits of ISO, Structure of Quality Management System.	Quality management system - SNI ISO 9001:2015 ● Definition of ISO ● History of ISO ● Benefits of ISO ● Structure of the Quality Management System	● Lectures ● Discussions	● Ability to understand quality management in the animal industry	7.5
5	Able to explain the quality management system - SNI ISO 9001:2015 correctly	Correct understanding of the quality management system of SNI ISO 9001:2015, including Eight principles of	Quality management system - SNI ISO 9001:2015 ● Eight principles of ISO quality management	Group Assignment	Able to explain the quality management system of SNI ISO 9001:2015	7.5

		ISO quality management, Process approach, Continuous improvement, Requirements for the quality management system, ISO clauses	● Process approach ● Continuous improvement ● Requirements for quality management system ● ISO clauses			
6	Able to explain the quality management system - SNI ISO 14000 correctly	Correct understanding of the quality management system of SNI ISO 14000, including Introduction to environmental management systems, Interpretation of environmental management systems, and ISO Clauses	Environmental management system - ISO 14000 ● Introduction to environmental management systems ● Interpretation of environmental management systems ● ISO Clauses	● Lectures ● Discussions	Ability in understanding the quality management system of SNI ISO 14000, including Introduction to environmental management systems, Interpretation of environmental management systems, and ISO Clauses	7.5
7	Able to explain the quality management system - SNI ISO 14000 correctly	Correct understanding of the quality management system of SNI ISO 14000, including Identification of environmental aspects and impacts and Legislative requirements related to ISO	Environmental management system - ISO 14000 ● Identification of environmental aspects and impacts ● Legislative requirements related to ISO	Group Assignment	Able to understand ISO 14000, including Identification of environmental aspects and impacts and Legislative requirements related to ISO	7.5

8	MIDTERM EXAM					
9	Able to explain the food safety management system - ISO 22000 correctly	Able to explain the food safety management system - ISO 22000 correctly, including the Standard scope requirements, integrated food safety management systems (HACCP, GMP, SSOP, hygiene and sanitation)	Food safety management system - ISO 22000 ● Standard scope requirements ● Integrated food safety management systems (HACCP, GMP, SSOP, hygiene and sanitation)	● Lectures ● Discussions	Able to explain the food safety management system - ISO 22000	7.5
10	Able to explain the food safety management system - ISO 22000 correctly	Able to explain the food safety management system - ISO 22000 correctly, including the Understanding and interpreting of the food safety system and its implementation	Food safety management system - ISO 22000 ● Understanding and interpreting the food safety system ● The implementation	● Lectures ● Discussions	● Able to understand the food safety management system - ISO 22000 ● Able to compile ISO documents	10
11	Able to explain the food safety management system - ISO 22000 correctly	Able to explain the food safety management system - ISO 22000 correctly, including the Benefits of implementing food safety in the organization and Development of a food safety system	Food safety management system - ISO 22000 ● Benefits of implementing food safety in the organization ● Development of a food safety system	Group Assignment: Prepare RKJM documents based on the given topic	● Able to compile RKJM documents	10

		based on ISO standards	based on ISO standards ● Quality Assurance Work Plan (RKJM)			
12	Able to explain the permissible *(halal)* management system of SNI 99001: 2016 properly and correctly	Correct understanding of the permissible (halal) management system of SNI 99001: 2016	Permissible *(halal)* product guarantee system ● The permissible (halal) management system of SNI 99001: 2016	● Lectures ● Discussions	Able to understand the permissible *(halal)* management system	5
13	Able to explain the determination of critical points of animal products properly and correctly	Correct understanding of the determination of critical points of animal products	Permissible *(halal)* product guarantee system ● The determination of critical points for animal products	● Small project	Able to analyze related critical points of animal products	7.5
14	Able to explain the determination of critical points of animal products properly and correctly	Correct understanding of the Determination of Expiry of Animal Products and Regulations and Method of Labeling Expiry Time	Determining the shelf life ● Determination of Expiry of Animal Products ● Regulations and Method of Labeling Expiry Time	● Lectures ● Discussions	Able to understand the method of determining the shelf life of a product	7.5
15	Able to explain the Reaction Deterioration, Expiry Criteria, and Shelf Life Model Formulation properly and correctly	Correct understanding of the Reaction Deterioration, Expiry Criteria, and Shelf Life Model Formulation	Determining the shelf life ● Reaction Deterioration ● Expiry Criteria ● Shelf Life Model Formulation	● Seminar	Able to determine the expiration of animal products using several methods described in the lecture	7.5
16	FINAL EXAM					

ASSESSMENT RUBRIC

	UNIVERSITY OF BRAWIJAYA FACULTY OF ANIMAL SCIENCE DEPARTMENT OF ANIMAL SCIENCE UNDERGRADUATE STUDY PROGRAM OF ANIMAL SCIENCE		
Course	Quality Control and Assurance		
Score Level	PLO and CLO	Conversion	PLO Score
PLO 5: Able to implement and evaluate effective and efficient animal production systems, both individually and in teamwork with a multidisciplinary approach, and are responsible for the achievement of organizational work CLO 1: Know and understand the quality standardization in the field of animal science			
Very Good (4)	Showing an understanding of quality standardization in the field of animal science **very well** 1. Awareness of quality control documents 2. Identifying problems/criteria in document preparation (introduction to normative references relating to quality control) 3. Compiling quality control documents (MM, RKJM, SOP, IK) 4. Implementation of quality control documents	>80-100	1
Good (3)	Showing an understanding of quality standardization in the field of animal science **well** 1. Awareness of quality control documents	>70-80	0.75

	2. Identifying problems/criteria in document preparation (introduction to normative references relating to quality control) 3. Compiling quality control documents (MM, RKJM, SOP, IK)		
Moderate (2)	Showing an understanding of quality standardization in the field of animal science **limitedly** 1. Awareness of quality control documents 2. Identifying problems/criteria in document preparation (introduction to normative references relating to quality control)	>60-70	0.50
Poor (1)	Showing an understanding of quality standardization in the field of animal science **very limitedly** 1. Awareness of quality control documents	≤60	0.25
Score Level	PLO and CLO	Conversion	PLO Score
PLO 5: Able to implement and evaluate effective and efficient animal production systems, both individually and in teamwork with a multidisciplinary approach, and are responsible for the achievement of organizational work CLO 2: Understand the quality management system including ISO 9000, IS0 14000, and ISO 22000			
Very Good (4)	Showing an understanding of quality management system including ISO 9000, IS0 14000, and ISO 22000 **very well** 1. Awareness of quality control documents 2. Identifying problems/criteria in document preparation (introduction to	>80-100	1

	normative references relating to quality control) 3. Compiling quality control documents (ISO) 4. Implementation of quality control documents		
Good (3)	Showing an understanding of quality management system including ISO 9000, IS0 14000, and ISO 22000 **well** 1. Awareness of quality control documents 2. Identifying problems/criteria in document preparation (introduction to normative references relating to quality control) 3. Compiling quality control documents (ISO)	>70-80	0.75
Moderate (2)	Showing an understanding of quality management system including ISO 9000, IS0 14000, and ISO 22000 **limitedly** 1. Awareness of quality control documents 2. Identifying problems/criteria in document preparation (introduction to normative references relating to quality control)	>60-70	0.50
Poor (1)	Showing an understanding of quality management system including ISO 9000, IS0 14000, and ISO 22000 **very limitedly** 1. Awareness of quality control documents	≤60	0.25
Score Level	PLO and CLO	Conversion	PLO Score

PLO 7: Able to provide alternative solutions to various problems that arise in the community, nation, country, and world CLO 3: Analyze the application of Hazard Analysis Critical Control Point (HACCP) and monitoring the HACCP system			
Very Good (4)	Able to analyze the application of Hazard Analysis Critical Control Point (HACCP) and monitoring the HACCP system **very well** 1. Awareness of quality control documents 2. Identifying problems/criteria in document preparation (introduction to normative references relating to quality control) 3. Compiling quality control documents (HCCP) 4. Implementation of quality control documents	>80-100	1
Good (3)	Able to analyze the application of Hazard Analysis Critical Control Point (HACCP) and monitoring the HACCP system **well** 1. Awareness of quality control documents 2. Identifying problems/criteria in document preparation (introduction to normative references relating to quality control) 3. Compiling quality control documents (HCCP)	>70-80	0.75
Moderate (2)	Able to analyze the application of Hazard Analysis Critical Control Point (HACCP) and monitoring the HACCP system **limitedly** 1. Awareness of quality control documents	>60-70	0.50

	2. Identifying problems/criteria in document preparation (introduction to normative references relating to quality control)		
Poor (1)	Able to analyze the application of Hazard Analysis Critical Control Point (HACCP) and monitoring the HACCP system **very limitedly** 1. Awareness of quality control documents	≤60	0.25
Score Level	PLO and CLO	Conversion	PLO Score
PLO 5: Able to implement and evaluate effective and efficient animal production systems, both individually and in teamwork with a multidisciplinary approach, and are responsible for the achievement of organizational work PLO 6: Able to show performance, both independently and in teamwork (inter- and multi-disciplinary), identify and analyze to solve problems in a quality and measurable way CLO 4: Provide skills in making the Compilation of Quality Assurance Plans and compiling ISO documents			
Very Good (4)	Showing abilities in making the Compilation of Quality Assurance Plans and compiling ISO documents **very well** 1. Compilation of documents 2. Implementation 3. Evaluation 4. Corrective Action	>80-100	0.50
Good (3)	Showing abilities in making the Compilation of Quality Assurance Plans and compiling ISO documents **well** 1. Compilation of documents 2. Implementation	>70-80	0.375

	3. Evaluation		
Moderate (2)	Showing abilities in making the Compilation of Quality Assurance Plans and compiling ISO documents **limitedly** 1. Compilation of documents 2. Implementation	>60-70	0.25
Poor (1)	Showing abilities in making the Compilation of Quality Assurance Plans and compiling ISO documents **very limitedly** 1. Compilation of documents	≤60	0.125

Formula to Calculate PLO Score: $\frac{Level\ Skor}{\sum level\ skor} \times \frac{\sum CLO}{\sum PLO}$

CLO Score Calculation

Assessed components	Component Weights	CLO Weight on the Score				
		CLO 1	CLO 2	CLO 3	CLO 4	
Midterm Exam	25	50	50			100
Final Exam	25			50	50	100
Practicum	25	10	20	30	40	100
Assignment	15	25	25	25	25	100
Quiz	5	40	20	20	20	100
Activeness	5	20	20	30	30	100
CLO WEIGHT						

PLO Score Calculation (Adjusted to the above table)

CLO	CLO Score	CLO Weight	PLO		
			PLO 5	PLO 6	PLO 7
CLO 1			40	30	30
CLO 2			40	30	30
CLO 3			25	35	40
CLO 4			25	35	40

Basic Format for the Lecture Portfolio

UNIVERSITY OF BRAWIJAYA **FACULTY OF ANIMAL SCIENCE** **STUDY PROGRAM OF ANIMAL SCIENCE**			
Course: Quality Control and Assurance	Code: PET60011	RMK:	Semester: 5
Lecturers	1. Prof. Dr.Ir. Lilik Eka Radiati MS. 2. Dr. Herly Eva Nuarini, SPt., M.P. 3. Dr. Ir. Purwadi, MS. 4. Prof. Dr. Ir. Djalal Rosyidi, MS 5. Dr. Ir. Imam Thohari, MP. 6. Dr. Agus Susilo, S.Pt., MP. 7. Dr. Ir. Mustakim, MP. 8. Dr. Khotibul Umam Al-Awwaly, S.Pt., M.Si. 9. Dr. Ir. Manik Erry Sawitri, MP. 10. Dr. Abdul Manab, S.Pt, MP 11. Dr. Dedes Amertaningtyas, S.Pt, MP 12. Dr. Premy Puspitawati Rahayu, S.Pt, MP 13. Ria Dewi Andriani, S.Pt, M.Sc 14. Mulia Winirsya Apriliyani, S.Pt, MP 15. Dicky Tri Utama, S.Pt., PhD		
Introduction (Describe the explanation needed about this course, the experiences that have been encountered) The Quality Control course discusses 1) Definition of quality, classification, quality components, quality policies, including codex, ISO-9000, SNI, and GMP (Good Manufacturing Practices), 2) Assessment of permissible (halal), expired, organoleptic food quality control and quality control of types of raw materials and processed products.			

1	**Objectives** (Describe general and specific course objectives)
	The objectives of presenting the TLT Course are able to: 1. Know and understand the quality standardization in the field of animal science 2. Understand the quality management system including ISO 9000, IS0 14000, and ISO 22000 3. Analyze the application of Hazard Analysis Critical Control Point (HACCP) and monitoring the HACCP system. 4. Provide skills in making the Compilation of Quality Assurance Plans and compiling ISO documents
2	**Learning Strategies** (Describe the strategy used to achieve the course objective - CLO)
	The learning strategies carried out in lectures include providing lectures, discussions, structured assignments, quizzes, and group presentations. Interactive discussions are carried out between students and lecturers to find out the extent of their understanding regarding the Quality Control course, explore student understanding, and understanding student difficulties in participating in learning activities.
3	**Lecture Management** (Describe the lecture management: lectures, tutorials, practicum, assignments, major assignments, etc.)
	1. Lecture: 100 minutes/meeting (14 meetings) 2. Practicum of 150 minutes/meeting (14 meetings) 3. Structured assignments/quizzes/group presentation 4. Attendance: 80% of total attendance
4	**Lecture Contents** (explain its suitability with the applicable curriculum)
	1. Development of the quality system 2. Indonesian National Standard (SNI) 3. Veterinary Control Number (VCN) 4. Quality management system - SNI ISO 9001:2015 5. Environmental management system - ISO 14000 6. Food safety management system - ISO 22000 7. Permissible *(halal)* product guarantee system 8. Determining the shelf life
5	**Lecture Participants** (provide an overview of the lecture participants)

	The lecture participants are 5th semester students
6	**Attendance Percentage** (% lecturer attendance; % student attendance)
	% lecturer attendance: 100% % student attendance: 80%
7	**Evaluation System** (explain the homework, quizzes, group assignments, practicum, etc.)
	1. Midterm Exam 25% 2. Final Exam 25% 3. Practicum 25% 4. Assignment 15% 5. Quiz 5% 6. Activeness 5%
8	**Class Observation** (provide an overview of the main obstacles in the learning process)
	1. The class meeting will discuss the assignments that have been given to each group based on predetermined topics. Active students: proven by their enthusiasm in delivering the results of assignments and active discussions with other members in discussing the topic, and the students seem to have learned and understood the topic presented. The students who get the reward will be announced in the class to motivate other friends to be more diligent and serious in doing their work. 2. The lecturers reflect on the material presented, so that they know the students' response to what has been presented, and can find out whether the students understand what has been discussed or not. The students' response is very important to determine whether the lecturers' strategy in teaching is proper or not. 3. The things that have been achieved by the students in the class need to be considered, whether the learning strategies carried out have been able to achieve CLO in the Quality Control course or not. The observations that need to be made include: 1. Prerequisite 2. GPA

	3. Google form --- pretest on the students' interest (not the material) so that the lecturers know what to do with the conditions of the students in their class
9	**Learning Outcomes** (explain the achievement of the objectives that have been set, also include the learning achievements that can be explained)
	The expected learning outcomes include: 1. LO 5: Able to implement and evaluate effective and efficient animal production systems, both individually and in teamwork with a multidisciplinary approach, and are responsible for the achievement of organizational work 2. LO 6: Able to show performance, both independently and in teamwork (inter- and multi-disciplinary), identify and analyze to solve problems in quality and measurable way 3. LO 7: Able to provide alternative solutions to various problems that arise in the community, nation, country, and world
10	**Obstacles** (provide an overview of the main obstacles in the learning process)
	The obstacles in the implementation of this course were in terms of practicum, which was the limited laboratory facilities including equipment that needs to be improved to develop student skills and be able to achieve CLO in the Quality Control course.
11	**Score Distribution** (provide the score distribution following the learning achievements of this course)
	1. Midterm Exam 25% 2. Final Exam 25% 3. Practicum 25% 4. Assignment 15% 5. Quiz 5% 6. Activeness 5%
12	**Conclusion**
	The success of facilitating the students to achieve several LOs in the Quality Control course is as follows:

	1. LO 5: Able to implement and evaluate effective and efficient animal production systems, both individually and in teamwork with a multidisciplinary approach, and are responsible for the achievement of organizational work 2. LO 6: Able to show performance, both independently and in teamwork (inter- and multi-disciplinary), identify and analyze to solve problems in quality and measurable way 3. LO 7: Able to provide alternative solutions to various problems that arise in the community, nation, country, and world
13	**Improvement Recommendations**
	1. The students who passed each LO 5, LO 6, and LO 7 were almost 80% of the total students in the class. 2. The highest LO was obtained at LO 7 which referred to the development of a comprehensive insight and mindset in accordance with the science and the field of the animal industry. Then, it was followed by LO 5 and LO 6 which had the same score. LO that was difficult to achieve was due to the learning strategy that was not in accordance with the character of the students in the class, so it is necessary to make improvements to the learning process so that it can improve the achievement of the Quality Control course in this class.
	Appendices:
	1. Assignments 2. Quiz 3. The results of the learning process etc.