

SEMESTER COURSE PLAN (SCP)

**LIVESTOCK ENGINEERING
(23101121003)**



TEACHING TEAM :

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BACHELOR PROGRAMME IN ANIMAL HUSBANDRY
FACULTY OF ANIMAL SCIENCE
HASANUDDIN UNIVERSITY
MAKASSAR
2025

**BACHELOR PROGRAMME IN ANIMAL HUSBANDRY
FACULTY OF ANIMAL SCIENCE
HASANUDDIN UNIVERSITY**

Vision

Vision of the study program :

Becoming an international standard in livestock education provider based on the Indonesian Maritime Continent

Vision Strategic

In accordance with the vision, mission, and objectives that have been set, the Animal Husbandry Study Program of the Faculty of Animal Science sets the following objectives to be achieved:

- a. Improving the quality of learning implementation that is in line with the needs of industry and society based on research and international standards;
- b. Creating networks and partnerships in the development of Animal Husbandry science and technology and its utilization in the implementation of learning;
- c. Producing graduates who have character, vision, creativity and innovation in the field of animal husbandry science and technology with an entrepreneurial perspective.

Mission

The mission carried out in the implementation of the Bachelor of Animal Husbandry Study Program, Faculty of Animal Husbandry, Hasanuddin University is

- 1) Organizing quality learning to produce independent and globally competitive Animal Husbandry scholars.
- 2) Developing animal husbandry science for the benefit of the nation.
- 3) Providing a conducive academic climate for implementing education with an entrepreneurial perspective.

Graduate Profiles

No	Profile	Description
1	Manager	Graduates who apply concepts and techniques in managing livestock farming and institutions related to livestock businesses such as financial institutions
2	Young Researcher	Graduates who able to apply scientific concepts and methods in solving problems in the development of the field of Animal Husbandry
3	Planners	Graduates who able to prepare potential and problem analysis, as well as formulate plans and strategies for the development of the livestock and related industries
4	Educators	Graduates who have the ability and skills to transfer science and technology to students in the field of animal husbandry
5	Entrepreneur	Graduates who able to apply business in the field of Animal Husbandry as their main business, or business development to support livestock business
6	Bureaucrat	Graduates who are able to organize government duties, especially in the affairs of livestock development

Learning Outcomes imposed on the Course

ILO-7 (KK1) - Able to apply animal science and technology that is oriented towards increasing production, efficiency, quality and sustainability.

ILO-8 (KK2) - Able to synthesize production systems by integrating the field of Animal Science with other fields of science.

Course Learning Outcomes (CLO)

CLO-1: Describe the engineering of housing and equipment for beef cattle, dairy, goats, sheep and poultry (SLO7)

CLO-2: Describe the engineering of the feed and pasture industry (SLO7)

CLO-3: Describe the engineering of the transportation industry, abattoirs and livestock product processing (SLO8)

Sub-CLO

Sub-CLO-1: Describe the engineering of housing and equipment for beef and dairy cattle (CLO-1)

Sub-CLO-2: Describe the engineering of reproductive equipment for cattle and goats (CLO-1)

Sub CLO-3: Describe housing techniques and equipment for goats, sheep and poultry (CLO-1)

Sub-CLO 4: Describe the engineering of the animal feed and pasture industry (CLO-2)

Sub CLO-5: Describe the engineering of the transportation industry, abattoirs and processing of livestock products (CLO-3)

Learning Analysis

Livestock engineering



Describe the engineering of the transportation industry, abattoirs and processing of livestock products (CLO-3)



Describe the engineering of the animal feed and pasture industry (CLO-2)



Describe the engineering of livestock housing and equipment for goats, sheep and poultry (CLO-1)



Describe the engineering of cattle and goat reproduction equipment (CLO-1)



Describing housing engineering and equipment for beef and dairy cattle (CLO-1)

Have passed the subjects Basic HT Technology, Dairy Science, Beef Science, Poultry Science and Goat/Sheep Livestock



**HASANUDDIN UNIVERSITY
FACULTY OF ANIMAL SCIENCE
BACHELOR PROGRAMME IN ANIMAL HUSBANDRY
SEMESTER COURSE PLAN**

Course	Code	Course Group	Credit Points	Semester	Date of Preparation
Livestock Engineering	23101121003	Livestock Engineering	3	4	13 February 2025
Authority	Developer Lecturer		Course Coordinator	Head of study Program	
	Prof. Dr. Ir. Lellah Rahim, M.Sc., IPU, ASEAN Eng. Prof. Dr. Ir. Muhammad Yusuf, S.Pt., IPU. Dr. Wahniyathi, S.Pt., M.Si. Dr. Ir. Muhammad Ihsan Andi Dagong, S.Pt., M.Si, Dr. Agr. Ir. Renny Fatmyah Utamy, S. Pt., M. Agr., IPM		Prof. Dr. Ir. Lellah Rahim, M.Sc., IPU, ASEAN Eng.	Dr. Agr. Ir. Renny Fatmyah Utamy, S. Pt., M. Agr., IPM	
Course Learning Outcomes	ILOs that are imposed on the course				
	ILO-7	Able to apply animal science and technology that is oriented towards increasing production, efficiency, quality and sustainability.			
	ILO-8	Able to synthesize production systems by integrating the field of Animal Science with other fields of science			
	ILO⇒ Course Learning Outcomes (CLO)				
	Upon completion of this course, it is expected that:				
	ILO-7	ILO-1: Describe the housing engineering and equipment of beef cattle, dairy, goats, sheep and poultry.			
	ILO-8	CLO-2: Describe the engineering of the feed and pasture industry			
		CLO-3: Describe the engineering of the transportation industry, abattoirs and processing of livestock products			
	CLO⇒ Sub-CLOs				
	ILO 1	SUB-CLO-1: Describe the engineering of housing and equipment for beef and dairy cattle			
SUB-CLO-2: Describe the engineering of cattle and goat reproduction equipment					

	SUB-CLO-3: Describe housing engineering and equipment for goats, sheep, and poultry.
	SUB-CLO-4: Describe the engineering of the animal feed and pasture industry
	SUB-CLO 5: Describe the engineering of the transportation industry, abattoirs and processing of livestock products

Correlation between ILOs/CLOs to Sub-CLOs

ILOs that are imposed on the course	ILO	SUB CLO	Form Assessment+			Weight	Value	Student Score
			Formative	Summative				
				Task Paper Individual	Group Presentation			
ILO-7	CLO-1	SUB-CLO-1	Questions and answers/discussion and presentation material and questions and answers	12	0	0	20	
ILO-7	CLO-1	SUB-CLO-2		12.5	8	7.5	20	
ILO-7	CLO-1	SUB-CLO-3		12.5	0	7.5	20	
ILO-7	CLO-2	SUB-CLO-4		12.5	0	7.5	20	
ILO-8	CLO-3	SUB-CLO-5		12.5	0	7.5	20	
				62	8	30	100	

Course Description	This course discusses: Beef cattle, dairy, closed house, modern poultry, hatchery industry, livestock transportation industry, slaughterhouse, and livestock product processing.
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Learning Materials / Subject Matter	<ol style="list-style-type: none"> 1. Housing engineering and equipment for beef and dairy cattle 2. Engineering of reproductive equipment for cattle and goats 3. Housing engineering and equipment for goats, sheep and poultry 4. Feed and pasture industry engineering 5. Transportation, abattoir and livestock processing industry engineering
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Reference	Key Reference
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		<ol style="list-style-type: none"> 1. Barbut, S. 2002. Poultry Products Processing: An Industry Guide. CRC. Press, Boca Raton, Florida, USA. 2. Charles, D. R., H. A. Elson, and M. P. Haywood. 1994. Poultry Housing, p. 249-272. In: C. M. Walthes and D. R. Charles (eds.). Livestock Housing. CAB International, Wallingford, UK. 3. Gillespie, J. R. 2002. Modern Livestock and Poultry Production. 6th ed. Thomson Learning, Inc., Columbia, USA. 4. Mohamed Samer. 2022. Poultry Farms: Housing Systems, Mechanization, and Technology. https://www.researchgate.net/publication/221705093 2002. DOI: 10.13140/RG.2.1.2599.3766 5. Grandin, T. 2014. Livestock handling and transport. Department of Animal Sciences, Colorado State University, Fort Collins, CO 80523-1171, USA. ISBN. 781780643212 6. Myer Kutz. 2019. Handbook of Farm, Dairy and Food Machinery Engineering.3rd Edition. Academic Press. ISBN: 9780128148037 					
		Additional Reference					
		<ol style="list-style-type: none"> 1. Mohamed Samer. 2003. Physical Alleviation for Dairy Cows. tps://www.researchgate.net/publication/221705094. DOI: 10.13140/RG.2.1.1288.6561 2. Aberle, ED., Forrest, J.C., Gerrard, D.E., and Mills, E.W. 2012. Principle of Meat Science. 5th Edition. Kendall Hunt Pub Co. San Fransisco. 3. R Paul Singh and Dennis Heldman. 2013. Introduction to Food Engineering 5th Edition. Academic Press. eBook ISBN: 9780124016750 4. Filmer, D. 2002. Automation is the future for broiler nutrition. World Poultry, 18(6): 33-35. 5. Battaglia, R. A. 2001. Handbook of Livestock Management. 3rd ed. Prentice Hall, Inc., Upper Saddle River, New Jersey, USA. Blount, W.P. (2013). Intensive Livestock Farming. Elsevier. pp. 360–62. ISBN 978-1-4831-9565-0. 					
Teaching Team		Prof. Dr. Ir. Lellah Rahim, M.Sc., IPU, ASEAN Eng. Prof. Dr. Ir. Muhammad Yusuf, S.Pt., IPU. Dr. Wahniyathi, S.Pt., M.Si. Dr. Ir. Muhammad Ihsan Andi Dagong, S.Pt., M.Si, Dr. Agr. Ir. Renny Fatmyah Utamy, S. Pt., M. Agr., IPM					
Course requirements		Dairy Livestock Production					
Week	Sub CLO (End ability of each learning stage)	Assesment		Forms and Methods of Learning [time estimate]		Learning Material (Content)	Weight of Assesment (%)
		Indicator	Technique & Criteria	Offline	Online		
1	2	3	4	5	6	7	8

1-4	Describe housing engineering and equipment for beef and dairy cattle (CLO-1)	<p>Formative: Activeness in following the discussion and presentation process group</p> <p>Summative: Accuracy of description of concrete examples beef and dairy cattle housing and equipment</p>	<p>Criteria Formative: Questions and answers/discussion presentation material and questions and answers</p> <p>Criteria Summative: Task Paper Individuals (12) Group Presentation (8)</p> <p>Assessment Technique: Test and Non-Test</p>	<p>Studying: Cooperative learning 1 x 3 x 50'</p> <p>Lecture: Project-based Learning 3 x 3 x 50'</p>	<p>Learning Contract</p> <p>Forms and types of beef and dairy cattle pens (conventional and modern)</p> <p>Equipment of beef and dairy cattle housing (conventional and modern)</p> <p>Meat processing equipment (cutting, grading and storage)</p> <p>Dairy processing equipment (milking, processing and storage)</p>	20
5-7	Describe the engineering of reproductive equipment for cattle and goats (CLO-1)	<p>Formative: -</p> <p>Summative: Accuracy of lay out drawings and descriptions of reproductive equipment of cattle and goats</p>	<p>Criteria Formative:</p> <p>Criteria Summative: Task Paper Individuals (12.5) Practicum/Field Practice (7.5)</p> <p>Assessment Technique: Test and Non-Test</p>	<p>Studying: Case Study 3 x 3 x 50'</p> <p>Practicum, Studio Practice, Workshop Practice, Field Practice: Project-based Learning 3 x 1 x 170'</p>	Reproductive equipment for cattle and goats	20

8-10	Describe housing techniques and equipment for goats, sheep and poultry (CLO-1)	<p>Formative: -</p> <p>Summative: Accuracy of lay out / drawing of cages and equipment for goats, sheep and poultry</p>	<p>Criteria Formative:</p> <p>Criteria Summative: Task Paper Individuals (12.5) Practicum/Field Practice (7.5)</p> <p>Assessment Technique: None</p>	<p>Studying: Case Study 3 x 3 x 50'</p> <p>Practicum, Studio Practice, Workshop Practice, Field Practice: Project-based Learning 3 x 1 x 170'</p>		<p>Conventional and modern forms of cages for goats, sheep and poultry (laying and slaughtering)</p> <p>Equipment for goat, sheep and poultry cages</p>	20
11-13	Describe the engineering of the animal feed and pasture industry (CLO-2)	<p>Formative: -</p> <p>Summative: Accuracy of lay out and drawing of equipment of animal feed and pasture industry</p>	<p>Criteria Formative:</p> <p>Criteria Summative: Task Paper Individuals (12.5) Practicum/Field Practice (7.5)</p> <p>Assessment Technique: None</p>	<p>Studying: Case Study 3 x 3 x 50'</p> <p>Practicum, Studio Practice, Workshop Practice, Field Practice: Project-based Learning 3 x 1 x 170'</p>		<p>Equipment in the feed and pasture industry</p> <p>Lay out of equipment in the feed industry</p>	20

14-16	Describe the Engineering of the transportation industry, slaughterhouses (abattoirs) and processing of livestock products (CLO-3)	<p>Formative:</p> <p>-</p> <p>Summative:</p> <p>Accuracy of abattoir layouts and equipment, transportation equipment and processing of livestock products</p>	<p>Criteria Formative:</p> <p>Criteria Summative:</p> <p>Task Paper Individuals (12.5)</p> <p>Practicum/Field Practice (7.5)</p> <p>Assessment Technique:</p> <p>None</p>	<p>Criteria Formative:</p> <p>Criteria Summative:</p> <p>Task Paper Individuals (12.5)</p> <p>Practicum/Field Practice (7.5)</p> <p>Assessment Technique:</p> <p>None</p>		<ul style="list-style-type: none"> • Hatchery equipment • Hatchery cage shape 	20
							100

Matrix ILO, CLO, and Assessment Method

SLO / CLO	CLO-1	CLO-2	CLO-3
SLO-7 (KK1)	Task Paper Individual (Weight 12%) Group Presentation (Weight 8%) Task Paper Individual (Weight 12.5%) Practicum/Field Practice (Weight 7.5%) Task Paper Individual (Weight 12.5%) Practicum/Field Practice (Weight 7.5%)	Task Paper Individual (Weight 12.5%) Practicum/Field Practice (Weight 7.5%)	
SLO-8 (KK2)			Task Paper Individual (Weight 12.5%) Practicum/Field Practice (Weight 7.5%)

Evaluation Type and Assessment Weight

Type	Assessment Weight
Task Paper Individual	62
Group Presentation	8
Practicum/Field Practice	30
Total	100

Assessment and Evaluation of Student Achievement of CLO

SLOs that are charged on the Course	CLO	SUB CLO	Form of Assessment*				Weight	Value	Student Score
			Formative	Summative					
				Task Paper Individual	Group Presentation	Practicum/Field Practice			
SLO-7	CLO-1	SUB- CLO-1	Questions and answers/discussion and presentation material and questions and answers	12	8	0	20		
SLO-7	CLO-1	SUB- CLO-2		12.5	0	7.5	20		
SLO-7	CLO-1	SUB- CLO-3		12.5	0	7.5	20		
SLO-7	CLO-2	SUB- CLO-4		12.5	0	7.5	20		
SLO-8	CLO-3	SUB- CLO-5		12.5	0	7.5	20		
				62	8	30	100		



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STUDENT STRUCTURED ASSIGNMENT PLAN

Course	Livestock Engineering				
Code	23101121003	Credit Points	3	Semester	4 (empat)
Developer Lecturer	Prof. Dr. Ir. Lellah Rahim, M.Sc., IPU, ASEAN Eng.				
Task Form	Task Time				
Documents/Magazines	2 Weeks				
Task Title					
Sub-CLO-3 Able to describe the technical aspects of goat, sheep, and poultry housing and equipment					
Course Learning Outcomes					
SUB-CLO-2: Able to apply maintenance management to dairy cows (calves, heifers, lactating cows, dry cows, and studs, as well as cull cows (baby beef) and cull studs; dairy buffaloes, dairy goats, and dairy sheep. ILO 7					
Task Description					
<p>The students' assignment is a group project to write a paper on "Techniques for Raising and Equipment for Goats, Sheep, and Poultry." The paper should be written according to the following procedure:</p> <ol style="list-style-type: none"> 1) Each group chooses one of the following subtopics: goat housing and equipment techniques, sheep housing and equipment techniques, and poultry housing and equipment techniques. 2) Discuss among the group members to identify the process stages for each of the selected sub-topics. Information related to the selected sub-topic can be obtained from textbooks and journals. 3) Create a paper with the following systematics: <ol style="list-style-type: none"> I. Introduction II. Discussion III. Conclusion IV. Literature 4) Group presentation 					
Assignment Method					
1. Conducted in groups using the Small Group Discussion (SGD) learning method.					
Form and Format of Output					
a. Object of Cultivation: Livestock Farming and Equipment for Goats, Sheep, and Poultry b. Form of Output: Paper					
Indicators, Criteria and Assessment Weight					
<p>Indicators:</p> <ol style="list-style-type: none"> 1. Systematics: 10% 2. Accuracy of analysis: 25% 3. Depth of material: 30% 4. Novelty and reputation of library materials: 10% 5. Team cohesiveness: 10% 6. Mastery of the material: 15% 					
Implementation Schedule					
2 weeks					

Other
-
Reference List
<ol style="list-style-type: none"> 1. Barbut, S. 2002. Poultry Products Processing: An Industry Guide. CRC. Press, Boca Raton, Florida, USA. 2. Charles, D. R., H. A. Elson, and M. P. Haywood. 1994. Poultry Housing, p. 249-272. In: C. M. Walther and D. R. Charles (eds.). Livestock Housing. CAB International, Wallingford, UK. 3. Gillespie, J. R. 2002. Modern Livestock and Poultry Production. 6th ed. Thomson Learning, Inc., Columbia, USA. 4. Mohamed Samer. 2022. Poultry Farms: Housing Systems, Mechanization, and Technology. https://www.researchgate.net/publication/221705093 2002. DOI: 10.13140/RG.2.1.2599.3766 5. Grandin, T. 2014. Livestock handling and transport. Department of Animal Sciences, Colorado State University, Fort Collins, CO 80523-1171, USA. ISBN. 781780643212 6. Myer Kutz. 2019. Handbook of Farm, Dairy and Food Machinery Engineering. 3rd Edition. Academic Press. ISBN: 9780128148037

DEFINITION OF 1 CREDIT IN THE FORM OF LEARNING			Time
A	Lecture, Reception, Tutorial		
	Face to Face	Structured Assignment	Independent Learning
	50 minutes/week/semester	60 minutes/week/semester	60 minutes/week/semester
	Seminars or other similar forms of learning		
B	Face to face	Self-study	
	100 minutes/week/semester	70 minutes/week/semester	2,83
C	Practicum, studio practice, workshop practice, field practice, research, community service, and/or other equivalent forms of learning		
	170 minutes/week/semester		2,83

No	Metode Pembelajaran Mahasiswa	Kode
1	Small Group Discussion	SGD
2	Role-Play & Simulation	RPS
3	Discovery Learning	DL
4	Self-Directed Learning	SDL
5	Cooperative Learning	CoL
6	Collaborative Learning	CbL
7	Contextual Learning	CtL
8	Project Based Learning	PjBL
9	Problem Based Learning & Inquiry	PBL
10	Atau metode pembelajaran lain, yang dapat secara efektif memfasilitasi pemenuhan capaian pembelajaran lulusan.	