	UNIVERSITAS SUMATERA UTARA (USU) FACULTY OF AGRICULTURE ANIMAL SCIENCE STUDY PROGRAM	Document Code

SEMESTER LEARNING PLAN (RPS)

COURSE (Course)	CODE	MK Group	WEIGHT (credits)		SEMESTER	Date of Compilation
FEED MATERIAL STORAGE TECHNIQUES	PTN 3213	Exact	**Theory** =2	**Practice** =1	VI(SIX)	**October 23, 2024**

AUTHORIZATION / APPROVAL	RPS Developer Lecturer	Vice Dean I	Chairman of LINK-UP USU
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Learning Outcomes	CPL-PRODI Charged to MK	
	CPL03	Able to identify, formulate, and find solutions to problems related to the livestock sector
	CPL06	Conduct supervision and evaluation of the completion of assigned work and be able to manage lifelong learning independently
	CPL09	Able to manage and implement aspects of efficient feed provision and technology
	CPL11	Able to develop, understand and apply a variety of the best techniques and methods that combine theory and practice relevant to livestock expertise.
	Course Learning Outcomes (CPMK)	**CPMK Weight**
	CPMK0321: Able to explain the factors that influence the decline in feed quality due to storage	7.69%
	CPMK0618: Able to analyze various changes in feed quality due to storage	53.85%
	CPMK0908: Able to apply various storage techniques for feed ingredients	30.77
	CPMK1122: Able to apply the latest scientific developments in feed storage techniques	7.69%
	Final Ability of Each Learning Stage (Sub-CPMK)	

	Sub-CPMK1	After taking this lecture, students will be able to formulate an introduction to feed storage techniques.
	Sub-CPMK2	After taking this lecture, students will be able to formulate the classification of feed materials and their characteristics.
	Sub-CPMK3	After taking this lecture, students will be able to formulate factors that influence the storage of feed materials.
	Sub-CPMK4	After taking this lecture, students will be able to formulate methods for storing feed materials.
	Sub-CPMK5	After taking this lecture, students will be able to formulate feed storage technology.
	Sub-CPMK6	After taking this lecture, students will be able to formulate control of damage to feed materials during storage.
	Sub-CPMK7	After taking this course, students will be able to formulate storage logistics management.
	Sub-CPMK8	After taking this course, students will be able to formulate standards and regulations for storing feed ingredients.

Correlation of CPMK with Sub-CPMK

	Sub-CPMK 1	Sub-CPMK 2	Sub-CPMK 3	Sub-CPMK 4	Sub-CPMK 5	Sub-CPMK 6	Sub-CPMK 7	Sub-CPMK 8
CPMK 0321	√							
CPMK 0618	√	√	√	√		√	√	√
CPMK 0908			√		√		√	√
CPMK 1122								√

Brief Description of Course

After completing the course on Feed Storage Techniques, sixth semester students of the Animal Husbandry Study Program, Faculty of Agriculture, University of North Sumatra are expected to be able to explain about Feed Storage Techniques.

Study Material:

Learning materials

BK04 Animal Nutrition and Feed Science

1. Introduction to feed storage
2. Classification of feed materials and their characteristics
3. Factors affecting the quality of feed storage
4. Feed material storage methods
5. Feed storage technology
6. Control of damage and loss of nutrients during storage
7. Storage logistics management
8. Standards and regulations in the storage of feed ingredients

Library	**Main:** 1. NRC (National Research Council). 1988. Nutritional Requirements of Dairy Cattle. 6 th revised Edition. Washington DC : National Academy Press. 2. Despal, IG Permana, T. Toharmat and DE Amirroennas, 2017. Silage for dairy cattle feed. Bogor: IPB Press 3. Feed Storage, UGM; Yogyakarta
	Supporters: 1. Journals and publications
Supporting lecturer	
Required Courses	-

Week 2-	**Final ability of each learning stage (Sub-CPMK)**	**Evaluation**		**Form of Learning; Learning methods; Student Assignments; [Estimated Time]**		**Study Materials (Learning materials)**	**Assessment Weight (%)**
		Indicator	**Criteria and Techniques**				
(1)	**(2)**	**(3)**	**(4)**	**Asynchronous (5)**	**Synchronous (6)**	**(7)**	**(8)**
1	**Sub-CPMK1:** Students can formulate general overview of the eye lecture on feed storage techniques	Accuracy in explaining the importance of feed raw material storage techniques	**Criteria:** - **Technique:** Non-Test	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. **Learning methods:**	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**:	**Subject:** 1. Study Contract *2.* Scope of Feed Storage Engineering	5%

				Self-Paced Learning **Mode (Learning Management System):** elearning@usu.ac.id	*1. Lecturer* *2. Discussion* *3. Self-Paced*		
2-3	**Sub-CPMK 2:** Students can formulate about the classification of feed materials and their characteristics	1. Accuracy in formulating feed material classification 2. Accuracy in formulating the physical, chemical and biological properties of feed ingredients 3. Accuracy in formulating the impact of materials on storage techniques	**Criteria:** Assessment rubric. **Technique:** *Non-Test*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 3. Responding to the opening question **Mode (Learning Management System):** elearning@usu.ac.id	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* 3. *Self-Paced*	**Subject:** 1. Definition of feed ingredients 2. Classification of feed ingredients 3. Greenery 4. Concentrate 5. Agricultural waste 6. Physical properties of feed ingredients 7. Impact of feed ingredient characteristics	5%
4-6	**Sub-CPMK 3:** After taking this lecture, students will be able to formulate factors that influence the storage quality of feed ingredients.	1. Accuracy in explainingintern al factors 2. Accuracy in formulating external factors 3. Accuracy in formulating biological damage	**Criteria:** Assessment rubric. **Technique:** *Test:* *1. Case method*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation*	**Subject:** 1. Internal factors 2. Water content 3. Nutrition 4. Textured 5. External factors 6. Temperature 7. Humidity 8. Light 9. Oxygen 10. Pest attack	Case Method 1: 15%

				Agreement, and Learning Materials. 3. Responding to the opening question ***Case Method 1:*** 1. Divide the groups evenly (the lecturer divides) 2. Create a paper on factors influencing the quality of feed ingredients, maximum 15 pages from the table of contents to the bibliography, TMR font size 12, 1.5 spacing, sent in PDF format. 3. Group presentation **Mode (Learning Management System):** elearning@usu.ac.id	*2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* *3. Self-Paced*	11. Mold 12. And microorganisms	
7.9	**Sub-CPMK 4:** After taking this course, students will be able to formulate storage methods for materials.	1. Accuracy in explainingtraditional method 2. Accuracy in explainingmodern method 3. Accuracy in explainingdry and wet raw materials	**Criteria:** Assessment rubric. **Technique:** *Test:* *1. Quiz*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation*	**Subject:** **1.** Traditional method **2.** sunbathing **3.** natural drying **4.** conventional silo **5.** modern method **6.** silo **7.** cold stroke **8.** vacuum packing	Quiz 1: 5%

				Agreement, and Learning Materials. 3. Responding to the opening question ***Quiz 1:*** *Quiz to measure students' understanding of protein as a nutrient needed by poultry* **Mode (Learning Management System):** elearning@usu.ac.id	*2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* *3. Self-Paced*	**9.** silage **10.** fermentation **11.** hey	
8	MID SEMESTER EXAMINATION						15%
10-11	**Sub-CPMK 5:** After taking this lecture, students will be able to formulate feed storage technology.	1. Accuracy in explaining feed material technology 2. Accuracy in explaining feed material storage 3. Accuracy in explaining fermentation technology and feed processing	**Criteria:** Assessment rubric. **Technique:** *Test:* *1. Case method*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 3. Responding to the opening question ***Case Method 2:*** 1. Divide the groups evenly (the lecturer divides)	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* *3. Self-Paced*	**Subject:** *1.* Definition of storage technology *2.* Silage *3.* Ensilage *4.* Hey *5.* Making biscuits *6.* pelleting	Case Method 2: 15%

				2. Creating a paper on storing feed ingredients with feed processing technology 15 pages from the table of contents to the bibliography TMR font size 12 spacing 1.5 sent in PDF format **Mode (Learning Management System):** elearning@usu.ac.id			
12-13	**Sub-CPMK 6:** After taking this lecture, students will be able to formulate control of damage and loss of nutrients during storage.	1. Accuracy in explaining drying techniques 2.Accuracy in explaining water content reduction 3. accuracy of formulating microorganism control 4. accuracy of formulating feed preservation	**Criteria:** Assessment rubric. **Technique:** *Test:* *1. Case method*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 4. Attendance absence 5. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 6. Responding to the opening question ***Case Method 3:*** 3. Divide the groups evenly (the lecturer divides) 4. Create a paper for each group on	TM (1 week x 2 credits x 50 minutes) **Activity:** *4. Offline Learning* *5. Class Discussion* *6. Note Taking* **Media:** *3. Power Point Presentation* *4. Text Book* **Learning methods**: *4. Lecturer* *5. Discussion* *Self-Paced*	**Subject:** 1. Drying technique 2. reduction of water content 3. control of microorganisms 4. feed preservation	Case Method 3: 15%

				controlling feed damage, 15 pages from the table of contents to the bibliography, TMR font size 12, 1.5 spacing, sent in PDF format. **Mode (Learning Management System):** elearning@usu.ac.id			
14	**Sub-CPMK 7:** After taking this course, students will be able to formulate storage logistics management.	1. Accuracy in explainingstorage capacity planning 2. Accuracy in explaining the feed transport system 3. Accuracy in linking feed distribution and scheduling	**Criteria:** Assessment rubric. **Technique:** *Non-Test:*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 1. Attendance absence 2. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 3. Responding to the opening question **Mode (Learning Management System):** elearning@usu.ac.id	TM (1 week x 2 credits x 50 minutes) **Activity:** *1. Offline Learning* *2. Class Discussion* *3. Note Taking* **Media:** *1. Power Point Presentation* *2. Text Book* **Learning methods**: *1. Lecturer* *2. Discussion* *3. Self-Paced*	**Subject:** *1.* Planning *2.* Transportation system *3.* Feed distribution *4.* Feed scheduling	5%
15	**Sub-CPMK 8:** After taking this course, students will be able to formulate standards and	4. Accuracy in explainingfeed raw material quality standards	**Criteria:** Assessment rubric. **Technique:** *Non-Test:*	KM+PT (1 week x 2 credits x 120 minutes) **Activity:** 4. Attendance absence	TM (1 week x 2 credits x 50 minutes) **Activity:** *4. Offline Learning*	**Subject:** *5.* Feed material quality standards	5%

	regulations for storing feed ingredients.	5. Accuracy in explaining government policies 6. Accuracy in linking material risk analysis 7. Accuracy in relating the safety of feed ingredients		5. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials. 6. Responding to the opening question **Mode (Learning Management System):** elearning@usu.ac.id	*5. Class Discussion* *6. Note Taking* **Media:** *3. Power Point Presentation* *4. Text Book* **Learning methods**: *4. Lecturer* *5. Discussion* *Self-Paced*	*6.* Feed material policy *7.* Risk analysis *8.* Feed safety	
16	FINAL SEMESTER EXAMINATION						15%

Assessment Design:

CLO Code and Percentage	Sub-CLO Code	Evaluation Form	Percentage (%)	Total	Implementation of Evaluation
CLO0321(7,69%)	Sub-CLO1	Mid Therm Exam	7,69	7,69%	Week 8
CLO0618(53,85%)	Sub-CLO1	Mid Therm Exam	5.5	53,85%	Week 8
	Sub-CLO2	Mid Therm Exam	5.5		Week 8
	Sub-CLO3	Case Method	6.8		Week 3
	Sub-CLO4	Quis	5		Week 4
	Sub-CLO6	Case Method	6.8		Week 9

	Sub-CLO7	Final Exam	5.5		Week 10
	Sub-CLO8	Case Method	6.8		Week 12
CLO0618 (30,77%)	Sub-CLO3	Case method	6.8	30,77%	Week 3
	Sub-CLO6	Case method	6.8		Week 9
	Sub-CLO7	Final Exam	5.5		Week 10
	Sub-CLO8	Case method	6.8		Week 11
CLO1122 (7,69%)	Sub-CLO9	Case methode	7.69	7,69%	Week14
Total			100%	100%	

Assessment Plan:

Evaluation Form	Sub-CLO	Assessment Instrument [Frequency]		Invoice (proof)	Assessment Credit (%)
		Formative	**Summative**		
Quiz/Q&A	Sub-CLO3 and Sub-CLO8	Assessment rubric [2 times]	-	Quiz answers uploaded to kelas.usu.ac.id	10
Case Methode	Sub-CLO4 and Sub-CLO9	Feedback results case analysis [5 times]	Assessment rubric [2 times]	Logbook/worksheet/slides uploaded to kelas.usu.ac.id	50
Written exam 1 (UTS)	Sub-CLO1, Sub-CLO2, Sub-CLO3, Sub-CLO4, Sub-CLO5, Sub-CLO6 and Sub-CLO7	-	Assessment rubric [1 time]	Written exam result sheet	20
Written exam 2 (UAS)	Sub-CLO8, Sub-CLO9, Sub-CLO10, Sub-CLO11, Sub-CLO12, Sub-CLO13 and Sub-CLO14	-	Assessment rubric [1 time]	Written exam result sheet	20
Total					**100%**

Explanation:

a) Quiz 10%

During the semester there will be 2 quizzes held in class. The quizzes will be conducted via e-learning and have been scheduled in advance. The material being tested is announced by the lecturer and written in the RPS.

b) *Case Method*50%
During the semester there will be a case method, each student will make a paper and report from each case method in groups. The case method in this course is done 5 times. The paper that has been made will be presented by students. Students will be assessed according to their participation in the presentation and accuracy in the presentation, as well as their participation in the question and answer session when other groups are presenting.

c) Midterm Exam 20%
The midterm exam covers all the materials that have been discussed since the beginning of the semester until the 7th meeting, both reading and lecture. This exam is conducted in class with multiple choice questions, short answers, and essays.

d) Final Exam 20%
The final semester exam covers all the material that has been discussed since the 9th to 15th meeting, both reading and lecture. This exam is conducted in class in the form of multiple choice questions, short answers, and essays.

ASSESSMENT RUBRIC

Post Test Quiz Assessment Rubric (10%)

The Pre/Post test questions consist of 5 essay questions done on one sheet of paper (done 4 times during 1 semester)

Value per question item	Criteria
20	Can answer questions correctly, complete the steps correctly, and completely correct
15	The steps for completing the questions are correct, there are a few errors.
10	Most of the steps in completing the questions are correct, there are many errors.
5	The steps for completing the question are not correct, the question cannot be completed

***Maximum score = 100 (5 questions x 20 points)**

Minimum score = 25 (5 questions x 5 points)

Quiz score 1: (maximum score is 100)$20 \times \sum nilai\ per\ butir\ soal$

Quiz score 2: (maximum score is 100)$20 \times \sum nilai\ per\ butir\ soal$

Total score if you take all post-test quizzes with a perfect score is 200 x 10%[quiz percentage] = 20

Assessment Rubric for Group Presentation Assignment Case Method Knowledge of Livestock Products

Matter	Evaluation criteria				
Contents	Complete, with additional good material (20)	Complete (18)	Same as text book (16)	Not complete, but most of the material is covered (14)	Substantially incomplete (12)
Answering Discussion Questions	Able to answer all questions correctly (20)	Can answer most of the questions correctly but there are some questions that are not answered (18)	Able to answer some questions correctly, some others did not reach the target and there were questions that were not answered (16)	Most of the answers did not reach the target and there were unanswered questions (14)	Can't answer all questions (12)
Presentation	Clear, concise with good flow (20)	Clear, concise with sometimes poor flow (18)	Moderate presentation skills (16)	Presentation stutters (14)	Presentation not working (12)
Group organization	Very good organization, supporting each other's presentations (20)	Good organization (18)	Medium organization, some people are less organized (16)	Lack of organization often results in communication errors (14)	The organization was chaotic so the presentation was very disrupted (12)
Creativity	Very creative without going off target (20)	Creative creates enthusiasm (18)	Occasionally attracts attention (15)	Occasionally attracts attention (13)	Boring, makes you sleepy (11)
TOTAL	**100 (Very Good)**	**90-80 (Very well)**	**79-70 (Good)**	**69-50 (Pretty good)**	**59-40 (Not good)**

Information :

The total maximum score is 100. The numbers in brackets are the scores for each criterion. The number 100 will later be accumulated with the percentage of the Presentation Assignment (PjBL) value of 50%.

100 x 50% = 50 points
There are 4 presentation implementations (case method), so the percentage of the Case Method Group Assignment score for each implementation is: 50% : 4 = 12.5%. Points for each implementation of the Case Method Group Assignment: 100 x 12.5% = 12.5 points.

Essay Exam Assessment Rubric:

Assessment criteria	4 Very good	3 Good	2 Enough	1 Not enough
Understanding the Questions	Understand the question exactly once (25)	Understanding the questions (20)	Not understanding the question fully and correctly (15)	Don't understand the question (10)
Contents	Answers show understanding in-depth understanding of the material being asked and participants integrate the information that has been studied and/or assigned to be read during the lecture well and appropriately (25)	The answers demonstrate understanding of the material being asked and integrate some of the information that has been studied and/or assigned to be read during the lecture. (20)	The answer shows a lack of understanding of the material being asked and only integrates a small portion of information that has been studied and/or assigned to be read during lectures. (15)	The answer shows a lack of understanding of the material being asked so it is unclear and not integrated. information that has been studied and/or assigned to be read during lectures. (10)
Clarity of Writing	All written ideas are conveyed well and clearly. (25)	Most of the ideas in the writing are well and clearly conveyed. (20)	Some of the ideas in the writing are conveyed well and clearly. (15)	The ideas in the writing are not conveyed well and clearly. (10)
Clarity of Language	Uses foreign/Indonesian languages well and correctly with minimal grammatical errors and word choices that do not	Uses foreign/Indonesian languages well and correctly with minimal grammatical errors and word choices that interfere with understanding.	Uses foreign/Indonesian language quite well and correctly with some grammatical errors and word choices	Does not use foreign/Indonesian language properly and correctly because the writing contains many

	interfere with understanding (25)	(20)	(15)	grammatical errors and word choices (10)
Total	**81-100** **(Very well)**	**61-80** **(Pretty good)**	**41-60** **(Enough)**	**0-40** **(Not enough)**

Multiple Choice Exam Scoring Rubric:

Value per question item	**Criteria**
100/ many questions	Can answer questions correctly
0	The answer is not quite right/does not match the answer key provided.