



**UNIVERSITAS SUMATERA UTARA (USU)**  
**FACULTY OF AGRICULTURE**  
**Animal Science Study Program**

**Document Code**  
(To follow)

**SEMESTER LEARNING PLAN (RPS)**

COURSES (MK)	CODE	Constitutional Court	WEIGHT (credits)		SEMESTER	Drafting Date
Animal Feed Processing Science and Technology	PTN3219	Exact	Theory = 2	Practice = 1	VI	October 13, 2022
<b>AUTHORIZATION / ENDORSEMENT</b>	<b>RPS Developer Lecturer</b>		<b>Vice Dean I</b>		<b>Head of USU Link-up</b>	
	Dr. Ir. Yunilas, MP Dr. Nevy Diana Hanafi, S.Pt., M.Si Kennie Cendekia Desnamrina, S.Pt, M.Pt		Dr. Lisnawita, S.P., M.P		Prof. DR. Dwisuryant M.Sc.	
<b>Learning Outcomes</b>	<b>CPL-Study Programs Charged to the Constitutional Court</b>					
	CPL01	Able to apply logical, critical, systematic thinking innovatively through the approach and implementation of animal husbandry science and technology in a disciplined, honest and responsible manner				
	CPL05	Able to disseminate science and technology in the field of animal husbandry with concern for the community and the environment				
	CPL07	Able to carry out livestock business with the application of livestock technology that pays attention to aspects of livestock welfare to produce optimal livestock productivity from upstream to downstream.				
	<b>Course Learning Outcomes (CPMK)</b>					
Please write it down. In 1 CPMK, simply use one verb formulation with a minimum cognitive level equivalent to or exceeding the sub-CPMK.						
CPMK1: Students are able to explain with logical, critical, systematic thinking innovatively knowledge and technology of feed processing						
CPMK2: Students are able to develop science and technology in the field of animal feed processing with concern for the community and the environment						

	CPMK3: Able to apply feed processing knowledge and technology in carrying out livestock business improvement that pays attention to livestock welfare aspects																																																	
	<b>Final Ability of Each Learning Stage (Sub-CPMK)</b>																																																	
	Sub-CPMK1	After attending this lecture, students will be able to explain an overview of the role of the application of feed processing technology in supporting knowledge in the field of animal husbandry																																																
	Sub-CPMK2	After attending this lecture, students will be able to explain the properties of animal feed ingredients																																																
	Sub-CPMK3	After attending this lecture, students will be able to explain the storage and preservation of animal feed materials																																																
	Sub-CPMK4	After attending this lecture, students will be able to explain the physical processing of feed																																																
	Sub-CPMK5	After attending this lecture, students will be able to explain mechanized feed processing																																																
	Sub-CPMK6	After attending this lecture, students will be able to explain chemical feed processing																																																
	Sub-CPMK7	After attending this lecture, students will be able to explain enzymatic feed processing																																																
	Sub-CPMK8	After attending this lecture, students will be able to explain the biological processing of feed (fungi and bacteria)																																																
	Sub-CPMK9	After attending this lecture, students will be able to make processed animal feed																																																
<b>Correlation between CPMK and Sub-CPMK</b>	<table border="1"> <thead> <tr> <th></th> <th>Sub-CPMK1</th> <th>Sub-CPMK2</th> <th>Sub-CPMK3</th> <th>Sub-CPMK4</th> <th>Sub-CPMK5</th> <th>Sub-CPMK6</th> <th>Sub-CPMK7</th> <th>Sub-CPMK8</th> <th>Sub-CPMK9</th> </tr> </thead> <tbody> <tr> <td>CPMK1</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> </tr> <tr> <td>CPMK2</td> <td></td> <td></td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> </tr> <tr> <td>CPMK3</td> <td></td> <td></td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> <td>√</td> </tr> </tbody> </table>											Sub-CPMK1	Sub-CPMK2	Sub-CPMK3	Sub-CPMK4	Sub-CPMK5	Sub-CPMK6	Sub-CPMK7	Sub-CPMK8	Sub-CPMK9	CPMK1	√	√	√	√	√	√	√	√	√	CPMK2			√	√	√	√	√	√	√	CPMK3			√	√	√	√	√	√	√
	Sub-CPMK1	Sub-CPMK2	Sub-CPMK3	Sub-CPMK4	Sub-CPMK5	Sub-CPMK6	Sub-CPMK7	Sub-CPMK8	Sub-CPMK9																																									
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CPMK3			√	√	√	√	√	√	√																																									
<b>Brief Description of Courses</b>	After completing the Science and Technology of Animal Feed Processing course, students are expected to become graduates who are able to develop their own business (become entrepreneurs) independently by thinking logically, critically and systematically in applying and developing the knowledge that has been obtained about feed processing for livestock.																																																	
<b>Study Material:</b> Learning Materials	<b>Meeting I:</b> Introduction: <ol style="list-style-type: none"> <li>Tuition Contract</li> <li>Definition of feed processing technology</li> <li>Scope of feed processing technology</li> <li>Benefits of feed processing technology</li> </ol>																																																	

**Meeting II:**

Properties of feed material:

- a. The shape and size of the feed material
- b. Color of feed material
- c. Size, surface area, weight, porosity of feed material
- d. Feed moisture content

**Meeting III:**

Storage of feed ingredients

- a. Purpose of storage of feed ingredients
- b. Feed material storage techniques
- c. Changes in the quality of feed ingredients

**Meeting IV**

Preservation of feed ingredients

- a. Purpose of preservation of feed ingredients
- b. Benefits of preservation of feed ingredients
- c. Preservation techniques for feed ingredients

**Meeting V**

Physical processing of feed ingredients

- a. The purpose of physical feed processing
- b. Physical feed processing techniques

**Meeting VI**

Mechanized processing of feed materials

- a. Purpose of mechanized feed processing
- b. Mechanized feed processing techniques

**Meeting VII**

Chemical processing of feed materials

- a. Purpose of chemical feed processing

- b. Chemical feed processing techniques

**Meeting VIII**

Enzymatic processing of feed ingredients

- a. Purpose of enzymatic feed processing
- b. Enzymatic feed processing techniques

**Meeting IX**

Biological processing of feed materials

- a. Purpose of biological feed processing using mushrooms
- b. Biological feed processing techniques using mushrooms

**X Encounter**

Biological processing of feed materials

- a. Purpose of biological feed processing using bacteria
- b. Biological feed processing techniques using bacteria

**Meeting XI**

Feed manufacturing with the application of various animal feed processing technologies: Silage

- a. Purpose of making silage
- b. Silage processing process
- c. Factors affecting the quality of ensilage products

**Meeting XII**

Feed production with the application of various animal feed processing technologies: Hay

- a. Hay form
- b. Purpose of making hay
- c. Hay processing process
- d. Factors affecting the quality of hay products

**XIII Meeting**

Feed manufacturing with the application of various animal feed processing technologies: Urea Molasses Block (UMB)

	<ul style="list-style-type: none"> <li>a. Purpose of UMB</li> <li>b. UMB manufacturing process</li> </ul> <p><b>XIV Meeting</b>  Feed production with the application of various animal feed processing technologies: Complete Feed</p> <ul style="list-style-type: none"> <li>a. Manfaat complete feed</li> <li>b. The process of creating a complete feed</li> </ul>
<b>Book</b>	<p><b>Main:</b></p> <ol style="list-style-type: none"> <li>1. Muhammad Halim Natsir, Eko Widodo, Osfar Sjoifjan. 2017. Animal Feed Industry. UB Press, Malang</li> <li>2. Natsir, MH., Mashudi, O. Sjoifjan, A. Irsyamawati, Hartutik. 2019. Animal Feed Material Processing Technology. UB Press, Malang.</li> </ol>
	<p><b>Supporter:</b></p> <ol style="list-style-type: none"> <li>1. Eko Widodo, Muhammad Halim Natsir, Osfar Sjoifjan. 2018. Antibiotic Substitute Poultry Feed Additives: Response to the Government of Indonesia's Antibiotic Ban. UB Press Publisher, Malang</li> <li>2. Gunawan, A and Muhamad. 2009. Ammonia Straw. Agricultural Technology Assessment Center, BPTP. West Java.</li> <li>3. Hanafi, ND. 2008. Animal Feed Preservation Technology. University of North Sumatra.</li> <li>4. Harmoko, H., Samputty, J. M., Makatita, J., Sairudy, A. ., Dolewikou, R., &amp; Gairtua, B. . (2021). SOCIALIZATION AND TRAINING ON CASSAVA PEEL WASTE PROCESSING AS BUFFALO LIVESTOCK FEED IN SOUTHWEST MALUKU REGENCY. Batara Wisnu : Indonesian Journal of Community Services, 1(3), 282–288.  <a href="https://doi.org/10.53363/bw.v1i3.37">https://doi.org/10.53363/bw.v1i3.37</a></li> <li>5. Hermanto, Fitriani. 2019. The Utilization of Cassava Peel and Leaves as a Mixture of Poultry Feed Ingredients. Samarinda: Journal of Industrial Technology Research.</li> <li>6. Marjuki. 2008. Improvement of Rice Straw Quality through Ammonia Urea Treatment. Faculty of Animal Husbandry, University of Brawijaya. Hapless.</li> <li>7. Muhammad Halim Natsir, Mashudi, Osfar Sjoifjan, Artharini Irsyammawati, Hartutik. 2019. Animal Feed Material Processing Technology. Publisher : UB Press, Malang</li> <li>8. Nista, D., H. Natalia., A. Taufik. 2007. Feed Processing Technology (UMMB, Straw Fermentation, Straw Ammonia, Silage, Hay). Ministry of Agriculture, Directorate General of Livestock Production Development Center for Superior Livestock Breeding Center for Dual Purpose Cattle and Chickens. Sembawa.</li> </ol>

	<p>9. Nurhayu, A., D. Pasambe and M. Sariubang. 2010. Study on the Utilization of Local Feed and Urea Molasses Block (UMB) for Fattening Beef Cattle in Pinrang Regency, South Sulawesi. National Seminar on Animal Husbandry and Veterinary Technology 2010. South Sulawesi Agricultural Technology Assessment Center.</p> <p>10. Schroeder, J. W. 2004. Silage Fermentation and Preservation. Extension Dairy Specialist. AS-1254.</p> <p>11. Shiddieqi, M. I. 2005. Processed Straw Animal Feed. Department of Livestock Production, Faculty of Animal Husbandry, Padjadjaran University. Bandung.</p> <p>12. Siti, Ni W., I. G. M. A. Sucipta, I.M. Mudita, I.B.G. Partama and I.G.L.O. Cakra. 2012. Urea Molasses Block Supplementation to Improve the Appearance of Etawah Peranakan Goats Fed with Gamal Forage Feed. Jurnal Agripet. Vol (12) No. 2: 49-54.</p> <p>13. Umiyasih, U. and E. Vienna. 2008. Processing and Nutritional Value of Corn Plant Waste as Ruminant Animal Feed. WARTAZOA Vol. 18 No. 3 Th. 2008. Center for Animal Husbandry Research and Development. Bogor</p>						
<b>Lecturer</b>	<p>Dr. Ir. Yunilas, MP  Dr. Nevy Diana Hanafi, S.Pt., M.Si  Kennie Cendekia Desnamrina, S.Pt, M.Pt</p>						
<b>Conditional Courses</b>	<p>Students are expected to have completed the course</p> <p>a. Animal Nutrition Science  b. Feed Ingredients and Ration Formulations</p>						
Week	Final ability of each stage of learning (Sub-CPMK)	Valuation		Forms of Learning; Learning Methods; Student Assignment; [ Estimated Time]		Study Materials (Learning Materials)	Assessment Weight (%)
		Indicator	Criteria and Techniques	Asynchronous (5)	Synchronous (6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	<p>Sub-CPMK1:</p> <p>After attending this lecture, students will be able to explain an overview of the role of the application of feed processing technology in supporting</p>	<p>Accuracy in explaining the general overview of the role of the application of feed processing technology in supporting</p>	<p><b>Criterion:</b> Using the assessment rubric.</p> <p><b>Technique:</b> a. Reading the provided section (book)</p>	<p>Time : 50 minutes</p> <p><b>Activities:</b> a. Attendance b. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course</p>	<p>Time : 100 Minutes</p> <p><b>Activities:</b> a. Learn the rules, competencies (skills), materials, tasks, and assessments that are applied</p>	<p><b>Subject Matter:</b> a. Tuition Contract b. Definition of feed processing technology</p>	2%

	knowledge in the field of animal husbandry	knowledge in the field of animal husbandry	<ul style="list-style-type: none"> <li>b. Responding to the opening question given.</li> <li>c. Answer questions according to reading.</li> </ul>	<p>Agreement, and Learning Materials.</p> <p><b>Learning Methods:</b> <i>Self-Paced Learning</i></p> <p><b>Moda (Learning Management System):</b> <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>during the classroom.</p> <ul style="list-style-type: none"> <li>b. Make notes about the learning materials described.</li> <li>c. Responding to questions</li> </ul> <p><b>Media:</b></p> <ol style="list-style-type: none"> <li>1. Power Point Presentation</li> <li>2. Zoom Meeting</li> <li>3. Text Book</li> </ol> <p><b>Learning Methods :</b></p> <ol style="list-style-type: none"> <li>1. Online Lecture</li> <li>2. Discussion</li> </ol> <p>Self-Paced</p>	<ul style="list-style-type: none"> <li>c. Scope of feed processing technology</li> <li>d. Benefits of feed processing technology</li> </ul>
2	<p>Sub-CPMK 2:</p> <p>After attending this lecture, students will be able to explain the properties of animal feed ingredients</p>	Accuracy in explaining the properties of animal feed ingredients	<p><b>Criterion:</b> Using the assessment rubric.</p> <p><b>Technique:</b></p> <ul style="list-style-type: none"> <li>a. Reading the provided section (book)</li> <li>b. Responding to the opening</li> </ul>	<p>Time : 50 minutes</p> <p><b>Activities:</b></p> <ul style="list-style-type: none"> <li>a. Review previous lessons .</li> <li>b. Reading books</li> <li>c. Record attendance.</li> <li>d. Responding to the opening question</li> </ul>	<p>Time : 100 Minutes</p> <p><b>Activities:</b></p> <ul style="list-style-type: none"> <li>a. Learn the rules, competencies (skills), materials, tasks, and assessments that are applied</li> </ul>	<p><b>Subject Matter:</b></p> <ul style="list-style-type: none"> <li>a. The shape and size of the feed material</li> <li>b. Color of feed material</li> </ul>

2%

			<p>question given.</p> <p>c. Answer questions according to reading.</p>	<p><b>Learning Methods:</b> <i>Self-Paced Learning</i></p> <p><b>Moda (Learning Management System):</b> <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>during the classroom.</p> <p>b. Make notes about the learning materials described.</p> <p>c. Responding to questions</p> <p><b>Media:</b></p> <ol style="list-style-type: none"> <li>1. Power Point Presentation</li> <li>2. Zoom Meeting</li> <li>3. Text Book</li> </ol> <p><b>Learning Methods :</b></p> <ol style="list-style-type: none"> <li>1. Online Lecture</li> <li>2. Discussion</li> <li>3. Self-Paced</li> </ol>	<p>c. Size, surface area, weight, porosity of feed material</p> <p>d. Feed moisture content</p>
3	<p>Sub-CPMK 3:</p> <p>After attending this lecture, students will be able to explain the storage and preservation of animal feed materials</p>	<p>a. Accuracy in revealing the information needed</p> <p>b. Correctness of students' answers (Quiz)</p>	<p><b>Criterion:</b> Using the assessment rubric <i>Marking Scheme</i></p> <p><b>Shape:</b></p> <ol style="list-style-type: none"> <li>a. Reading the provided section (book)</li> <li>b. Answer quizzes</li> </ol>	<p>Time : 50 minutes</p> <p>Activities:</p> <ol style="list-style-type: none"> <li>1. Review previous lessons .</li> <li>2. Reading books</li> <li>3. Record attendance.</li> <li>4. Responding to the opening question</li> </ol> <p><b>Task 1:</b></p>	<p>Time 100 minutes</p> <p><b>Activities:</b></p> <ol style="list-style-type: none"> <li>a. Make notes about the learning materials described.</li> <li>b. Responding to questions.</li> </ol>	<p><b>Subject Matter:</b></p> <ol style="list-style-type: none"> <li>a. Purpose of storage of feed ingredients</li> <li>b. Feed material storage techniques</li> <li>c. Changes in the quality of</li> </ol>

4%

			<p><i>Worksheet (Non-Test):</i> respond to questions and be active in discussions</p>	<ol style="list-style-type: none"> <li>1. Re-explain the information obtained and</li> <li>2. Answer quiz questions</li> </ol> <p><b>Moda (Learning Management System):</b>  <a href="mailto:elarning@usu.ac.id">elarning@usu.ac.id</a></p>	<p>c. Completing and submitting quizzes</p> <p><b>Media:</b>  <i>Power Point</i>  <i>Presentation</i>  <i>Text Book</i>  <i>Zoom Meeting/ offline</i></p> <p><b>Learning Methods:</b></p> <ol style="list-style-type: none"> <li>1. <i>Online Lecture/ offline</i></li> <li>2. <i>Discussion</i></li> <li>3. <i>Quiz</i></li> <li>4. <i>Self-Paced Learning</i></li> </ol>	<p>feed ingredients</p>
4	<p>Sub-CPMK 3:  After attending this lecture, students will be able to explain the storage and preservation of animal feed materials</p>	<p>Accuracy in explaining the storage and preservation of animal feed ingredients</p>	<p><b>Criterion:</b>  Using the assessment rubric.</p> <p><b>Technique:</b></p> <ol style="list-style-type: none"> <li>d. Reading the provided section (book)</li> <li>e. Responding to the opening question given.</li> <li>f. Answer questions</li> </ol>	<p>Time : 50 minutes</p> <p><b>Activities:</b></p> <ol style="list-style-type: none"> <li>a. Attendance</li> <li>b. Download and read the Syllabus (RPS), Learning Implementation Plan (SAP), Course Agreement, and Learning Materials.</li> </ol>	<p>Time : 100 Minutes</p> <p><b>Activities:</b></p> <ol style="list-style-type: none"> <li>a. Learn the rules, competencies (skills), materials, tasks, and assessments that are applied during the classroom.</li> <li>b. Make notes about the learning</li> </ol>	

2%

			according to reading.	<p><b>Learning Methods:</b> <i>Self-Paced Learning</i></p> <p><b>Moda (Learning Management System):</b> <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>materials described.</p> <p>c. Responding to questions</p> <p><b>Media:</b></p> <ol style="list-style-type: none"> <li>1. Power Point Presentation</li> <li>2. Zoom Meeting</li> <li>3. Text Book</li> </ol> <p><b>Learning Methods :</b></p> <ol style="list-style-type: none"> <li>1. Online Lecture</li> <li>2. Discussion</li> <li>3. Self-Paced</li> </ol>	
5	Sub-CPMK 4: After attending this lecture, students will be able to explain the physical processing of feed	<ol style="list-style-type: none"> <li>1. Activity in the classroom</li> <li>2. Discussion with the forum (Group 1 assesses the other group and so on)</li> <li>3. How to write a paper</li> <li>4. Power point view</li> </ol>	<ol style="list-style-type: none"> <li>1. Language in expressing opinions</li> <li>2. Paper</li> <li>3. Power point display</li> </ol> <p>Mastery of assignment material</p>	<p>Time : 50 minutes</p> <p><b>Activity:</b></p> <ol style="list-style-type: none"> <li>1. Be present on time</li> <li>2. Download learning materials</li> <li>3. Looking for journals related to the material</li> </ol> <p><b>Task 2:</b></p> <ol style="list-style-type: none"> <li>1. Divide the group evenly (the lecturer divides)</li> </ol>	<p>Time : 100 Minutes</p> <p><b>Activities:</b></p> <ol style="list-style-type: none"> <li>1. Learn the rules, competencies (skills), materials, tasks, and assessments applied during the classroom</li> <li>2. Make notes about the learning materials explained</li> </ol>	<p><b>Subject Matter:</b></p> <ol style="list-style-type: none"> <li>a. The purpose of physical feed processing</li> <li>b. Physical feed processing techniques</li> </ol>

5%

				<p>2. Make a paper on physical processing of feed materials with a maximum of 15 pages from the table of contents to the TMR font bibliography size 12 spaces 1.5 sent in pdf form</p> <p>3. Group presentations</p>	<p>3. Responding to questions or instructions given by lecturers</p> <p>4. Responding to questions from the audience on the presenter group</p> <p><b>Media:</b></p> <p>1. Power point</p> <p>2. Zoom meeting</p> <p>3. E-Learning</p> <p>4. Handouts</p> <p><b>Learning Methods:</b></p> <p>Lectures</p> <p>Group discussions</p> <p>Independent Learning</p>	
6	Sub-CPMK 5: After attending this lecture, students will be able to explain mechanized feed processing	<p>1. Activity in the classroom</p> <p>2. Discussion with the forum (Group 1 assesses the</p>	<p>1. Language in expressing opinions</p> <p>2. Paper</p> <p>3. Power point display</p> <p>4. Mastery of assignment material</p>	<p>Time : 50 minutes</p> <p><b>Activity:</b></p> <p>1. Be present on time</p> <p>2. Download learning materials</p>	<p>Time : 100 Minutes</p> <p><b>Activities:</b></p> <p>1. Learn the rules, competencies (skills), materials, tasks, and assessments</p>	<p><b>Subject Matter:</b></p> <p>a. Purpose of mechanized feed processing</p> <p>b. Mechanized feed</p>

5%

		<p>other group and so on)</p> <p>3. How to write a paper</p> <p>4. Power point view</p>		<p>3. Looking for journals related to the material</p> <p><b>Task 2:</b></p> <p>1. Divide the group evenly (the lecturer divides)</p> <p>2. Create a paper on mechanized processing of feed materials with a maximum of 15 pages from the table of contents to the TMR font bibliography size 12 spaces 1.5 sent in pdf form</p> <p>3. Group presentations</p>	<p>applied during the classroom</p> <p>2. Make notes about the learning materials explained</p> <p>3. Responding to questions or instructions given by lecturers</p> <p>4. Responding to questions from the audience on the presenter group</p> <p><b>Media:</b></p> <p>1. Power point</p> <p>2. Zoom meeting</p> <p>3. E-Learning</p> <p>4. Handouts</p> <p><b>Learning Methods:</b></p> <p>Lectures</p> <p>Group discussions</p> <p>Independent Learning</p>	<p>processing techniques</p>
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7	Sub-CPMK 6: After attending this lecture, students will be able to explain chemical feed processing	<ol style="list-style-type: none"> <li>1. Activity in the classroom</li> <li>2. Discussion with the forum (Group 1 assesses the other group and so on)</li> <li>3. How to write a paper</li> <li>4. Power point view</li> </ol>	<ol style="list-style-type: none"> <li>1. Language in expressing opinions</li> <li>2. Paper</li> <li>3. Power point display</li> <li>4. Mastery of assignment material</li> </ol>	<p>Time : 50 minutes</p> <p><b>Activity:</b></p> <ol style="list-style-type: none"> <li>1. Be present on time</li> <li>2. Download learning materials</li> <li>3. Looking for journals related to the material</li> </ol> <p><b>Task 2:</b></p> <ol style="list-style-type: none"> <li>1. Divide the group evenly (the lecturer divides)</li> <li>2. Make a paper on chemical processing on feed materials with a maximum of 15 pages from the table of contents to the TMR font bibliography size 12 spaces 1.5 sent in pdf form</li> <li>3. Group presentations</li> </ol>	<p>Time : 100 Minutes</p> <p><b>Activities:</b></p> <ol style="list-style-type: none"> <li>1. Learn the rules, competencies (skills), materials, tasks, and assessments applied during the classroom</li> <li>2. Make notes about the learning materials explained</li> <li>3. Responding to questions or instructions given by lecturers</li> <li>4. Responding to questions from the audience on the presenter group</li> </ol> <p><b>Media:</b></p> <ol style="list-style-type: none"> <li>1. Power point</li> <li>2. Zoom meeting</li> </ol>	<p><b>Subject Matter:</b></p> <ol style="list-style-type: none"> <li>a. Purpose of Chemical Feed Processing</li> <li>b. Chemical feed processing techniques</li> </ol>	5%
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					3. E-Learning 4. Handouts		
					<b>Learning Methods:</b> Lectures Group discussions Independent Learning		
8	MID SEMESTER EXAMINATION						15%
9	Sub-CPMK 7: After attending this lecture, students will be able to explain enzymatic feed processing	1. Activity in the classroom 2. Discussion with the forum (Group 1 assesses the other group and so on) 3. How to write a paper 4. Power point view	1. Language in expressing opinions 2. Paper 3. Power point display 4. Mastery of assignment material	Time : 50 minutes <b>Activity:</b> 1. Be present on time 2. Download learning materials 3. Search for related journals according to the material  <b>Task 2:</b> <u>1.</u> Divide the group evenly (the lecturer divides) <u>2.</u> Create a paper on mechanized processing of feed materials with a maximum of 15 pages from	Time : 100 Minutes <b>Activities:</b> 1. Learn the rules, competencies (skills), materials, tasks, and assessments applied during the classroom 2. Make notes about the learning materials explained 3. Responding to questions or instructions given by lecturers 4. Responding to questions from	<b>Subject Matter:</b> a. Purpose of enzymatic feed processing b. Enzymatic feed processing techniques	5%

				<p>the table of contents to the TMR font bibliography size 12 spaces 1.5 sent in pdf form</p> <p><u>3.</u> Group presentations</p>	<p>the audience on the presenter group</p> <p><b>Media:</b></p> <ol style="list-style-type: none"> <li>1. Power point</li> <li>2. Zoom meeting</li> <li>3. E-Learning</li> <li>4. Handouts</li> </ol> <p><b>Learning Methods:</b></p> <p>Lectures Group discussions Independent Learning</p>		
10	<p>Sub-CPMK 8: After attending this lecture, students will be able to explain the biological processing of feed (fungi and bacteria)</p>	<ol style="list-style-type: none"> <li>1. Activity in the classroom</li> <li>2. Discussion with the forum (Group 1 assesses the other group and so on)</li> <li>3. How to write a paper</li> <li>4. Power point view</li> </ol>	<ol style="list-style-type: none"> <li>1. Language in expressing opinions</li> <li>2. Paper</li> <li>3. Power point display</li> <li>4. Mastery of assignment material</li> </ol>	<p>Time : 50 minutes</p> <p><b>Activity:</b></p> <ol style="list-style-type: none"> <li>1. Be present on time</li> <li>2. Download learning materials</li> <li>3. Looking for journals related to the material</li> </ol> <p><b>Task 2:</b></p> <p><u>1.</u> Divide the group evenly (the lecturer divides)</p>	<p>Time : 100 Minutes</p> <p><b>Activities:</b></p> <ol style="list-style-type: none"> <li>1. Learn the rules, competencies (skills), materials, tasks, and assessments applied during the classroom</li> <li>2. Make notes about the learning materials explained</li> </ol>	<p><b>Subject Matter:</b></p> <ol style="list-style-type: none"> <li>a. Purpose of biological feed processing (fungi)</li> <li>b. Biological feed processing techniques (mushrooms )</li> </ol>	5%

				<p>2. Create a paper on mechanized processing of feed materials with a maximum of 15 pages from the table of contents to the TMR font bibliography size 12 spaces 1.5 sent in pdf form</p> <p>3. Group presentations</p>	<p>3. Responding to questions or instructions given by lecturers</p> <p>4. Responding to questions from the audience on the presenter group</p> <p><b>Media:</b></p> <p>5. Power point</p> <p>6. Zoom meeting</p> <p>7. E-Learning</p> <p>8. Handouts</p> <p><b>Learning Methods:</b></p> <p>1. Lectures</p> <p>2. Group discussions</p> <p>3. Independent Learning</p>		
11	Sub-CPMK 8: After attending this lecture, students will be able to explain the biological processing of feed (fungi and bacteria)	<p>1. Accuracy in revealing the information needed</p> <p>2. Correctness of students' answers (Quiz)</p>	<p><b>Criterion:</b> Using the assessment rubric <i>Marking Scheme</i></p> <p><b>Shape:</b></p>	<p>Time : 50 minutes</p> <p><b>Activities:</b></p> <p>1. Review previous lessons .</p> <p>2. Reading books</p> <p>3. Record attendance.</p>	<p>Time 100 minutes</p> <p><b>Activities:</b></p> <p>a. Make notes about the learning materials described.</p>	<p><b>Subject Matter:</b></p> <p>a. Purpose of biological feed processing (bacteria)</p>	5%

			<p>1. Reading the provided section (book)</p> <p>2. Answer quizzes</p> <p><i>Worksheet</i> (Non-Test): respond to questions and be active in discussions</p>	<p>4. Responding to the opening question</p> <p><b>Task 3:</b></p> <p>1. Re-explain the information obtained and</p> <p>2. Answer quiz questions</p> <p><b>Moda (Learning Management System):</b> <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>b. Responding to questions.</p> <p>c. Completing and submitting quizzes</p> <p><b>Media:</b></p> <p>1. <i>Power Point Presentation</i></p> <p>2. <i>Text Book</i></p> <p>3. <i>Zoom Meeting/ offline</i></p> <p><b>Learning Methods:</b></p> <p>1. <i>Online Lecture/ offline</i></p> <p>2. <i>Discussion</i></p> <p>3. <i>Quiz</i></p> <p>4. <i>Self-Paced</i></p> <p>5. <i>Learning</i></p>	<p>b. Biological feed processing techniques (bacteria)</p>	
12	Sub-CPMK 9: After attending this lecture, students will be able to make processed animal feed (Silase)	<p>a. <i>Laporan Project Base Learning Tuntas</i></p> <p>b. <i>Producing products</i></p>	<p><b>Criterion:</b> <i>Marking Scheme</i></p> <p><b>Shape:</b> <i>Worksheet</i> (Non-Tes)</p> <p>1. <i>Create a Project Base Learning Report.</i></p>	<p>Time 20 minutes</p> <p>1. Activities:</p> <p>2. Review previous lessons.</p> <p>3. Read the added teaching materials.</p> <p>4. Record attendance.</p> <p><b>Task 4:</b></p>	<p>Time 130 minutes</p> <p><b>Activities:</b></p> <p>1. Create a project base learning report</p> <p>2. Making processed feed products, namely Silage</p> <p><b>Media:</b></p>	<p><b>Subject Matter:</b></p> <p>a. Purpose of making silage</p> <p>b. Silage processing process</p> <p>c. Factors affecting the quality of</p>	5%

			2. <i>Producing Products</i>	PBL Report Product  <b>Moda (Learning Management System):</b> <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a>	<i>Power Point</i> <i>Text book</i>  <b>Learning Methods:</b> 1. <i>Online/ offline Lecture</i> 2. <i>Project Base Learning</i>	ensilase products	
13	Sub-CPMK 9: After attending this lecture, students will be able to make processed animal feed (Hay)	a. <i>Laporan Project Base Learning Tuntas</i> b. <i>Producing products</i>	<b>Criterion:</b> <i>Marking Scheme</i>  <b>Shape:</b> <i>Worksheet (Non-Tes)</i> 1. <i>Create a Project Base Learning Report.</i> 2. <i>Producing Products</i>	Time 20 minutes <b>Activities:</b> 1. Review previous lessons. 2. Read the added teaching materials. 3. Record attendance.  <b>Task 4:</b> PBL Report Product  <b>Moda (Learning Management System):</b> <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a>	Time 130 minutes <b>Activities:</b> 3. Create a project base learning report 4. Making processed feed products, namely Hay  <b>Media:</b> <i>Power Point</i> <i>Text book</i>  <b>Learning Methods:</b> 1. <i>Online/ offline Lecture</i> 2. <i>Project Base Learning</i>	<b>Subject Matter:</b> a. Hay form b. Purpose of making hay c. Hay processing process d. Factors affecting the quality of hay products	10%

14	Sub-CPMK 9: After attending this lecture, students will be able to make processed animal feed	<i>a. Laporan Project Base Learning Tuntas</i> <i>b. Producing products</i>	<b>Criterion:</b> <i>Marking Scheme</i>  <b>Shape:</b> <i>Worksheet (Non-Tes)</i> 1. <i>Create a Project Base Learning Report.</i> 2. <i>Producing Products</i>	Time 20 minutes <b>Activities:</b> 1. Review previous lessons. 2. Read the added teaching materials. 3. Record attendance.  <b>Task 4:</b> PBL Report Product  <b>Moda (Learning Management System):</b> <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a>	Time 130 minutes <b>Activities:</b> 1. Create a project base learning report 2. Making processed feed products, namely UMB  <b>Media:</b> <i>Power Point</i> <i>Text book</i>  <b>Learning Methods:</b> 1. <i>Online/ offline Lecture</i> 2. <i>Project Base Learning</i>	<b>Subject Matter:</b> a. Purpose of UMB b. UMB manufacturing process	10%
15	Sub-CPMK 9: After attending this lecture, students will be able to make processed animal feed	<i>a. Laporan Project Base Learning Tuntas</i> <i>b. Producing products</i>	<b>Criterion:</b> <i>Marking Scheme</i>  <b>Shape:</b> <i>Worksheet (Non-Tes)</i> 3. <i>Create a Project Base Learning Producing Products</i>	Time 20 minutes <b>Activities:</b> 1. Review previous lessons. 2. Read the added teaching materials. 3. Record attendance.	Time 130 minutes <b>Activities:</b> 1. Create a project base learning report 2. Making processed feed products, namely Complete Feed	<b>Subject Matter:</b> a. Manfaat complete feed b. The process of creating a complete feed	5%

				<b>Task 4:</b> PBL Report Product  <b>Moda (Learning Management System):</b> <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a>	<b>Media:</b> <i>Power Point</i> <i>Text book</i>  <b>Learning Methods:</b> 1. <i>Online/ offline Lecture</i> 2. <i>Project Base Learning</i>		
<b>16</b>	<b>FINAL SEMESTER EXAMINATION</b>						<b>15%</b>

#### CPMK Fulfillment Matrix with Types of Evaluation and Process

Form of Evaluation	
<b>Quiz</b>	Quiz assessment
<b>Assignment</b>	Task assessment
<b>Case Method</b> (presentation and participation in discussions)	Presentation assessment rubric
<b>UTS</b>	UTS Assessment (Multiple choice questions and essays)
<b>UAS</b>	UAS Assessment (Multiple choice questions and essays)

#### Assessment Plan

Form of Evaluation	Weight	Frequency
Quiz	20	2 (held in the 3rd and 9th weeks)
Assignment	20	2 (held in the 4th and 10th weeks)
UTS	30	1 (held in the 8th week)
UAS	30	1 (held in the 16th week)
<b>Total</b>	<b>100%</b>	

**Explanation:**

a. Quiz 10%

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

b. 10% Assignment

During the semester there will be 2 structured tasks. The assignment given is an effort to increase student insight by making papers and reports in groups related to the material written in the RPS. The papers that have 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 make presentations.

c. UTS 30%

The midterm exam covers all the material that has been discussed from the beginning of the semester to the 7th meeting, both reading and lecture. This exam is conducted in class in the form of multiple-choice questions, short fills, and essays.

d. UAS 30%

The final semester exam covers all the material that has been discussed from the 9th to the 15th meeting, both readings and lectures. This exam is conducted in class in the form of multiple-choice questions, short fills, and essays.

**ASSESSMENT SCORE**

**Post Test Quiz Assessment Rubric (10%)**

Pre/Post test questions have 5 essay questions done on a piece of paper (done 2 times for 1 semester)

<b>Grades per item of the question</b>	<b>Criterion</b>
20	Be able to answer questions correctly, the steps to work on the questions correctly, and be completely correct
15	The steps to work on the questions are correct, there are few mistakes
10	Most of the steps to work on the questions are correct, there are many mistakes
5	The steps to work on the questions are not precise, unable to solve the problems

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

**Minimum score = 25 (5 questions x 5 points)**

Quiz score 1:  $20 \times$  the value per question item (maximum score is 100)

Quiz score 2:  $20 \times$  the value per question item (maximum score is 100)

**Group Presentation Task Assessment Rubric (10%)**

Thing	Evaluation criteria				
Fill	Complete, with additional good material (20)	Complete (18)	Same as text book (16)	Not complete, but most of the material has been covered (14)	Substantially incomplete (12)
Answering discussion questions	Able to answer all questions correctly (20)	Can answer most questions correctly but there are unanswered questions (18)	Be able to answer some questions correctly, others do not reach the goal and there are questions that are not answered (16)	Most of the answers don't hit the target and there are unanswered questions (14)	Can't answer all questions (12)
Presentation	Clear, concise with good groove (20)	Obviously, concise with a plot is sometimes not good (18)	Medium presentation skills (16)	Stuttering Presentations (14)	Presentation not running (12)
Group organization	Very good organization, supporting each	Nice organization (18)	Medium organization, some people are organized (16)	Lack of organization so that communication errors often occur (14)	The organization is chaotic so the

	other's presentations (20)				presentation is very disrupted (12)
Creativeness	Very creative without going out of purpose (20)	Creative creates enthusiasm (18)	Occasionally eye-catching (15)	Occasionally eye-catching (13)	Dull, sleepy (11)
<b>TOTAL</b>	<b>100</b> <b>(Very good)</b>	<b>90-80</b> <b>(Very Good)</b>	<b>79-70</b> <b>(Good)</b>	<b>69-50</b> <b>(Good enough)</b>	<b>59-40</b> <b>(Not Good)</b>

**Information:**

The total maximum score is 100. The numbers in parentheses are the scores of each criterion.

**Essay Exam Assessment Rubric:**

<b>Assessment Criteria</b>	<b>4 Excellent</b>	<b>3 Good</b>	<b>2 Enough</b>	<b>1 Less</b>
<b>Understanding Questions</b>	Understand the question exactly (25)	Understanding questions (20)	Not understanding the question fully and accurately (15)	Don't understand the question (10)
<b>Fill</b>	Answers show understanding	Answers show an understanding of the material asked and integrate some of	The answer shows a lack of understanding of the material being	The answer shows an incomprehension of the

	in-depth to the material asked and participants integrate the information that has been learned and/or assigned to be read during the lecture properly and appropriately (25)	the information that has been learned and/or assigned to be read during the lecture. (20)	asked and only integrates  A small portion of the information that has been learned and/or assigned to be read during lectures. (15)	material asked so that it is not clear and does not integrate information that has been learned and/or assigned to be read during lectures. (10)
<b>Clarity of Writing</b>	All the ideas of the writing are conveyed well and clearly. (25)	Most of the ideas of writing are conveyed well and clearly. (20)	Some of the ideas of the writing are conveyed well and clearly. (15)	The idea of writing is not conveyed properly and clearly. (10)
<b>Language Clarity</b>	Use foreign / Indonesian language well and correctly, few grammatical errors and word choices that do not interfere with understanding (25)	Use foreign / Indonesian languages well and correctly with few grammatical errors and word choices that interfere with understanding. (20)	Using a foreign language quite well and correctly with some grammatical errors and word choices (15)	Not using foreign/Indonesian languages properly and correctly because the writing contains many grammatical errors and word choices (10)
<b>Total</b>	<b>81-100</b> <b>(Very Good)</b>	<b>61-80</b> <b>(Good enough)</b>	<b>41-60</b> <b>(Enough)</b>	<b>0-40</b> <b>(Less)</b>

**Multiple Choice Exam Assessment Rubric:**

<b>Grades per item of the question</b>	<b>Criterion</b>
100/ many questions	Be able to answer questions correctly
0	The answer is not correct/not in accordance with the available answer key