Module designation	Forage and Pasture Production
Semester(s) in which the module is taught	Even semester
Person responsible for the module	Ir. Nafiatul Umami, S.Pt., MP., Ph.D., IPM., ASEAN Eng. Dr. Ir. Bambang Suhartanto, DEA., IPU. Ir. Bambang Suwignyo, S.Pt., MP., Ph.D., IPM., ASEAN Eng. Dr. Miftahush Shirothul Haq, S.Pt.
Language	Bahasa and English
Relation to curriculum	Specialization's Elective
Teaching methods	Classical lecture, discussion, and lab works.
Workload (incl. contact hours, self-study hours)	Total workload: 82 hours Contact hours: – Lecture: 12 hours – Academic activity: 14 hours – Practicum: 42 hours Private study: 14 hours
Credit points	1/1
Required and recommended prerequisites for joining the module	None

Module objectives/intended learning outcomes	Course Outcomes (CO):
	1. Master technique in forage and pasture cultivation, including all related aspects.
	2. Students are capable in choosing the appropriate technique in grass and legumes cultivation according to tropical conditions.
	3. Able to formulate and sole problems in grass and legumes cultivation.
	
	Expected Learning Outcomes:
	– Mastery in Sciences:
	  1. Able to master the current animal science and its application theory. (CO1)
	  2. Able to master the design, management, and development of livestock research. (CO2)
	
	– Special skills:
	  1. Able to make innovation in the animal husbandry based on the development of science and technology. (CO2)
	  2. Able to design interdisciplinary and multidisciplinary research in the animal husbandry. (CO1)
	
	– General skills:
	  1. Able to make a decision in the context of solving problems in the development of science and technology, which pays attention and applies humanity values based on analysis study or experiment towards information and data. (CO3)

Content	Tropical livestock production can be increased by raising the output per livestock and productivity in every unit area of land. The main influential factor in livestock productivity is quality and quantity of fee, although other factors such as disease, parasite, breed, etc. are also important. Herbivorous cattle/ruminants are mainly fed with forage, from either grasses or legumes. Grazing animals in the tropical area are more than half of total grazing animals in the world. Moreover, grazing animal has extensive functions in the farming

	system, usually by low inputs, except for dairy cattle.
	In some places, livestock and plants are strongly integrated, where the by-products of crops are uses as livestock feeds, but the consequence is the output are very low compare to the other places. The advancement of technology has enabled the development of forage/pasture in tropical land, from time to time. The result is, various high-quality feeds, as a result of crossbreeding are easy to be found anywhere. The forage and pasture cultivation business are very profitable and sustainable for farmer. Clearly, this course talks about the definition of forage and pasture, management for are of forage and pasture, evaluation for quality and analysis on the availability of feed in pasture land, as well as modern technology in grass cultivation through plant tissues culture technique and its benefits in forage cultivation.

Exams and assessment formats	Assessment Components	Course Outcomes (CO)	Percentage (%)
	1. Midterm exam (written test, take home exam, paper assignment)	CO1 & CO2	20
	2. Final exam (written test, take home exam, paper assignment)	CO1, CO2 & CO3	29
	3. Quizzes	CO2	5
	4. Presentation	CO1, CO2 & CO3	10
	5. Take-home written assignments	CO1, CO2 & CO3	10
	6. Practicum	CO1, CO2 & CO3	35

Grade and Score			
Grade	Score	Grade	Score
A	≥80	C+	45-49,9
A-	75-79,9	C	40-44,9
A/B	70-74,9	C-	35-39,9
B+	65-69,9	C/D	30-34,9
B	60-64,9	D+	25-29,9
B-	55-59,9	D	20-24,9
B/C	50-54,9	E	0-19,9

Study and examination requirements	The final grade in the module is composed of 20% performance on Midterm exam, 20% final exam, 5% quiz, 10% presentation, and 10% take-home written assignment, 35% practicum. Students must have a final grade of 70% or higher to pass
Reading list	Learning books and articles related to the topic.