AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Forages								
Course Code	VHB623		Couse Level	Third Cycle (Doctorate Degree)					
ECTS Credit	9	Workload	226 *(Hours)*	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	Forages and classification of forages. Importance of forages in ruminants. Forages and its economic importance in Turkey and World. Forages and its varieties. Production of forages. Forage production technology. Providing support for improving forage production in Turkey followed by recent developments in world								
Course Content	Importance of forages in nutrition. Importance of forages in nutrition of different livestock. Criterias for forage quality. Classification of forages. Common forages used in Turkey. Their negative or positive effects on production.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Individual Study, Problem Solving								
Name of Lecturer(s)									

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	28
Final Examination	1	60
Assignment	8	12

Recommended or Required Reading	
1	Barnes, R.F., Nelson, C.J., Moore, K.J., Collins, M. (2007) Forages, Blackwell Publishing.
2	Cheeke, P.R. (1999) Applied Animal Nutrition: Feeds and Feeding, Prentice Hall International, USA.

Week	Weekly Detailed Course Contents	
1	Theoretical	Importance of forages in ruminant nutrition.
	Practice	Discussion of availability of developing pastures. Giving information about forages their past and future in Turkey.
2	Theoretical	Classification of forages.
	Practice	Chemical, physical and microbiological treatments used in determination of forage quality.
3	Theoretical	Green forages, pastures.
	Practice	Demonstrating forage sampling and preparation for the laboratory analysis.
4	Theoretical	Graminosa and legumunosa green forages
	Practice	Discussion of critical points considered in determination of dietary supplementation levels of forages in different animal species (large, small ruminants and horses).
5	Theoretical	Hays and drying methods.
	Practice	Sharing recent informations about the problems occurred in forage production.
6	Theoretical	Determination of quality in hays and its importance. Nutrient losses in drying procedure.
	Practice	Searching the ability of forages satisfying the daily nutrient needs of animals.
7	Theoretical	Silage and classification of silage
	Practice	Searching the forages produced in close regions. Teaching their given amounts to different animal species with different production type.
8	Practice	Evaluation of exam results and general subject repetition.
	Intermediate Exam	Midterm exam
9	Theoretical	Advantages of silage
	Practice	Demonstrating high and low quality silage. Factors effecting silage quality. Demonstrating organoleptic treatments of silage.
10	Theoretical	Optimum condition for lactic acid bacteria. Optimum feed plants for silage microbiology. Characteristics of high quality silage.
	Practice	Evaluation of physical form and storage conditions of silage given to animals in close farms.
11	Theoretical	Losses in silaging. Silage additives. Silage consumption.

11	Practice	Sharing informations about the effects of forage processing on the bioavilability of nutrients. Giving home assignment related to this subject.
12	Theoretical	Root and tuber feeds: roots
	Practice	Determination of the effects of xylose and glucose treatments on feed digestibility and animal performance.
13	Theoretical	Feeds rich from ballast substances. Importance of ballast in feeds.
	Practice	Teaching biotecnological developments used in enhancing complex carbohydrate utilization in low quality feeds.
14	Theoretical	Hull, glume and other feeds.
	Practice	Determination of hygiene status of forages. Identification of non-feed substances by chemical and physical methods.
15	Theoretical	General repetition
	Practice	Presentation of homework
16	Practice	Evaluation of exam results. General exam repetition.
	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	2	28
Lecture - Practice	15	0	2	30
Assignment	8	9	1	80
Reading	14	0	4	56
Midterm Examination	1	12	2	14
Final Examination	1	16	2	18
			Total Workload (Hours)	226
			[Total Workload (Hours) / 25*] = **ECTS**	9

**25 hour workload is accepted as 1 ECTS*

Learning Outcomes

1	Importance of forage in economic animal husbandry
2	Varieties of forages and their production
3	Conserved forages; High quality silage and hay production
4	Gaining information about the nutrient levels of high and low quality forages and their importance to digestion physiology.
5	Economic importance of forages for livestock Forage types and producing of quality forages Conservation of forages, hay making and silage making, Nutritive value of high and low quality forages and importance of them on the view of the digestive physiology

Programme Outcomes *(Animal Nutrition and Nutritional Diseases (Veterinary Medicine) Doctorate)*

1	Knows information about importance of forage and concentrates in basic animal nutrition for protecting animal health in scientific and technological animal production.
2	Have ability to formulate economical and full-satisfactory rations with considering product quality and health. May inform animal producers about practical/appropriate feeding methods.
3	Can adapt to recent scientific and technological developments in animal nutrition easier and produce proper strategies against to problems on this field.
4	Knows the properties of feeds used in proper and economical rations formulated due to needs of animal species.
5	Can give information to animal producers about properties of common feedstuffs used in Turkey
6	Knows organoleptic, physical diagnostic and chemical analysis methods used in determining feed quality.
7	Have information about processing and the effects of processing on animal yield.
8	Can identify the term “feed hygiene” and have information about the usage availability of contaminated feedstuffs.
9	Can apply the informations related to feed additives in a proper way.
10	Understands the results and factors decreasing production.
11	Knows the nutrition related diseases and their solution recommendations which may be applied in feeding or formulating feeds for preventing nutiritonal diseases.
12	Knows about the availability level of feedstuffs after consumed and can perform digestibility trials.
13	Knows the definition of stress, stress sources and effects on health and production level of animals.
14	Have sufficient information on classification, activation and fermentation of rumen microorganisms plus carbohydrate, lipid and protein digestibility.
15	Knows the factors effecting feed intake and negative factors in feedstuffs and preventation of them.

16	Comments on feeding behaviours and related yield parameters.
17	Have information on basic terms related to feed legislation, feeds used in animal nutrition and their legal regulations.
18	Have information about biotechnological research conducted on feeds and animal nutrition.
19	Knows the effects of nutrition on food quality, fertility, immunity and parasite enfestations.

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4
P1	5			
P4	5	5	5	5
P5	5	5	5	5
P7		5	5	