AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Determination of Quality in Feeds								
Course Code	VHB601		Couse Level		Third Cycle (Doctorate Degree)				
ECTS Credit	10	Workload	254 *(Hours)*	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	Teaching significance of quality in feedstuffs and factors effecting feed quality. Teaching feed sampling for analysis and analysis techniques for determination of feed quality.								
Course Content	Teaching significance of quality in feedstuffs and factors effecting feed quality. Teaching feed sampling for analysis and analysis techniques for determination of feed quality.								
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	10	12

Recommended or Required Reading	
1	Karabulut, A., Canbolat, Ö. (2005). Yem Değerlendirme ve Analiz Yöntemleri, Uludağ Üniversitesi Basımevi, Bursa.
2	Kellerns, R.O., Church, D.C. (2002) Livestock Feeds and Feeding, Prentice Hall, New Jersey.
3	Sauvant, D., Perez, J.M., Tran, G. (2004) Tables of Composition and Nutritional Value of Feed Materials, INRA Editions, Wageningen Academic Publishers.
4	Akkılıç, M., Sürmen, S. (1979). Yem Maddeleri ve Hayvan Besleme Laboratuvar Kitabı. A.Ü. Veteriner Fakültesi Yayınları, Ankara.
5	Faithfull, N.T. (2002) Methods in Agricultural Chemical Analysis, Biddles Ltd, Guildford and King's Lynn, England.

Week	Weekly Detailed Course Contents	
1	Theoretical	Definition of quality, significance of feed quality, factors altering feed quality.
	Practice	Introducing basic rules and lab equipments in feed laboratory
2	Theoretical	General rules applied in feed sampling for analysis, concentrates and feed sampling from concentrates.
	Practice	Concentrates and sampling from concentrates
3	Theoretical	Sampling from forages, mineral blocks, liquid feeds, and semi liquid feeds
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4	Theoretical	Procedures must be undertaken for feed samples in lab, preparation of samples for analysis, qulity assessment methods in feedstuffs.
	Practice	Literature search on specific subject
5	Theoretical	Physical, organoleptic and microscobic treatment of feeds (concentrates and forages)
	Practice	Pyhsical, organileptic and microscobic observation of concentrates and forages
6	Theoretical	Chemical analysis- Classification of nutrients according to Wendee Analysis System, defining the term 'crude', dry matter analysis methods.
	Practice	Dry matter analysis in feedstuffs
7	Theoretical	Crude ash, ether extract analysis.
	Practice	Performing crude ash, ether extract analysis.
8	Practice	Performing ether extract analysis
	Intermediate Exam	Midterm exam
9	Theoretical	Crude protein, crude fiber analysis and calculation of total carbohydrate and nitrogen free extract.
	Practice	Performing crude protein analysis
10	Theoretical	Van Soest method, NDF, ADF and ADL analysis
	Practice	Performing crude fiber analysis
11	Theoretical	Practical chemical analysis
	Practice	Performing NDF analysis in feedstuffs

12	Theoretical	Quality tests for feed additives, Quick quality determination tests for protein sources.
	Practice	Performing ADF and ADL analysis
13	Theoretical	Microbiological observation of feedstuffs
	Practice	Some spot and quick tests on various feedstuffs
14	Theoretical	Analysis of Crude protein, digestible crude protein, energy, metabolizable energy and preparation of it solutions.
	Practice	Microscobiological observation of feedstuffs
15	Theoretical	General repeatition of subjects
	Practice	Literature research on a specific subject
16	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	10	7	1	80
Reading	14	0	6	84
Midterm Examination	1	12	2	14
Final Examination	1	16	2	18
			Total Workload (Hours)	254
			[Total Workload (Hours) / 25*] = **ECTS**	10
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	Understanding feed quality and its importance as a term in animal nutrition
2	Knows analysis methods for determination of quality in feedstuffs
3	Microbiological observation of feedstuffs
4	Physical, organoleptic and microscobic treatment of feeds (concentrates and forages)
5	Concentrates and sampling from concentrates

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
P1	5	
P3	5	
P4	5	
P5	5	
P6		5