PROTEIN AND ENERGY (CARBOHYDRATES, LIPIDS) METABOLISM

1	Course Title:	PROTEIN AND ENERGY (CARBOHYDRATES, LIPIDS) METABOLISM	
2	Course Code:	VHB6003	
3	Type of Course:	Compulsory	
4	Level of Course:	Third Cycle	
5	Year of Study:	1	
6	Semester:	1	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	VET2020 Feed Science and Animal Nutrition	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. HAKAN BİRİCİK	
15	Course Lecturers:	Prof.Dr.H.BİRİCİK, Prof.Dr. Ş.Ş. CENGİZ, Doç.Dr. Derya YEŞİLBAĞ	
16	Contact information of the Course Coordinator:	biricik@uludag.edu.tr , +902242941364, Uludağ Üniversitesi Veteriner Fakültesi Hayvan Besleme ve Beslenme Hastalıkları Anabilim Dalı, Görükle Kampüsü, Nilüfer-Bursa/Türkiye	
17	Website:	http://saglikbilimleri.uludag.edu.tr/anabilimdallari.php	
18	Objective of the Course:	To educate specialists who have knowledge about carbohydrates, fats and proteins, their significance in animal nutrition, effects of diet and the level of need.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Knowledge and skills up to date on the importance of Protein, Carbohydrate, Fat and Energy in animal nutrition;
		2	Becomes informed of the protein, carbohydrate and fat digestion and absorption in according to type of animal ;
		3	Becomes evaluated the differences of protein, carbohydrate and fat digestibility in according to type of animal ;
		4	Comprehends the transformation of nutrients between them;
		5	Becomes knowledge and skills of methods used for the determination of feed energy ;
		6	Gets knowledge and skills about energy metabolism, energy evaluation systems ;
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21	Course Content:		

Course Content:

Week	Theoretical	Practice
1	Classification of carbohydrates: sugars, non-sugars and others.	

2	Carbohydrate digestion: Carbohydrate metabolism in monogastric animals it's adsorption, Carbohydrate metabolism in ruminants and it's adsorption	
3	Carbohydrate metabolism: Glucose catabolism and propionic acid catabolism in ruminants.	
4	Carbohydrate metabolism (continues): Conversion of carbohydrate into lipids and amino acids, carbohydrate synthesis, glyconeogenesis	
5	Structures and classifications of lipids: fatty acids, glycerides, triglycerides, involving glycerin and not involving glycerin.	
6	Lipid digestion: Lipid digestion and adsorption in monogastric animals, lipid digestion and adsorption in ruminants: Hydrolysis in lipids, biohydrogenation, fatty acid synthesis in rumen	
7	Lipid metabolism in dairy cows: Usage of protected lipids, effects of hormones, l-carnitin and other likes on lipid metabolism, lipid peroxidation and oxidation in feed oils.	
8	Classification of proteins: simple, complex and non protein nitrogen, amino acids and classification of amino acids.	
9	Protein digestion: Protein digestion-absorption in monogastric animals and	
11	Definition of energy: Gross energy, digestible energy, metabolic energy, net energy	
12	dynamic preparation, protection	
14	direct and indirect methods Energy metabolism: Basal metabolism	
22	energy requirements of animals, energy evaluation methods in poultry Textbooks, References and/or Other Materials:	Feed and nutrition M.E.Ensminger J.E.Oldfield W.W.Heinemann Ensminger Publishing co D.C.Church o&b book,inc

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preparation	14	5.00	70.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm Exams	0	0.00	0.00
Others	0	0.00	0.00
Final Exams	1	68.00	68.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	0	0.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	100.00
Total	1	100.00
Contribution of Term (Year) Learning Activities to Success Grade		0.00
Contribution of Final Exam to Success Grade		100.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

24	ECTS / WORK LOAD TABLE

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK2	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK3	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK4	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK5	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
ÖK6	5	4	3	2	2	5	1	1	2	1	2	2	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	**1 very low**		**2 low**		**3 Medium**		**4 High**			**5 Very High**						