DEPARTMENT OF ANIMAL NUTRITION
APOLLO COLLEGE OF VETERINARY MEDICINE, JAIPUR
Second Professional Year B.V.Sc. & A.H.

LECTURE SCHEDULE – THEORY

Credit Hours: 3+1 **Academic Year: 2024-25**

S. No.	Date	Name of Topic	Name of Course Teacher
UNIT-1 (PRINCIPLES OF ANIMAL NUTRITION AND FEED TECHNOLOGY)			
1	20.11.24	History of animal nutrition.	Dr. Deshmukh
2	21.11.24	History of animal nutrition.	Dr. Deshmukh
3	22.11.24	Importance of nutrients in animal production and health.	Dr. Deshmukh
4	27.11.24	Importance of nutrients in animal production and health.	Dr. Deshmukh
5	28.11.24	Composition of animal body and plants.	Dr. Deshmukh
6	29.11.24	Composition of animal body and plants.	Dr. Deshmukh
7	04.12.24	Nutritional terms and their definitions.	Dr. Deshmukh
8	05.12.24	Nutritional terms and their definitions.	Dr. Deshmukh
9	06.12.24	Nutritional aspect of carbohydrates, protein and fats.	Dr. Deshmukh
10	11.12.24	Nutritional aspect of carbohydrates, protein and fats.	Dr. Deshmukh
11	12.12.24	Role and requirement of water, metabolic water.	Dr. Deshmukh
12	13.12.24	Role and requirement of water, metabolic water.	Dr. Deshmukh
13	18.12.24	Importance of minerals (major and trace elements) in health and production, their requirements and supplementation in feed.	Dr. Deshmukh
14	19.12.24	Importance of minerals (major and trace elements) in health and production, their requirements and supplementation in feed.	Dr. Deshmukh
15	20.12.24	Importance of minerals (major and trace elements) in health and production, their requirements and supplementation in feed.	Dr. Deshmukh
16	26.12.24	Importance of minerals (major and trace elements) in health and production, their requirements and supplementation in feed.	Dr. Deshmukh
17	27.12.24	Importance of vitamins in health and production, their requirements and supplementation in feed.	Dr. Deshmukh
18	1-1-2025	Importance of vitamins in health and production, their requirements and supplementation in feed.	Dr. Deshmukh
19	2-1-2025	Importance of vitamins in health and production, their requirements and supplementation in feed.	Dr. Deshmukh
20	3-1-2025	Importance of vitamins in health and production, their requirements and supplementation in feed.	Dr. Deshmukh
21	8-1-2025	Common feeds and fodders, their classification, availability and importance for livestock and poultry production.	Dr. Kawitkar

22	9-1-2025	Common feeds and fodders, their classification, availability and importance for livestock and poultry production.	Dr. Kawitkar
23	10-1-2025	Common feeds and fodders, their classification, availability and importance for livestock and poultry production.	Dr. Kawitkar
24	15-1-2025	Measures of food energy and their applications: GE, DE, ME, NE.	Dr. Kawitkar
25	16-1-2025	Measures of food energy and their applications: GE, DE, ME, NE.	Dr. Kawitkar
26	17-1-2025	Measures of food energy and their applications: GE, DE, ME, NE.	Dr. Kawitkar
27	22-1-2025	Measures of food energy and their applications: TDN, SE, food units, physiological fuel value.	Dr. Kawitkar
28	23-1-2025	Measures of food energy and their applications: TDN, SE, food units, physiological fuel value.	Dr. Kawitkar
29	24-1-2025	Direct and indirect calorimetry, C – N balance studies.	Dr. Kawitkar
30	29-1-2025	Direct and indirect calorimetry, C – N balance studies.	Dr. Kawitkar
31	30-1-2025	Measures of protein quality in ruminants and non-ruminants: BV of protein, PER, protein equivalent.	Dr. Kawitkar
32	31-1-2025	Measures of protein quality in ruminants and non-ruminants: DCP, Calorie protein ratio. Nutritive ratio.	Dr. Kawitkar
33	05-2-2025	Measures of protein quality in ruminants and non-ruminants: DCP, Calorie protein ratio. Nutritive ratio.	Dr. Kawitkar
34	06-2-2025	Feed industry: Processing of concentrates and roughages.	Dr. Kawitkar
35	12-2-2025	Various physical, chemical and biological methods for improving the nutritive value of inferior quality roughages.	Dr. Kawitkar
36	13-2-2025	Various physical, chemical and biological methods for improving the nutritive value of inferior quality roughages.	Dr. Kawitkar
37	14-2-2025	Preparation, storage and conservation of livestock feed through silage and their uses in livestock feeding.	Dr. Kawitkar
38	19-2-2025	Preparation, storage and conservation of livestock feed through hay and their uses in livestock feeding.	Dr. Kawitkar
39	20-2-2025	Harmful natural constituents and common adulterants of feeds and fodders.	Dr. Kawitkar
40	21-2-2025	Harmful natural constituents and common adulterants of feeds and fodders.	Dr. Kawitkar
41	27-2-2025	Feed additives in the livestock and poultry and their uses.	Dr. Kawitkar
42	28-2-2025	Feed additives in the rations of livestock and poultry and their uses.	Dr. Kawitkar
43	05-3-2025	Importance of scientific feeding.	Dr. Rathode
44	06-3-2025	Importance of scientific feeding.	Dr. Rathode
UNIT-2			
45	07-3-2025	Feeding experiments. Digestion and metabolism trial.	Dr. Rathode
46	12-3-2025	Feeding experiments. Digestion and metabolism trial.	Dr. Rathode
47	19-3-2025	Feeding experiments. Digestion and metabolism trial.	Dr. Rathode
48	20-3-2025	Feeding experiments. Digestion and metabolism trial.	Dr. Rathode
49	21-3-2025	Norms adopted in conducting digestion trial.	Dr. Rathode
50	26-3-2025	Norms adopted in conducting digestion trial.	Dr. Rathode

51	27-3-2025	Norms adopted in conducting digestion trial.	Dr. Rathode
52	28-3-2025	Measurement of digestibility.	Dr. Rathode
53	02-4-2025	Measurement of digestibility.	Dr. Rathode
54	03-4-2025	Factors affecting digestibility of a feed.	Dr. Rathode
55	04-4-2025	Factors affecting digestibility of a feed.	Dr. Rathode
56	09-4-2025	Factors affecting digestibility of a feed.	Dr. Rathode
57	16-4-2025	Feeding standards, their uses and significance, merit and demerits of various feeding standards with reference to ruminants.	Dr. Kawitkar
58	17-4-2025	Feeding standards, their uses and significance, merit and demerits of various feeding standards with reference to ruminants.	Dr. Kawitkar
59	23-4-2025	Feeding standards, their uses and significance, merit and demerits of various feeding standards with reference to ruminants.	Dr. Kawitkar
60	24-4-2025	Feeding standards, their uses and significance, merit and demerits of various feeding standards with reference to ruminants.	Dr. Kawitkar
61	25-4-2025	Balanced ration and its characteristics.	Dr. Deshmukh
62	3-5-2025	Balanced ration and its characteristics.	Dr. Deshmukh
63	5-5-2025	Balanced ration and its characteristics.	Dr. Deshmukh
64	6-5-2025	Nutrient requirements and methods for assessing the energy requirements for maintenance and production in terms of growth, reproduction, milk, meat, wool and draft purpose.	Dr. Deshmukh
65	10-5-2025	Nutrient requirements and methods for assessing the energy requirements for maintenance and production in terms of growth, reproduction, milk, meat, wool and draft purpose.	Dr. Deshmukh
UNIT-3			
66	12-5-2025	Nutrient requirements and methods for assessing the protein requirements for maintenance and production in terms of growth, reproduction, milk, meat, wool and draft purpose.	Dr. Deshmukh
67	13-5-2025	Nutrient requirements and methods for assessing the protein requirements for maintenance and production in terms of growth, reproduction, milk, meat, wool and draft purpose.	Dr. Deshmukh
68	17-5-2025	General principles of computation of rations.	Dr. Kawitkar
69	19-5-2025	General principles of computation of rations.	Dr. Kawitkar
70	20-5-2025	General principles of computation of rations.	Dr. Kawitkar
71	24-5-2025	Formulation of rations and feeding of dairy cattle and buffaloes during different phases of growth and production (neonate, young, adult, pregnant, lactating and dry animals; breeding bull) and working animals.	Dr. Kawitkar
72	26-5-2025	Formulation of rations and feeding of dairy cattle and buffaloes during different phases of growth and production (neonate, young, adult, pregnant, lactating and dry animals; breeding bull) and working animals.	Dr. Kawitkar

73	27-5-2025	Formulation of rations and feeding of dairy cattle and buffaloes during different phases of growth and production (neonate, young, adult, pregnant, lactating and dry animals; breeding bull) and working animals.	Dr. Kawitkar
74	31-5-2025	Formulation of rations and feeding of dairy cattle and buffaloes during different phases of growth and production (neonate, young, adult, pregnant, lactating and dry animals; breeding bull) and working animals.	Dr. Kawitkar
75	2-6-2025	Formulation of ration and feeding of sheep and goat during different phases of growth and production (milk, meat and wool).	Dr. Rathode
76	3-6-2025	Formulation of ration and feeding of sheep and goat during different phases of growth and production (milk, meat and wool).	Dr. Rathode
77	9-6-2025	Formulation of ration and feeding of sheep and goat during different phases of growth and production (milk, meat and wool).	Dr. Rathode
78	10-6-2025	Formulation of ration and feeding of sheep and goat during different phases of growth and production (milk, meat and wool).	Dr. Rathode
79	16-6-2025	Feeding of high yielding animals and role of bypass nutrients.	Dr. Rathode
80	17-6-2025	Feeding of high yielding animals and role of bypass nutrients.	Dr. Rathode
81	23-6-2025	Feeding of high yielding animals and role of bypass nutrients.	Dr. Rathode
82	24-6-2025	Feeding of high yielding animals and role of bypass nutrients.	Dr. Rathode
83	28-6-2025	Metabolic disorders and nutritional interventions.	Dr. Rathode
84	30-6-2025	Metabolic disorders and nutritional interventions.	Dr. Rathode
85	2-7-25	Metabolic disorders and nutritional interventions.	Dr. Rathode
86	3-7-25	Use of NPN compounds for ruminants.	Dr. Kawitkar
87	4-7-25	Use of NPN compounds for ruminants.	Dr. Kawitkar
88	5-7-25	Nutrient requirements in poultry, swine and equine: Energy and protein requirement for maintenance and production.	Dr. Rathode
89	9-7-25	Nutrient requirements in poultry, swine and equine: Energy and protein requirement for maintenance and production.	Dr. Rathode
UNIT-4			
90	10-7-25	Methods adopted for arriving at energy requirements for maintenance and production in terms of growth, reproduction and production (egg, meat and work).	Dr. Deshmukh
91	11-7-25	Methods adopted for arriving at energy requirements for maintenance and production in terms of growth, reproduction and production (egg, meat and work).	Dr. Deshmukh
92	16-7-25	Methods adopted for arriving at protein requirements for maintenance and production in terms of growth, reproduction and production (egg, meat and work).	Dr. Deshmukh
93	17-7-25	Methods adopted for arriving at protein requirements for maintenance and production in terms of growth, reproduction and production (egg, meat and work).	Dr. Deshmukh

94	18-7-25	Feeding standards for non-ruminants and poultry	Dr. Kawitkar
95	23-7-25	Feeding standards for non-ruminants and poultry	Dr. Kawitkar
96	24-7-25	Formulation of rations as per Bureau of Indian Standards and Indian Council of Agricultural Research specifications.	Dr. Rathode
97	25-7-25	Formulation of rations as per Bureau of Indian Standards and Indian Council of Agricultural Research specifications.	Dr. Rathode
98	30-7-25	Feeding of swine (Piglets, Growers, Lactating) with conventional and unconventional feed ingredients.	Dr. Rathode
99	31-7-25	Feeding of swine (pregnant sows, Breeding boar, Fattening animals) with conventional and unconventional feed ingredients.	Dr. Kawitkar
100	1-8-25	Feeding of equine (foal, yearling, broodmare, stallion and race horses) with conventional and unconventional feed ingredients.	Dr. Kawitkar
101	6-8-25	Feeding of poultry (Starter, Growers, Broilers, Layers) with conventional and unconventional feed ingredients.	Dr. Kawitkar
102	7-8-25	Feeding of poultry (Starter, Growers, Broilers, Layers) with conventional and unconventional feed ingredients.	Dr. Kawitkar
103	8-8-25	Feeding of ducks, quails, turkeys and laboratory animals.	Dr. Kawitkar
104	13-8-25	Feeding of laboratory animals; Nutrient requirements of mice, rat, rabbit and guinea pig.	Dr. Rathode
105	14-8-25	Diet formulation, preparation and feeding of rabbits	Dr. Rathode
106	20-8-25	Nutrient requirement and feeding of different categories of dogs and cats; Peculiarities of feeding cats	Dr. Rathode
107	21-8-25	Feeding of wild animals and birds in captivity.	Dr. Rathode
108	22-8-25	Metabolic disorders and nutritional intervention.	Dr. Rathode

LECTURE SCHEDULE – PRACTICAL

S. No.	Date	Batch	Name of Topic	Name of Course Teacher
UNIT-1 (PRINCIPLES OF ANIMAL NUTRITION AND FEED TECHNOLOGY)				
1	26.11.24	(A)	General precautions while working in nutrition laboratory	Dr G.B.Deshmukh
	27.11.24	(B)		
	21.11.24	(C)		
	25.11.24	(D)		
2	3.12.24	(A)	Familiarisation of various feeds and fodders	Dr G.B.Deshmukh
	4.12.24	(B)		
	28.11.24	(C)		
	2.12.24	(D)		
3	10.12.24	(A)	Preparation and processing of samples for chemical analysis - herbage, faeces, urine and silages	Dr S.B.Kawitkar
	11.12.24	(B)		
	12.12.24	(C)		
	9.12.24	(D)		
4	17.12.24	(A)	Preparation of solutions	Dr S.B.Kawitkar
	18.12.24	(B)		
	19.12.24	(C)		
	16.12.24	(D)		
5	24.12.24	(A)	Proximate principles of feed analysis	Dr S.B.Kawitkar
	1.1.2025	(B)		
	26.12.24	(C)		
	23.12.24	(D)		
6	31.12.24	(A)	Estimation of moisture and dry matter (DM)	Dr S.B.Kawitkar
	8.1.25	(B)		
	2.1.25	(C)		
	30.12.24	(D)		
7	7.1.25	(A)	Estimation of nitrogen and crude protein (CP)	Dr S.B.Kawitkar
	15.1.25	(B)		
	9.1.25	(C)		
	13.1.25	(D)		
8	21.1.25	(A)	Estimation of nitrogen and crude protein (CP)	Dr. Narayana Rathode
	15.1.25	(B)		
	16.1.25	(C)		
	20.1.25	(D)		
9	28.1.25	(A)	Estimation of ether extract (EE)/ crude fat	Dr S.B.Kawitkar
	22.1.25	(B)		
	23.1.25	(C)		

	27.1.25	(D)		
10	11.2.25	(A)	Estimation of crude fibre (CF)	Dr S.B.Kawitkar
	29.1.25	(B)		
	30.1.25	(C)		
	3.2.25	(D)		
11	18.2.25	(A)	Estimation of crude fibre (CF)	Dr Narayana Rathode
	5.2.25	(B)		
	6.2.25	(C)		
	10.2.25	(D)		
12	25.2.25	(A)	Estimation of total ash and organic matter; Determination of nitrogen free extract (NFE)	Dr Narayana Rathode
	12.2.25	(B)		
	13.2.25	(C)		
	17.2.25	(D)		
13	4.3.25	(A)	Estimation of acid insoluble ash (AIA)	Dr Narayana Rathode
	19.2.25	(B)		
	20.2.25	(C)		
	24.2.25	(D)		
14	11.3.25	(A)	Detergent or Van Soest method of forage analysis	Dr Narayana Rathode
	5.3.25	(B)		
	6.3.25	(C)		
	3.3.25	(D)		
15	18.3.25	(A)	Estimation of Neutral Detergent Fibre (NDF)	Dr Narayana Rathode
	12.3.25	(B)		
	20.3.25	(C)		
	10.3.25	(D)		
16	25.3.25	(A)	Estimation of Neutral Detergent Fibre (NDF)	Dr G.B.Deshmukh
	19.3.25	(B)		
	27.3.25	(C)		
	17.3.25	(D)		
17	1.4.25	(A)	Estimation of Acid Detergent Fibre (ADF)	Dr Narayana Rathode
	26.3.25	(B)		
	3.4.25	(C)		
	24.3.25	(D)		
18	8.4.25	(A)	Estimation of Acid Detergent Fibre (ADF)	Dr G.B.Deshmukh
	2.4.25	(B)		
	17.4.25	(C)		
	31.3.25	(D)		
19	15.4.25	(A)	Estimation of Acid Detergent Lignin (ADL)	Dr Narayana Rathode
	9.4.25	(B)		
	24.4.25	(C)		
	7.4.25	(D)		
20	22.4.25	(A)	Estimation of calcium (Ca)	Dr Narayana Rathode

	16.4.25	(B)		
	1.5.25	(C)		
	21.4.25	(D)		
21	6.5.25	(A)	Estimation of phosphorus (P)	Dr Narayana Rathode
	23.4.25	(B)		
	8.4.25	(C)		
	28.4.25	(D)		
22	13.5.25	(A)	Qualitative detection of undesirable constituents and common adulterants of feed	Dr Narayana Rathode
	7.5.25	(B)		
	15.5.25	(C)		
	5.5.25	(D)		
UNIT-2 and 3: APPLIED RUMINANT NUTRITION-1&2				
23	20.5.25	(A)	Calculation of requirements of nutrients in terms of DCP, TDN, NR and balance of nutrients	Dr G.B.Deshmukh
	14.5.25	(B)		
	22.5.25	(C)		
	12.5.25	(D)		
24	27.5.25	(A)	Calculation of requirements of nutrients in terms of DCP, TDN, and metabolisable energy (ME) for maintenance and growth, milk, wool	Dr S.B.Kawitkar
	21.5.25	(B)		
	5.6.25	(C)		
	19.5.25	(D)		
25	3.6.25	(A)	Calculation of requirements of nutrients in terms of DCP, TDN, and metabolisable energy (ME) for reproduction	Dr Narayana Rathode
	28.5.25	(B)		
	12.6.25	(C)		
	26.5.25	(D)		
26	10.6.25	(A)	Calculation of requirements of nutrients in terms of DCP, TDN, and metabolisable energy (ME) for draft purpose	Dr Narayana Rathode
	4.6.25	(B)		
	19.6.25	(C)		
	2.6.25	(D)		
27	17.6.25	(A)	Formulation of ration for cattle and buffaloes under different conditions	Dr Narayana Rathode
	11.6.25	(B)		
	26.6.25	(C)		
	9.6.25	(D)		
28	24.6.25	(A)	Formulation of ration for sheep and goats under different conditions	Dr Narayana Rathode
	18.6.25	(B)		
	3.7.25	(C)		
	16.6.25	(D)		
29	1.7.25	(A)	Formulation of rations for feeding of livestock during scarcity periods	Dr Narayana Rathode
	25.6.25	(B)		
	10.7.25	(C)		
	23.6.25	(D)		
30	8.7.25	(A)	Visit to animal farm and feed mill	Dr G.B.Deshmukh
	2.7.25	(B)		

	17.7.25	(C)		
	30.6.25	(D)		
UNIT-4: APPLIED NON-RUMINANT NUTRITION				
31	15.7.25	(A)	Calculation of requirements of nutrients for growth, reproduction and other types of production like egg and meat.	Dr S.B.Kawitkar
	9.7.25	(B)		
	24.7.25	(C)		
	7.7.25	(D)		
32	22.7.25	(A)	Formulation of rations for poultry with conventional and unconventional feed ingredients.	Dr S.B.Kawitkar
	16.7.25	(B)		
	31.7.25	(C)		
	14.7.25	(D)		
33	29.7.25	(A)	Formulation of rations for swine with conventional and unconventional feed ingredients.	Dr Narayana Rathode
	23.7.25	(B)		
	7.8.25	(C)		
	21.7.25	(D)		
34	5.8.25	(A)	Principles of compounding and mixing of feeds.	Dr Narayana Rathode
	30.7.25	(B)		
	14.8.25	(C)		
	28.7.25	(D)		
35	12.8.25	(A)	Formulation of balance diets for horses.	Dr Narayana Rathode
	6.8.25	(B)		
	21.8.25	(C)		
	4.8.25	(D)		
36	19.8.25	(A)	Formulation of balance diets for dogs and cats; Feeds and feeding schedule of zoo animals and birds-diet charts.	Dr S.B.Kawitkar
	13.8.25	(B)		
	28.8.25	(C)		
	11.8.25	(D)		