

B.Sc. II Year
Semester-IV
Skill Enhancement Course

SEC-3 (2 hrs/week)

(2 Credits) Lectures: 30

Concentrate Feeds and Agro industrial By-products in Animal Nutrition

Unit-I

1. Study of Concentrates – Cereal grains and their nutritive value: (6h)
 - a. Oil seeds, Oil cakes and Nutritive value.
 - b. Study of Concentrates available in local market.
2. Concentrate by-products – Wheat bran, Rice bran, Maize gluten husk, Tur chuni, Gram chuni. (3h)
3. Industrial by-products – (3h)
 - a. Sugar Industrial by-products – Molasses, Press-mud, Bagasse, Sugarcane tops, UMMB, UROMOL.
 - b. Animal Industrial by-products – Fish meal, Bone meal, Blood meal, Poultry excreta and local market available by-products. (3h)

Unit-II

4. Fruits and Vegetables Industry by-products – Seed kernels, Hulls, Tomato (10h) pomace, Potato pomace, Apple pomace, Banana peels, Citrus peels, Pine apple waste, Leafy vegetable waste.
5. Visits to Fodder crops, Feed Factories, Oil industries, Fruits and Vegetable industries and Sugar industry by-products. (5h)

Recommended Books:

1. Animal Nutrition – Aron A Bondi, John Wiley and Sons, Britain, 1987.
2. Nutrient requirements of ruminant livestock - ARC, UK, 1984.
3. Handbook of Applied Animal Nutrition – Niranjana PS, Chahal US, Srivastava V & Kumar S. IBDC Publishers, Lucknow, 2010.
4. Animal Nutrition in the Tropics, 3rd Edn., - Ranjhan SK, 1993.
5. Applied Nutrition – Livestock, Poultry, Pets, Rabbits & Laboratory animals – Reddy DV, 2009.
6. Nutrient requirement of dairy cattle - NRC, 2001.

B.Sc. II Year
Semester-IV
Skill Enhancement Course

SEC-4 (2 hrs/week)

(2 Credits) Lectures: 30

Special Milks

Unit-I

1. Introduction, Definition, Methods of manufacture and uses of Processed Special Milk: (5h)
 - a. Sterilized milk
 - b. Homogenized milk
2. Introduction, Definition, Methods of manufacture and uses of Value Added Special Milk: (5h)
 - a. Flavoured milk
 - b. Vitaminized milk/Irradiated milk/Fortified milk
3. Introduction, Definition, Methods of manufacture and uses of Fermented Special Milk: (5h)
 - a. Cultured Butter milk
 - b. Acidophilus milk

Unit-II

4. Introduction, Definition, Methods of manufacture and uses of Standardized Special Milk: (5h)
 - a. Toned milk
 - b. Double Toned milk
5. Introduction, Definition, Methods of manufacture and uses of Special Milk of Plants/Vegetable origin: (5h)
 - a. Soya milk
 - b. Groundnut milk
 - c. Almond milk
6. Visits to Milk processing plants, Fermentation plants, Soya processing plants, Food Foliage College. (5h)

Reference Books:

1. Outlines of Dairy Technology – SK De.
2. Milk and Milk Products – Eckless, Combs and Macacy.
3. Modern Dairy Product – Lampert.
4. Indigenous Milk Products – ICAR publication.
5. Market Milk Industry – CI Rhodhouse and JL Handerson.
6. Technology of Indian Milk Products – RP Aneja, BN Mathur, RC Chandan and AK Banerjee.