

SRI VENKATESWARA UNIVERSITY: 'TIRUPATI
B.VOC. HONOURS PROGRAMME IN DAIRYING AND
ANIMAL HUSBANDRY.

Under CBCS W.E.F. 2024-2025

COURSE STRUCTURE

SEMESTER - III

	Skills Gen. Edu	Courses	Title of Paper/Course and code	Credits per course	Hours/week	Total "ours/ Course	Marks		
							Internal	External	Total
	General Education component Gen.Edu	Language							
2									
		Skill Course							
4									
5		Major-I	MILK AND MILK PRODUCTS TECHNOLOGY	3	3	45	25	75	100
6		Practical	MILK AND MILK PRODUCTS TECHNOLOGY	1	2	30		50	50
7		Major -II	BASICS OF ANIMAL NUTRITION	3	3	45	25	75	100
8		Practical	BASICS OF ANIMAL NUTRITION	1	2	30		50	50
9		Major -III	FODDER PRODUCTION AND CONSERVATION	3	3	45	25	75	100
10		Practical	FODDER PRODUCTION AND CONSERVATION	1	2	30		50	50
11		Major IV	DIARY PLANT MANAGEMENT	3	3	45	25	75	100

		Practical	DIARY PLANT MANAGEMENT	1	2	30		50	50
13		Minor-I	BASICS OF VEGETABLE SCIENCE	3	3	45	25	75	100
14		Practical	BASICS OF VEGETABLE SCIENCE	1	2	30		50	50
		TOTAL							

SRI VENKATESWARA UNIVERSITY:: TIRUPATI
B.VOC. DEGREE COURSE IN DAIRYING AND ANIMAL HUSBANDRY
MAJOR: DAIRYING AND ANIMAL HUSBANDRY
III SEMESTER
Under CBCS W.E.F. 2024-25
SKILL COMPONENT
Core Paper-I: MILK AND MILK PRODUCTS TECHNOLOGY

(Credits:3+2=5)

UNIT – 1 (9hrs)

Milk industry in India, milk processing unit and its management
Composition & Nutritive value of milk
Factors effecting composition of milk
Physic-chemical properties of milk

UNIT – 2 (9hrs)

Collection, chilling of milk
Standardization of milk- pasteurization, homogenization, bacon fixation,
dehydration of milk

UNIT – 3 (9hrs)

Introduction to functional milk products. Preparation of cream, butter, paneer or chana, ghee, whoa, lassie, dacha, ice-cream, mozzarella cheese and dairy byproducts.
Common defects of milk products and their remedial measures.

UNIT – 4 (9hrs)

Packaging, transportation, storage and distribution of milk and milk products.
Good manufacturing practices and implementation of HACCP in milk plant.
Organic milk products.

UNIT – 5 (9hrs)

Food safety standards for milk and milk products.

PRACTICALS

Visit to modern milk processing and milk products manufacturing plants.

Sampling of milk. estimation of fat, solid not fat (SNF) and total solids.
Platform tests.

Cream separation.

Detection of adulteration of milk.

Determination of efficiency of pasteurization.

Preparation of milk products like ghee, pander or china, whoa, ice-cream or sulfa, milk beverages.

Reference books:

1. Text Book on Milk & Milk Products Ran veer R C, Kamble, D K, Pa'anga
2. MILK AND MILK PROCESSING Herrington B.L.
3. Milk and Milk Products H. Varna Alan
4. Principle of Dairy Processing. Warner James N

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SECOND YEAR - III SEMESTER

Under CBCS W.E.F. 2024-25

SKILL COMPONENT

Core Paper-I: MILK AND MILK PRODUCTS TECHNOLOGY
MODEL QUESTION PAPER

Time:3 hours

Max.Marks:75

SECTION-A

Answer ALL of the following

5×2=10Marks

- 1.
- 2.
- 3.
- 4.
- 5.

SECTION-B

Answer any Three of the following

3×5=15Marks

- 6.
- 7.
- 8.
- 9.
- 10.

SECTION-C

Answer ALL of the following

5×10=50Mark

11.A

(Or)

B

P.T.O

12. A

(Or)

B

13. A

(Or)

B

14. A

(Or)

B

15. A

(Or)

B

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SKILL COMPONENT

Core Paper-II: BASICS OF ANIMAL NUTRITION

(Credits: 3+2=5)

UNIT – 1 (9hrs)

Importance of Nutrition – Common Definitions in Animal Nutrition – Classification of Nutrients

Role of Different Nutrients in the body systems – Water – Carbohydrates – Proteins – Fats – Minerals – Vitamins.

UNIT – 2 (9hrs)

Special consideration in the Nutrition of different livestock species – Ruminants – Non-ruminants – Poultry.

Carbohydrates – sugars – soluble carbohydrates

Energy – Gross energy – Digestible energy – Meta boilable energy – Net energy –

UNIT – 3 (9hrs)

Proteins in Animal Nutrition – True protein and crude protein – Amino acids – Essential and Non-Essential Amino Acids – Biological values

Lipid nutrition – essential fatty acids .

UNIT – 4 (9hrs)

Minerals in Animal Nutrition – Major minerals – Minor minerals

Vitamins – Fat Soluble vitamins – Water soluble vitamins – Roles, deficiency symptoms and sources of vitamins.

UNIT – 5 (9hrs)

Compound feeds – Feed supplements – Feed Additives.

General considerations while Feeding of various species for livestock products – Dairy cattle and buffaloes – Sheep and Goat – pigs – Poultry.

PRACTICALS

General acquaintance of various equipment in Nutrition laboratory – Hot air oven – Kelda Digestion and Distillation Unit – Sox let Apparatus – Muffle furnace.

Estimation of various proximate principles in feed – Moisture – Crude protein – Ether extract – Crude fiber – Total Ash.

Estimation of Acid Insoluble Ash – Calcium – Phosphorus – Detection of common adulterants in feeds.

Feed formulation – Ration formulation – practical exercises

Visit to Cattle feed plant and Poultry feed plant.

Reference books:

1. Principles of animal nutrition and feed technology D.V.Reddy
2. Principles and practices of animal nutrition Jag dish Prasad
3. A textbook of animal nutrition D.N. verma,,kalyani
4. Basic animal nutrition and feeding, Pond, Wiley
5. Animal nutrition Maynard
6. Principles of animal nutrition and feeds BANERJEE

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SECOND YEAR - III SEMESTER
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SKILL COMPONENT
Core Paper-II: BASICS OF ANIMAL NUTRITION
MODEL QUESTION PAPER

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Core Paper-III: FODDER PRODUCTION AND CONSERVATION

(Credits:3+2=5)

UNIT – 1 (9hrs)

Importance of grasslands and fodder in livestock production.
Agronomical Practices for fodder production.

UNIT – 2 (9hrs)

Important leguminous and non-leguminous fodders in different seasons.

UNIT – 3 (9hrs)

Soil and Water conservation and drainage of water for fodder production.
Fodder production for small livestock units.

UNIT – 4 (9hrs)

Structures for storage of feeds and fodders.
Scarcity fodders and preservation of green fodder.

UNIT – 5 (9hrs)

Recycling of animal washings and wastes in fodders production and use of recycle waste.
crop residues and their optimum utilization

PRACTICALS

Visit to the fodder farm.

Familiarization with the various types of fodders in Andhra Pradesh

Familiarization with various fertilizers and manures.

Collection, preservation and storage of feed and fodder; Damages or loss during transfer and storage; methods to prevent them.

Cost of calculations of fodder production.

Livestock waste utilization and recycling.

Reference books:

1. Production Utilization and Conservation of Forage Crops A S Bilbray
2. Fodder production and Conservation Seem Mira,
Perm Pataki
3. Production Technology Of Forage And Fodder Crops Prof. Raja R A
4. A handbook for feed and fodder development Jam bay
Gyeltshen,
PemaWangda

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Core Paper-III: FODDER PRODUCTION AND CONSERVATION
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SKILL COMPONENT
Core Paper-IV: DIARY PLANT MANAGEMENT
(Credits:3+2=5)

UNIT – 1 (9hrs)

Dairy equipment for fluid milk processing – Introduction - The Dairy Plant - Milk Collection or Chilling Centre - Milk Reception and Storage - Pasteurizer and Sterilizer - Homogenizer and Centrifuges - Packaging and Filling - Clean-in-place (CIP) - Cleaning System.

UNIT – 2 (9hrs)

Dairy equipment for products processing - Objectives – Introduction - Butter and Cheese Making Equipment - Ice-Cream Making Equipment - Evaporators and Dryers.

UNIT – 3 (9hrs)

Ghee Making Equipment - Khoa Making Equipment - Dahi and Lassi Making Equipment - Paneer, Chana & Casein Making Equipment

UNIT – 4 (9hrs)

Materials their characteristics and selection of equipment – Objectives – Introduction - Types of Materials - Properties of Materials - Corrosion and its Prevention - Choice of Materials - Milk Handling and Processing Equipment - Selection of Utilities

UNIT – 5 (9hrs)

Preventiv maintenance of dairy plants and machineries - Principles of Preventive Maintenance Development of Plant Maintenance Programme - Guidelines for Effective Lubrication - Care and Cleaning of SS Surface - Dairy Building Sanitation Dairy effluent management.

PRACTICALS

1. Visit to milk collection centre
2. Visit to milk chilling centre.
3. Visit to various units of dairy plant.
4. Hands on training in preparation of various milk products.
5. Handling of different dairy equipment

Reference books:

1. Ahmad Tufail. (1990). Dairy Plant Systems Engineering. Kitab Mahal Publisher, Allahabad. Anantakrishnan.
2. C.P. and Simha N.N. (1987). Dairy Engineering Technology and Engineering of Dairy Plant operation. Laxmi Publications, Delhi
3. Kessler H.G. (1981). Food Engineering and Dairy Technology.
4. Verlag A. Kessler, P.O.Box 1721, Dairy Engineering Division-8050, Freising (Germany) Warner James. (1976).
5. Principles of Dairy Processing. Wiley Eastern Ltd. Publisher, New Delhi. Warner James N. (1976).
6. Principle of Dairy Processing. Wiley Eastern Limited Publisher, New Delhi Newcomer, J.L. (1981).
7. Preventive Maintenance Manual for Dairy Industry. Venus Trading Co., P.O.Box 17. ANAND 388 001.

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MAJOR: DAIRYING AND ANIMAL HUSBANDRY
SECOND YEAR III – SEMESTER
Under CBCS W.E.F. 2024-25
SKILL COMPONENT
Core Paper-IV: DIARY PLANT MANAGEMENT
MODEL QUESTION PAPER

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(Or)

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(Or)

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15. A

(Or) B

SRI VENKATESWARA UNIVERSITY :: TIRUPATI
B.VOC. DEGREE COURSE IN DAIRYING AND ANIMAL HUSBANDRY
MINOR: HORTICULTURE
SECOND YEAR - III SEMESTER
Under CBCS W.E.F. 2024-25
SKILL COMPONENT

Minor paper 1: BASICS OF VEGETABLE SCIENCE
(Credits:3+2=5)

I. Learning Objectives: By the end of this course the learner has:

1. To recognize the morphology of the various vegetable crops.
2. To acquire knowledge in cultivation of vegetable crops.
3. To acquire knowledge in identification of various pests and diseases of vegetable crops.

II. Learning Outcomes: On completion of this course students will be able to:

1. Distinguish the growing of vegetables according to season and climate
2. Get detailed knowledge on cultivation aspects of different vegetables
3. Understand and explain the special intercultural operations done in vegetable crops
4. Study of morphology and taxonomy of different vegetable crops
5. Study of different varieties of vegetable crops
6. Identify the diseases and pests of vegetable crops and their management

III. Syllabus of Theory:

Unit-1: Introduction to Vegetable crops

9 Hrs.

1. Importance of vegetable cultivation in India and Andhra Pradesh.
2. Classification of vegetables.
3. Constraints in vegetable production and remedies to overcome them.
4. Vegetable Gardens

Unit-2: Sub-tropical vegetables

9 Hrs.

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting and yield of following crops:

Cultivation of (a) Brinjal (b) Tomato (c) Chilli (d) Okra (e) Cucurbits

Unit-3: Temperate Vegetables**9 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting and yield of following crops:

Cultivation of (a) Cauliflower (b) Cabbage (c) Onion

Unit-4: Tuber and Root crops**9 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting and yield of following crops:

Cultivation of (a) Potato (b) Carrot (c) Beetroot (d) Tapioca

Unit-5: Beans and leafy vegetables**9 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seeds and sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting and yield of following crops:

Cultivation of (a) Cluster bean (b) Cow pea and (d) Dolichos bean (e) Coriander

IV. Text Books:

1. Thompson, H. C and Kelly, W. C. 1959. Vegetable Crops. Tata Mc Graw Hill Publishing Co. Ltd., Bombay.
2. Premnath Velyudhan, S and Singh, D. P. 1987. Vegetables for the Tropical Region ICAR, New Delhi.
3. Shanmugavelu, K. G. 1989. Production Technology of Vegetable Crops. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi
4. Chaudhary, B. 1992. Vegetables. National Book Trust, New Delhi.
5. Bose, T. K and Mitra, S. K. Tropical Horticulture. Naya Prakash, Calcutta.
6. Bose, T. K et al. 2003. Vegetables Crops. Naya Udyog Publishers, Kolkata
7. Choudhury, B. (ICAR). 1990. Vegetables. 8th Edition, National Book Trust, New Delhi.

III Semester

**Minor Paper 1: BASICS OF VEGETABLE SCIENCE [practical]
(Credits:3+2=5)**

I. Laboratory/field exercises:

1. Demonstration of seed germination test for a vegetable seed.
2. Demonstration of seed viability test.
3. Identification of vegetable seeds and vegetable crops at different growth stages.
4. Different Seed Sowing methods.
5. Canning and Dehydration of vegetables.
6. Cost of cultivation studies of locally grown vegetables

V. Suggested activities:

A. Measurable :

a. Student seminars :

1. Production Technology of Solanaceous crops
2. Production Technology of Cucurbit Vegetables
3. Production Technology of Root and Tuber crops
4. Production Technology of Temperate crops
5. Production Technology of Leguminous crops
6. Special intercultural operations in vegetable crops
7. Major Pests and Diseases of vegetable crops and their management
8. Morphological characters of vegetable crops
9. Maturity and Harvesting indices of vegetable crops
10. Nutritional aspects of vegetable crops

b. Student Study Projects:

1. Identification and Herbarium preparation of different vegetable seeds
2. Identification and Herbarium preparation of disease symptoms of vegetable crops
3. Identification and Herbarium preparation of pest symptoms of vegetable crops
4. Raising of vegetables in Nursery and portrays

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.
2. Visit to Horticulture University/ Research Station.
3. Visit to a vegetable nursery and vegetable crop field.