

**SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,
NANDED**

SYLLABUS

Of

B.Sc. – I Year

Choice Based Credit System (CBCS)

(Semester Pattern)

DAIRY SCIENCE

Effective from June - 2016

Distribution of credits for B.Sc. **Dairy Science** (optional)

Under Faculty of Science

B. Sc. Syllabus structure

Semester Pattern effective from June 2016

Subject: Dairy Science

Semester	Paper No.	Name of the Course	Instruction Hrs/ week	Total period	Internal Evaluatio	Marks of Semester	Total Marks	Credits
I	CCDS I (Section A)	Dairy Farming in India (PI)	03	45	10	40	50	2
	CCDS I (Section B)	Milk and Physiology of Lactation (PII)	03	45	10	40	50	2
II	CCDS II (Section A)	Farm Animal Management (PIII)	03	45	10	40	50	2
	CCDS II (Section B)	Farm Animal Health Management (PIV)	03	45	10	40	50	2
	CCDSP I [CCDS I & II (Section A & B)]	Practical's based on Section A & Section B of CCDS I & CCDS II (PV)	04	20 Practical	20	80	100	4

Total credits semester I and II: 12

III	CCDS III (Section A)	Animal Nutrition (P-VI)	03	45	10	40	50	2
	CCDS III (Section B)	Animal Genetics and Reproduction (P-VII)	03	45	10	40	50	2
	CCDSP II [CCDS III & IV (Section A)]	Practical's based on P-VI & P-VII (P-X)	04		10	40	50	2
	CCDSP II [CCDS III & IV (Section B)]	SEC I (1 Skill/ optional)			15×3 = 45	-	-	(02)*
IV	CCDS IV (Section A)	Processing Technology of Milk (P-VIII)	03	45	10	40	50	2
	CCDS IV (Section B)	Animal Breeding (P-IX)	03	45	10	40	50	2
	CCDSP III [CCDS III & IV (Section B)]	Practical's based on P-VIII & P-IX (P-XI)	04	10 practical	10	40	50	2
	CCDSP III [CCDS III & IV (Section B)]	SEC II (1 Skill / optional)			15×3 = 45	-	-	(02)*
Total credits semester III and IV								12(04)*

Semester	Course No.	Name of the Course	Instructi on Hrs/ week	Total period	Internal Evaluation	Marks of Semester	Total Marks	Credits
V	DECDS I (Section A)	Technology of Indigenous Milk Products (P-XII)	03	45	10	40	50	2
	DECDS I [(Section B) Elective]	Forage Production Feeds and Feeding (P-XIII)	03	45	10	40	50	2
	DECCDSP I [DECDS I & II (Section A)]	Practical's based on P- XII & PXIII(P-XVI)	04	10 Practical	10	40	50	2
	DECDS II [DECDS I& IV (Section B)]	SEC III (1 Skill/ optional)			15×3 = 45	-	-	(02)*
VI	DECDS II (Section A)	Technology of Western Dairy Products (P-XIV)	03	45	10	40	50	2
	DECDS II [(Section B) Elective]	Sheep, Goat, Poultry and Pig Farming (P-XV)	03	45	10	40	50	2
	DECDS II) [DECDS I & II (Section B)]	Practical's based on P- XIV & P-XV (P-XVII)	04	10 Practical	10	40	50	2
	DECDS II (Section B)	SEC IV (Project))			50	-	50	(2)*
Total credits semester V and VI								12(04)*

Swami Ramanand Teerth Marathwada University, Nanded

B.Sc. First Year DAIRY SCIENCE

Choice Based Credit System (CBCS) - Semester Pattern

Objectives :-

The course is planned to acquaint the students with

- I. Farming aspects in livestock and poultry so as to prepare themselves for future Prospectus
- II. Geographical distribution & trends in population growth
- III. Role in national economy
- IV. Their socio-economic aspects
- V. Adaptations and Livestock Farming in India
- VI. Sanitary and hygienic conditions in Animal farm
- VII. Establishment of Dairy Farm
- VIII. Study of various diseases and disorders in livestock
- IX. First Aid Measures
- X. Care and management of Farm Animals
- XI. Milk, its composition, properties & nutritive Values
- XII. Physiology of Lactation
- XIII. Milk utilization trends in India
- XIV. Economics of milk production

**SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY
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Choice Based Credit System (CBCS)

Semester Pattern

DAIRY SCIENCE

B.Sc. F.Y.-CCDS I and Semester -I

**Section A
Theory Paper I**

Title – Dairy Farming in India

Marks – 50/Credit 2+0	3 Periods per week
Unit – I	No. of periods 10
<ul style="list-style-type: none">❖ Introduction to Dairy farming in India.❖ History of Domestication of Dairy animals.❖ Taxonomic classification of Dairy animals.❖ Animal Husbandry in India – present and future.❖ Common terminologies used in Animal husbandry.	
Unit – II	14
<ul style="list-style-type: none">❖ Animal husbandry regions in India.❖ Animal adaptation and behavioral patterns.❖ Cattle & Buffalo : their production potential, role in national Economy❖ Study of Dairy farming system in India, Cattle development, through five year plans.	
Unit – III	10
<ul style="list-style-type: none">❖ Establishment of Dairy farm❖ Selection of site.❖ Different structures and their location and space requirement and housing materials.❖ Capital – Types, ways of raising.	
Unit – IV	10
<ul style="list-style-type: none">❖ Types of housing for Dairy animals.❖ Water supply, light & ventilation, Drainage system.❖ Recycling of Waste❖ Maintenance of sanitary and hygienic conditions on farm.	

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Choice Based Credit System (CBCS)

Semester Pattern

DAIRY SCIENCE

B.Sc. F.Y.-CCDS I and Semester -I

Section B

Theory Paper II

Title – Milk and Physiology of Lactation

Marks – 50/Credit 2+0

3 Periods per week

Unit – I

No. of periods 07

- ❖ Introduction to the subject
 - ❖ Role of NDDDB and OFP in enhancing milk production
 - ❖ Production and Utilization trends of milk in India
 - ❖ Economics of milk production
-

Unit – II

15

- ❖ Lactation, Lactation Period
 - ❖ Morphology and anatomy of Udder
 - ❖ Endocrine glands and Hormones in milk secretion
 - ❖ Theories of milk secretion
 - ❖ Physiology of milk secretion
-

Unit – III

12

- ❖ Milk : Definition, composition
 - ❖ Study of major milk constituents
 - Water – physical state of milk
 - Proteins in milk
 - Lactose in milk
 - Lipids in milk
 - ❖ Study of minor constituents of milk
 - ❖ Nutritive value of milk
-

Unit – IV

10

- ❖ Factors affecting quality and quantity of milk
- ❖ Physical and chemical properties of milk
- ❖ Sources of contamination in milk
- ❖ Clean milk production

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY
NANDED
Choice Based Credit System (CBCS)
Semester Pattern
DAIRY SCIENCE
B.Sc. F.Y.-CCDS II and Semester -II
Section A
Theory Paper III
Title – Farm Animal Management

Marks – 50/Credit 2+0	3 Periods per week
Unit – I	No. of periods 15
❖ Principles of general management	
❖ Functions and tools of management	
❖ Study of General management practices of animals : Grooming Drying off, control of bad habits, castration, dehorning. Deworming, Trimming.	
❖ Identifications marks.	
Unit -II	12
❖ Cattle and buffalo management –calf raising, heifer management, management of pregnant, parturient, lactating and dry Cows, buffaloes, and breeding bull, summer management of buffalo.	
Unit - III	10
❖ Sheep and Goat management – management of lambs and kids.	
❖ Management of pregnant, parturient and lactating doe and Ewe.	
❖ Management of Buck and Ram.	
Unit - IV	08
❖ Poultry and Pig management – chick management, management of growers, layers, broilers, hatchery management, cannibalism.	
❖ General management practices to Pigs.	

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Choice Based Credit System (CBCS)

Semester Pattern

DAIRY SCIENCE

B.Sc. F.Y.-CCDS II and Semester -II

Section B

Theory Paper IV

Title – Farm Animal Health Management

Marks – 50/Credit 2+0	3 Periods per week
Unit – I	No. of periods 10
<ul style="list-style-type: none">❖ Introduction to sick animals.❖ Study of healthy conditions in animals.❖ Common terminologies used in animal treatment ; like ointment, purgatives & laxatives, tonics, lotions, emulsion, astringent, liniments, enema, disinfectants.❖ Immunology : Definition, concept, types.	
Unit-II	14
<ul style="list-style-type: none">❖ Study of diseases of economic importance (With reference to causative organism, pathogenesis, etiology, symptoms, prevention, treatment and measures) FMD, RP, HS, BQ, Anthrax, Brucellosis.❖ Dystokia, prolapsed of uterus and vagina❖ Deficiency disease : Rickets.❖ Diseases of Lactating cows : Mastitis, Milk fever, Ketosis.	
Unit-III	10
<ul style="list-style-type: none">❖ Diseases of calf : Pneumonia, calf scours, diarrhea, Joint ill, Naval ill, Worm infestation.❖ Parasitic and protozoan diseases : Theilariasis, Babesiosis, Trypanosomiasis , Trichomoniasis.❖ Control of Ecto and Endo parasites of animals.	
Unit-IV	10
<ul style="list-style-type: none">❖ Diseases of sheep and Goat : PPR, blue tongue.❖ Diseases of pigs : swine fever / Hog cholera❖ Diseases of poultry : Ranikhet, Coccidiosis, Marek's, Gumboro, salmonellosis.	

**SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY
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Choice Based Credit System (CBCS)

Semester Pattern

DAIRY SCIENCE

B.Sc. F.Y.-CCDSP-I and Annual Pattern

Practical Paper V

**Practicals based on CCDS – I (Section A &
B) And CCDS – II (Section A & B)**

Marks – 100/Credit 0+4

4 Periods per week

- 1) Morphology of cattle and buffalos
- 2) Linear Body measurements – Body wedges and estimations of body weight.
- 3) Study of cattle breeds
 - Milk Purpose - Sahiwal, redsindhis, Gir
 - Dual Purpose - Deoni, Kankrej, Ongole, Hariyana.
 - Draught Purpose - Khillar, Redkhandhari, Amritmahal,
Cross Breds
 - Exotic Breeds - HF, Jersey, Brownswiss
- 4) Study of Buffalo Breeds - Murrha, Surti, Jaffarabadi, Mehsana,
Marathwadi
- 5) Common appliances used in controlling the farm animals.
- 6) Casting, restraining and handling of farm animals.
- 7) Preparation of drugs like ointment, liniment, bolus.
- 8) Drenching, Injections and Vaccinations.
- 9) Pathological tests – Blood tests, Urine tests, Test for mastitis.
- 10) Farm layout
- 11) Dentition in cattle and age determination.
- 12) Study of udder
- 13) Physico – Chemical evaluation of milk.
 - a) Sampling, organoleptic tests / plat form tests.
 - b) Specific gravity, Acidity and pH

c) Viscosity, Electrical conductivity and Refractive Index

d) Fat, SNF, TS

14) Detection of Adulterants from milk.

15) Detection of preservatives from milk.

16) Record keeping

17) Visit to – Dairy farm, Dairy plant,
Agricultural and Veterinary College,
Veterinary Hospital.

List of Equipments, Glass ware's materials for Practical's

Models/ Charts / Photographs of Livestocks Breeds.

Bull nose ring

Bull – leader

Bull – holder

Castrator

Muzzle

Casting rope

Dehorner

Branding Set

Tattooing set

Various types of tags Leg

bands, ring bands

Various types of brushes

Various types of sanitizers, disinfectants

Thermometer, Stethoscope

Digital balance

Equipments and materials for preparation of various drugs

Glucometer, aemoglobinometer, glass wares and equipments for various

pathological tests.

Housing models

Injection-vaccination equipments

Model of Udder, figures showing internal and external structure Platform test equipment

Centrifugal fat testing machine, milk – o - testes Milk analyzer

pH meter, pH

paper Oven,

Viscometer

Electrical conductivity meter

Laboratory glass wares and required chemicals Richmand's scale for TS

Refractometer

List of Reference Books :-

1. A text Book of Animal Husbandry by - G.C. Banerjee
2. Advances in Dairy animal Productions by - Mudgal
3. Animal Husbandry and Rural Development by - Kar
4. Commercial Poultry and broiler Farming by - Chauhan
5. Commercial Poultry Nutrition by - Lesson
6. Dairy cattle and Milk production by - Eckles
7. Disease of Animal Transmissible to man by - Thpliyal
8. Fundamentals of Animal Hygiene and Epidemiology by - Thypliyal
9. Handbook Animal Diseases by - Bhattacharjee
10. Handbook of Poultry Feeding and Mangement by - Banday
11. Instant veterinary Drug Index by – Dabax
12. Poultry Economics Projects by – Narhari
13. Poultry Diseases of Farmers by – Vegad and Suresh
14. Handbook of Veterinary Physicians by – Sapre
15. Swine production by – ICAR
16. Handbook of Animal Husbandry by – ICAR
17. Goat Productions by – FAO
18. Livestock and Poultry Production by – Singh & Moore
19. Animal Husbandry and Dairy Science by – Jagdish Prasad
20. Dairy Bovine Production by–C.K. Thoms & NSR
Sastry
21. Treaties and Treatment Vol I & II by – Srinivasn
22. Livestock Health and Housing by – David and Peter
23. Dairy Cattle Science by – Ensmiger
24. Veterinary Medicine by – Blood and Handerson
25. Principles and Practices in Dairy farm Management by – Jagdish Prasad
26. A Student Laboratory manual of veterinary physiology by – Sharma
27. A Handbook of Veterinary Physician by – V.A. Sapre
28. A text book of Animal Science by – A.U.Bhikane,
S.B.Kawitkar
29. Multiple Choice Questions in Animal Husbandry
And Dairy Science by – K.G. Dande &
Gaikwad S. M.
30. Management of Animals by – Dr. Satish Kulkarni

Dr. K. G. Dande

Chairman

(Adhoc Board in Dairy Science)

B.Sc. F.Y. CBCS Annual Patter
Practical Question Paper Proforma
CCDSP – I

Marks 100

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- Q.1. Spotting – 20 spots 20 (10 spots – cattle, buffalo breeds and common appliances.
10 spots – Dairy glasswares and equipment)
- Q.2. Casting / restraining / Linear body measurements and estimation of body weight / Age determination / submission of farm lay-out 10
- Q.3. Preparation of ointment / vaccination schedule / pathological tests / Taking temperature / pulse rate / Respiration rate / Heart rate 10
- Q.4. Study of Udder on model / chart / specimen 10
- Q.5. Evaluation of Milk – 20
Milk fat / specific gravity / Acidity / pH / Viscosity /
TS / SNF / conductivity / Refractive Index
- Q.6. Detection of Adulterants / Preservatives from milk 10
- Q.7. a) Record Book 20
b) Excursion / Visit Report and Viva voce.