

## **B.Sc.: Dairy Science**

### **Programme Outcomes**

At the time of graduation, the students will be able to-

**PSO1:** Acquire knowledge of livestock management practices

**PSO2:** Understand knowledge about market milk industry

**PSO3:** Acquire knowledge of different breeds of cattle Buffalo, Goat and sheep and their diseases

**PSO4:** Understand knowledge about Classification of feedstuff and their nutritional importance in livestock feeding

**PSO5:** Acquire knowledge about Indian and western milk products

**PSO6:** Understand the cultivation practices of different fodder crops

**PSO7:** Analyse the different analytical techniques for feed evaluation

**PSO8:** Acquire knowledge of animal reproduction practices in farm animals

**PSO9:** Acquire knowledge about Genetics, Animal Breeding and selection of breeds

---

### **Course Outcomes**

**F.Y. B.Sc.**

**Semester I**

#### **Paper-I: Dairy farm Management. Paper-I**

Upon completion of the course, the students will be able to-

**CO1:** Describe the role of livestock in national economy

**CO2:** Apply the General management practices in Dairy farming

**CO3:** Describe the cattle and Buffalo management practices

**CO4:** Describe the sheep and Goat management practices

**CO5:** Apply the management practices in poultry farming

#### **Paper-II: Market milk industry**

Upon completion of the course, the students will be able to-

**CO1:** Identify the chronology of dairy development in India

**CO2:** Identify the packaging material used for market milk

**CO3:** Explain Anatomy and Physiology of mammary gland

**CO4:** Describe the microbiology of milk

**CO5:** Classify the Metals and Non-metals used in dairy industry

#### **Practical paper III (based on Paper I & II)**

Upon completion of the course, the students will be able to-

**CO1:** Identify platform test for milk

**CO2:** Determine chemical & microbiological quality of milk

- CO3:** Detect adulterants and preservatives in milk
- CO4:** Describe morphology of cattle, Buffalo and poultry
- CO5:** Describe the classification of cattle Breeds
- CO6:** Identity the different Breeds of cattle, Buffalo, Goat & sheep

## **Semester II**

### **Paper- IV: Livestock Health & Hygiene**

Upon completion of the course, the students will be able to-

- CO1:** Give difference between healthy and sick animal
- CO2:** Classify the animal diseases
- CO3:** Identify the major diseases of cattle
- CO4:** Describe the diseases of calves
- CO5:** Identity the poultry diseases
- CO6:** Describe the first aid measures for farm animal

### **Paper-V: Dairy Processing and Engineering**

Upon completion of the course, the students will be able to-

- CO1:** Describe the processing operations in dairy plant
- CO2:** Identify the special milks in dairy industry
- CO3:** Describe the unit operations in dairy engineering
- CO4:** Describe the boiler and refrigeration systems in dairy plant
- CO5:** Classify the cold storages in dairy plant

### **Paper – VI (practical)**

Upon completion of the course, the students will be able to-

- CO1:** Determine the temperature, pulse rate and respiration rate in farm animal
- CO2:** Preparation of vaccination schedule in farm animal
- CO3:** Identify the ecto and endo parasites in farm animal
- CO4:** Describe the role of dairy farm records in dairy farming
- CO5:** Describe the operations of liquid milk processing equipment
- CO6:** Describe the working of refrigeration and boiler equipment
- CO7:** Draw the layout of dairy processing plant

## **S.Y. B.Sc.**

## **Semester III**

### **Paper VII - Animal Nutrition**

Upon completion of the course, the students will be able to-

- CO1:** Elaborate livestock population and availability of feed & fodder in India
- CO2:** Describe the role of different nutrients in farm animal
- CO3:** Classify the different feedstuff used in animal nutrition
- CO4:** Explain the anatomy of digestive system in ruminants
- CO5:** Describe the nutritional characters of roughages & concentrates

### **Paper VIII- Indian Dairy Products**

Upon completion of the course, the students will be able to-

- CO1:** Identify Indian dairy products
- CO2:** Classify Indian and western dairy products
- CO3:** Describe desiccated Milk Products
- CO4:** Describe heat and acid coagulated milk products
- CO5:** Describe fat rich Indian Dairy Products

### **Practical (IX)**

Upon completion of the course, the students will be able to-

- CO1:** Identify the different feed & fodder used in animal feeding
- CO2:** Determine the different analytical techniques for evaluation of feeds
- CO3:** Calculate the ration for milch animal

### **Practical Paper X (Practical): Indian Dairy Products**

Upon completion of the course, the students will be able to-

- CO1:** Analyse Indian dairy products
- CO2:** Prepare desiccated Milk Products
- CO3:** Prepare heat and acid coagulated milk products
- CO4:** Prepare fat rich Indian Dairy Products

## **Semester IV**

### **Paper-XI: Fodder Production & Feed Processing**

Upon completion of the course, the students will be able to-

- CO1:** Classify the different cultivated fodder crops
- CO2:** Describe conservation of green fodder as silage and hay
- CO3:** Explain Agro industrial by products and unconventional feeds
- CO4:** Determine the measures of energy value and protein value of feeding stuff
- CO5:** Classify the different concentrate feeds

### **Paper – XII: Cheese & Fermented Milk Products**

Upon completion of the course, the students will be able to-

- CO1:** Identify the starter cultures
- CO2:** Describe the process of cheddar cheese making
- CO3:** Describe the process of Gauda cheese making
- CO4:** Describe the process of processed cheese making
- CO5:** Describe the manufacture of different fermented milk products

### **XIII (practical)**

Upon completion of the course, the students will be able to-

- CO1:** Describe the cropping scheme for fodder crops
- CO2:** Describe the Processing of Feeds & fodder

**CO3:** Describe preparation of silage & flay

**CO4:** Determine methods of preparation of concentrate mixture, mineral mixture, calf starter and milk replacer

**Paper XIV (Practical): Cheese & Fermented Milk Products**

Upon completion of the course, the students will be able to-

**CO1:** Analyse the starter cultures

**CO2:** Explain process of cheddar cheese making

**CO3:** Explain process of Gauda cheese making

**CO4:** Explain process of processed cheese making

**CO5:** Prepare different fermented milk products

**T.Y. B.Sc.  
Semester V**

**Paper XV:- Animal Reproduction & Artificial Insemination**

Upon completion of the course, the students will be able to-

**CO1:** Describe the animal reproduction practices in farm animals

**CO2:** Classify the different methods of pregnancy diagnosis

**CO3:** Give different stages of parturition

**CO4:** Describe the A.I. techniques in farm animal

**CO5:** Explain the Bio-techniques used in animal reproduction

**Paper-XVI: - Ice-Cream and fat rich dairy products**

Upon completion of the course, the students will be able to-

**CO1:** Describe the process of Ice cream manufacture

**CO2:** Identify the role of stabilizers and emulsifiers

**CO3:** Identify physico-chemical properties of ice-cream

**CO4:** Describe frozen dessert

**CO5:** Describe Fat rich dairy products

**Practical paper-XVII: Ice-cream & fat rich dairy products**

Upon completion of the course, the students will be able to-

**CO1:** Prepare softy Ice cream

**CO2:** Analyse softy Ice cream

**CO3:** Analyse frozen desserts

**CO4:** Prepare cream, butter

**CO5:** Prepare Butter oil

**XVIII (Practical)**

Upon completion of the course, the students will be able to-

**CO1:** Identify the different parts of reproduction system in cattle

**CO2:** Classify the different methods of collection of sachem

**CO3:** Describe the insemination techniques by recto-vaginal method

**CO4:** Detection of heat in farm animal

**CO5:** Detection of Pregnancy diagnosis by rectal palpation methods

### **Semester VI**

#### **XIX: - Genetics & animal breeding**

Upon completion of the course, the students will be able to-

**CO1:** Describe the knowledge of about Genetics

**CO2:** Describe the Mendel's laws of inheritance

**CO3:** Describe methods of animal breeding

**CO4:** Describe fertility and sterility of farm animals

**CO5:** Give information about breed selection

#### **Paper-XX- Condensed, dried milk and by-products**

Upon completion of the course, the students will be able to-

**CO1:** Describe condensed and evaporated milk

**CO2:** Describe dried milks

**CO3:** Identify different by- products of milks

**CO4:** Identify food safety parameters

**CO5:** Identify quality assurance parameters

#### **XXI (Practical)**

Upon completion of the course, the students will be able to-

**CO1:** Describe the judging of dairy cattle

**CO2:** Determine the gene frequency, genetic frequency

**CO3:** Determine the breeding efficiency of cow

**CO4:** Classify the different breeding records in farm animal

#### **Practical Paper-XXII: - Condensed, dried milks and by-products**

Upon completion of the course, the students will be able to-

**CO1:** Prepare condensed and evaporated milk

**CO2:** Prepare dried milks

**CO3:** Analyse different by- products of milks

**CO4:** Prepare food safety programme

**CO5:** Analyse quality assurance parameters

---

**B.Sc.: Mathematics**

### **Programme Specific Outcomes**

At the time of graduation, the students will be able to: