

AC- / / 2019

Item No-



**Rayat Shikshan Sanstha's
KARMAVEER BHURAO PATIL COLLEGE, VASHI.
NAVI MUMBAI
(AUTONOMOUS COLLEGE)**

Sector-15- A, Vashi, Navi Mumbai - 400 703

**Syllabus for S.Y.B.Sc.
Program: Skill Based
Course: Dairy Chemistry**

(With effect from the academic year 2019-20)

1. Preamble and objectives of the Course:

Major Objectives of the Diploma Course in Dairy Chemistry

To make the learner proficient in analyzing the various observations and chemical phenomena presented to him during the course.

- To make the learner capable understanding dairy chemistry the various units of this course
 - To give the learner an opportunity to get hands on experience of the various concepts and processes used in dairy chemistry.
 - To impart various skills of handling chemicals, reagents, apparatus, instruments and the care and safety aspects involved in such handling
 - To make the learner capable of analyzing and interpreting results of the experiments he conducts or performs
 - To make the learner capable of acquiring or pursuing a source of livelihood like jobs in Dairy industry
 - To arouse the interest to pursue higher levels of learning in Dairy chemistry
- The major objectives Diploma in Dairy Chemistry course are
- To infuse in the learner a spirit of inquiry into the fundamental aspects of dairy industry.

Duration:

3 hrs/week Theory 30 hrs

15 hrs tutorial

Diploma in Dairy Science

Syllabus

Theory

1. Introduction to Dairy Industry

Introduction, Definition, constituents of milk of different species such as cow, buffalo, goat, etc., Chemical composition of milk of Indian breed and foreign breeds of cow, factor affecting composition of milk, characteristics of milk of different mammals, physicochemical properties of milk, acidity, pH, density, specific gravity, color and flavor of milk, food and nutritive value of milk. Microbiology of milk, growth of microorganism, stages of growth, product of microbial growth, destruction of microorganisms growth

2. Common dairy processes Cream separation-

Basic principles, gravity creaming water dilution and centrifugal creaming method, construction of centrifugal separator, factors affecting percentage of fat, speed of machine, temp. of milk, rate of inflow amount of flushing water formation of separator slime Pasteurization of milk, flow sheet diagram, process receiving milk, preheating filtration, clarification, cooling and storage raw milk, standardization, pasteurization, homogenization, packing and storage, uses of milk.

3. Special milk

1. Sterilized milk- Definition, method of manufacture in detail, Advantages and disadvantages. 2. Homogenized milk,- Definition, merits and demerits factor influencing homogenization, Process of manufacture. 3. Soft curd milk- Definition, characteristics, method of preparation of soft curd milk. 4. Flavored milk- Definition, types, method of manufacture flow sheet diagram. 5. Vitaminised / irradiated milk- - Definition, method of manufacture. 6. Fermented milk-Definition, method of manufacture. 7. Standardized milk- Definition, method of manufacture

4. Industrial applications of dairy products

Milk Products Cream, Butter, Cheese and Ice-Cream. 1. Cream- Definition,

Classification, Composition, Food & Nutritive value, Physicochemical properties, Manufacture and uses of cream. Butter- Definition, Classification, Composition, Food & nutritive value, Physicochemical properties, Manufacture and uses of Butter selection of milk/cream. Preheating of milk, Separating of milk, neutralization of cream, Pasteurization of cream, Cooking & ageing, repending of cream, salting of butter, washing of butter, packaging & Storage, use of butter.

Practicals

1. Preparation of curd and butter milk
2. Preparation of cheese and cream
3. Preparation of flavored milk
4. Preparation of cream
5. Preparation of butter
6. Detection of preservative in milk
 - 1) Boric acid
 - 2) Formaldehyde
7. Detection of adulterants like water, extraction of fat in milk sample
 - a. Neutralizers
 - b. Formalin
 - c. Sugar
 - d. Starch
 - e. Glucose
 - f. Urea
 - g. ammonium sulphate
 - h. salt
 - i. pulverized soap
 - j. detergents
 - k. water
 - l. skim milk powder
 - m. vegetable fat

- n. benzoic and salicylic acid
 - o. borax and boric acid
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- 8. Determination of chlorine content of the milk volumetrically
 - 9. Field work
 - 10. Project work

References:

- 1) Outline of Dairy Technology- Oxford University press By- Sukumar De. (Edition-1983)
- 2) Dairy Chemistry and Animal Nutrition- M.M. Rai, Kalyani, Publishers, New Delhi
3rdEdition, 1980
- 3) Fundamentals of Dairy Chemistry- B.H. Webb, A.H. Hohsson, J.A. Alford, CBB,
Publishers and Distributors.
- 4) Milk and Milk Products- C.H. Eckles, H. Macy, Tata McGraw Hill Publishing Company
Ltd.
- 5) Chemistry and Testing of Dairy Products- H.V. Atherton, J.A. New Lander, CBS,
Publishers and Distributors.
- 6) Dairy Microbiology, Dr. K.C. Mahanta. Omsons Publication New Delhi.