

Short Term

Certificate Course

In

Dairy and Dairy Product Testing

By

Department of Chemistry

Mahatma Gandhi Vidyamndir's

Arts, Commerce and Science College, Malegaon City

2018-19

Course Overview

Name of the Course	Dairy and Dairy Product Testing
Level	Certificate
Duration	30 hrs (including practical and Industrial demonstration)
Course Credit	2
Eligibility	Undergraduate science students upto TYBSc
Course Fee	Rs. 200/-
Structure	Theory- 25 hrs with demonstration Practical- 10 (based upon the syllabus)
Assessment	At the end of the course. MCQ type assessment will be the conducted with Oral/Viva on Practicals performed during the course.
Attendance	Enrolled students have to give 75% attendance in theory and Practicals, failing which no certificate will be awarded
Course Co-ordinator	Prof. Rizwan Ahmed Department of Chemistry Mob: Email:
Course Convener	Dr. Arif Anjum Vice Principal Arts, Science And Commerce College, Malegaon City

1. **Introduction:**

Milk and Milk Products are major part of food industry and growing at a faster pace than any other food industry, hence requirement for mechanized and trained professionals are in demand. Due to its complex nature it requires mandatory testing for food quality and measurement of adulterant levels in the milk and its products. This course has been designed to be done parallel with the undergraduate course in order to develop skills and employability among the students and make them industry compliant.

2. **Learning Objectives-**

The students are expected to study the importance of dairy chemistry and its application in dairy product testing in view of the following points;

1. Knowing the basic science of testing the dairy products and milk related adulteration.
2. Knowing the composition of milk, its food & nutritive value
3. Understanding the Microbiology of the milk
4. Understanding various preservation and adulterants, various milk proteins and their role for the human body.
5. Commercial application of the course and applicable to the industry.

3. **Learning Outcome:**

1. Develop and generate scientific aptitude towards the matter.
2. Create awareness among the students about application of chemistry principles in practical fields dairy science.
3. Learn to test and handle the process practically about the milk and milk products.
4. Learn nature of adulterants and their side effects on health.

Board of Studies

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| 1. | Prof. Rizwan Ahmed | Chairman |
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SYLLABUS

Chapter-I:

(05 Hrs)

Introduction, Definition & Constituents of milk of different species such as cow, buffalo, goats, etc. Physico-chemical properties of milk, acidity, PH, density, specific gravity, color and flavor of milk, food & nutritive value of milk.

Microbiology of milk, growth of micro-organism, stages of growth, Product of microbial growth, destruction of micro-organism growth.

Chapter-II: Milk Products

(10 hrs)

Cream- Definition, Classification, Composition, food & Nutritive Value, Physicochemical properties, Manufacture & use of cream.

Butter- Definition, Classification, Composition, food & nutritive value, Physico chemical properties, Uses of butter.

Cheese -Definition, Classification, Composition, food & Nutritive Value, properties, Manufacture & use of cheese.

Ice-Cream -Definition, Classification, Composition, food & Nutritive Value, Manufacture, Packing, hardening & storage uses of Ice-cream.

Chapter-III: Preservatives & Adulterants in Milk and Milk Products (10 hrs)

Preservation of milk- Introduction, Common preservatives used

Adulterants- Introduction, Modes of adulteration & their detection such as skimming, addition of separated milk, skim milk water, starch & cane sugar.

Adulteration in Milk, Dahi, Paneer and Ice Cream and their detection.

References:

Ref- 1: Milk and Milk Products- C.H. Eckles, H. Macy, Tata McGraw Hill Publishing Company Ltd.

Ref- 2: Chemistry and Testing of Dairy Products- H.V. Atherton, J.A. New Lander, CBS, Publishers and Distributors.

Ref-3: Dairy Microbiology, Dr. K.C. Mahanta Omsons Publication New Delhi.

Practicals:

(05 hrs)

1. Detection of density of milk by lactometer (for water adulterant detection).
2. Detection of cane sugar in milk.
3. Detection of starch in milk.
4. Detection of cellulose in milk.
5. Estimation of urea content in milk.
6. Detection of residual chlorine in milk.
7. Detection of thickeners (starch and gelatine) in cream (malai).
8. Determination of starch and fats in Dahi.
9. Detection of fats, crude protein and thickeners in Ice cream.
10. Detection of starch in paneer and cheese.

Reference: *Lab Manual for analysis of milk and milk products, Food Safety and Standard Authority of India, Ministry of Health and Family Welfare.*

Assesment:

At the End of course, MCQ type examination will be conducted alongwith oral/viva on practicals performed during the course. After successful completion and attendance should be above 75%. Examination is compulsory; no certificate will be awarded to any candidate who fails in attendance and examination criteria.

Learning Resources:

1. https://www.youtube.com/watch?v=F2yU1A2Ay_8.
2. <https://www.youtube.com/watch?v=MaFf0DPMRYQ>
3. <https://www.youtube.com/watch?v=oxem1MLFqNI>
4. <https://www.youtube.com/watch?v=xQ4FVBn63FA>
5. <http://www.fao.org/ag/againfo/resources/documents/MPGuide/mpguide2.htm>
6. The FSSAI Manual for testing the milk and Milk Products
https://old.fssai.gov.in/Portals/0/Pdf/Draft_Manuals/MILK_AND_MILK_PRODUCTS.pdf
7. Purdue University Manual for Milk Testing
https://ag.purdue.edu/ansc/Documents/Ebner_MilkQualityManual.pdf

Dr. Arif Anjum

Course Convener

Prof. Rizwan Ahmed

Course Coordinator

Photos:





Certificate Distribution



MAHATMA GANDHI VIDYAMANDIR'S

ARTS, COMMERCE & SCIENCE COLLEGE

Malegaon City, 423203 Dist Nashik. (M.S.)

Certificate

2018-19

This is to certify that

Mr./Ms. _____

has successfully completed the

“Certificate Course in Dairy and Dairy Product Testing”

Conducted by

Department of Chemistry

MGV's Arts, Commerce & Science College, Malegaon City

& he/she has Secured CGPA of _____ at _____ Grade in the Examination.

Date :


(Shivajirao C. Hale)
Principal

(Dr. Shakeb Ahmed)
College Exam Officer

(Prof. Mujahid Kazzafi)
Coordinator