

Course Teacher: Hanif Mahmud

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Dairy Science & Engineering Practical

Part A- Introduction

Course Code: NFE 314	Course Title: Dairy Science & Engineering Practical	
Course Type: Compulsory	Level/Term: Level 3, Term 1	Prerequisite (s): None
Credit: 1.0	Contact Hours: 2 Hrs/Week	Total Marks: 100 (CIE: 60, SFE:40)

1. Course Summary

Dairy food and food products are the biggest part of our food industry; besides this it is very important for our health. This course will help the students of undergraduate level to know how to identify the purity of milk. The students will be able to manufacture different types of dairy products. These lab works are based on modern milk analyzing techniques

2. Course Objectives

The specific objectives of the course are to learn the basics of Dairy Science and Engineering, learn how to analyze clot on boiling test, fat test, acidity test, SNF (Solid Not Fat) and total solid test, learn how to prepare Yoghurt, Cheese, Ice-cream, Condensed milk, Ghee, lassi and sweet and become expert and professionals in the field of commercial based product production.

3. Course Learning Outcomes: at the end of the Course, the student will be able to-

CLO1	Assess the purity and quality of milk
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CLO2	Identify fat acidity and total solids in milk
CLO3	Process different types of commercial dairy products

Part B- Content of Course

4. Topics to be covered/ Content of the course-

Topics	Specific Outcome(s)	Time Frame	Suggested Activities	Teaching Strategy(s)	Alignment with CLO
Laboratory Module A (Platform Test): Experiment No.1: Milk testing: Clot on Boiling test. Experiment No. 2: Milk testing: Sediment test. Experiment No. 3: Milk testing: Alcohol test.	To identify the purity of milk.	Week 1 Week 2 Week 3	Lecture Demonstration, Discussion	Q/A, Viva Voce, Observation Report of individual experiment	CLO1
Laboratory Module A (Platform Test): Experiment No. 4: Determination of Fat in Milk. Experiment No. 5: Study on determination of	To identify how much fat obtain in milk/ acidity of milk/total solids in milk	Week 4 Week 5 Week 6	Lecture Demonstration, Discussion	Q/A, Viva Voce, Observation Report of individual experiment	CLO2

Activity (Titrable Acidity) of Milk. Experiment No. 6: Study on determination of S.N.F. (Solid Not Fat) and Total Solids of Milk.					
Lab Performance Examination		Week 8-9			
Laboratory Module B (Factory) : Experiment No.7: Preparation of Yogurt Experiment no.8 Preparation of Lassi Experiment No.9 Preparation of Ghee Experiment No.10 Preparation of Ice-cream by Hand freezer Experiment No.11 preparation of cheese/Paneer Experiment No.12 preparation of butter Experiment No.13 Preparation of rash malai. Experiment No.14 Preparation of Sweetmeat	To manufacture different types of commercial dairy product	Week 10-16	Lecture Demonstration, Discussion	Q/A, Viva Voce, Observation Report of individual experiment	CLO3
Lab Report Submission	Assignment (MS Word or	Week 17-18	Peer review on Lab Report	Evaluation of lab report using	

	PDF)			rubric	
Lab Final Examination		Week 19-20			

Part C- Assessment and Evaluation

5. Assessment Pattern

Laboratory Performance:

Laboratory Performance Exam will be taken during the semester at the end of week Students will be strongly recommended not to miss the test.

Laboratory Report:

Students will prepare reports for individual experiments at home after completing each experiment and will be submitted during the semester. Report of all experiments must be submitted before Final Examination

CIE- Continuous Internal Evaluation (50 Marks) + Attendance (10 Marks)

Bloom's Category Marks (out of 50)	Laboratory Performance Test (25)	Laboratory Report (25)
Remember	5	
Understand	5	5
Apply	5	5
Analyze	10	5
Evaluate		
Create		10

SEE- Semester End Examination (40 Marks)

Bloom's Category	Test
Remember	5
Understand	5
Apply	10

Analyze	10
Evaluate	5
Create	5

6. Assessment and Evaluation:

Grades will be calculated as per the university grading structure and individual students will be evaluated based on the following criteria with respective weights.

Sl	Assessment techniques	Marks
1	Class Attendance	10
2	Laboratory Performance Examination	25
3	Laboratory Report	25
4	Final Examination	40
Total		100

Part D- Learning Resources

7. Textbook

1. Outlines of Dairy Technology by Sukumar De.
2. Developments in Dairy Chemistry – Vol 1 & 2; Fox PF; Applied Science Pub Ltd.

Reference Books and Materials:

1. Modern Dairy Technology, Robinson RK; 1996; Vol 1 & 2; Elsevier Applied Science Pub.
2. Milk & Milk Processing; Herrington BL; 1948, McGraw-Hill Book Company.
Modern Dairy Products, Lampert LH; 1970, Chemical Publishing Company.