



DEPARTMENT OF CHEMISTRY

MUHAMMED ABDURAHIMAN MEMORIAL ORPHANAGE (MAMO) COLLEGE

[Govt. Aided First Grade College & Affiliated to University of Calicut.
Re-Accredited by NAAC with A Grade]

CURRICULUM FOR CERTIFICATE COURSE

CERCH003: FOOD ADULTERATION IN DIARY

OFFERED DURING THE
ACADEMIC YEAR 2017-18
[APPROVED BY ACADEMIC COMMITTEE, MAMO COLLEGE]



MANASSERY, MUKKAM POST,
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INSTITUTIONAL VISION, MISSION & OBJECTIVES 01



VISION

VISION: Build Scientifically Oriented, Intellectually Accomplished, Morally Upright and Socially Committed youth who can play a constructive role in Nation Building.



MISSION

MISSION: Intellectual, social and economic empowerment of the youth in general and women, minorities, orphans and the destitute in particular by providing quality, value-based higher-education.



OBJECTIVES

OBJECTIVES: Pursuit of Excellence, Harnessing technology, Thrust on value-based education, Nurturing Excellence and Moulding the youth for Nation Building



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VISION, MISSION, OBJECTIVES & CORE VALUES OF THE DEPARTMENT

02



VISION

VISION: To be a recognized model for educating students, prepared to compete in and contribute to the ever-changing, technology-centred world.



MISSION

MISSION: To encourage in the broadest and most liberal manner towards the advances in Chemistry through education by providing students with quality education.



OBJECTIVES: (a) To provide a broad foundation in Chemistry that stresses scientific reasoning and analytical problem solving with molecular perspective. (b) To provide students with skills required to perform laboratory experiments and data analysis. (c) Provide programmes that meet the educational and technical demands of the sub-disciplines. (d) Value-based training for ethical Conscience. (e) Inculcate critical and analytical thinking. (f) Apply fundamental chemical principles to gather and explain data.



VALUES

CORE VALUES: Innovation, Excellence, Ethical Consciousness, Service Mindedness, Professionalism and Global Outlook.



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B.Sc. POLYMER CHEMISTRY: PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) 03

After 4 to 5 years of graduation, the career and professional accomplishments attained by the B.Sc Polymer Chemistry Graduates would reflect that the programme really prepared the graduates to deal with the real world, where they could apply and use the skills and knowledge they have learned to good use.

Specifically, the graduate would be able to:



PEO1: Acquire the fundamental principles of Science and Chemistry with modern experimental and computational skills.



PEO2: Ability to handle problems of practical relevance to society while complying with economical, ethical and safety factors.



PEO3: Demonstrate professional excellence, ethics, soft skills and leadership qualities.



PEO4: Have sufficient breadth of understanding to enable continued professional development and lifelong learning throughout their career.



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B.Sc POLYMER CHEMISTRY: PROGRAMME SPECIFIC OUTCOME (PSOs) 04

On successful completion of a Bachelor Degree in Polymer Chemistry, the graduates would be able to:



PSO1: Gain the knowledge of Chemistry through theory and hands-on training.



PSO2: To explain nomenclature, stereochemistry, structures, reactivity, and mechanism of the chemical reactions.



PSO3: To familiarize with the emerging areas of Chemistry and their applications and to apprise the students of its relevance in future studies.



PSO4: Understand good laboratory practices and safety.



PSO5: To be conversant with the applications of Chemistry in day-to-day life.



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B.Sc POLYMER CHEMISTRY: PROGRAMME OUTCOMES (POs) 05

The students graduating from B.Sc Polymer Chemistry Programme should be able to:



PO1: Demonstrate, solve and an understanding of major concepts in all Disciplines of chemistry problems.



PO2: Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of chemical reactions.



PO3: Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.



PO4: Find out the green route for chemical reaction for sustainable development.



PO5: To inculcate the scientific temperament in the students and outside the scientific community.



PO6: Use modern techniques, recent equipment and software for leaning Chemistry.



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PO7: To demonstrate professional and ethical attitude with enormous responsibility to serve the society.



PO8: To apply contextual knowledge and modern tools of chemistry research for solving problems.



PO9: An understanding of professional, ethical, legal, security, social issues and responsibility.



PO10: Be acquainted with the contemporary issues latest trends in technological development and thereby innovate new ideas and solutions to existing problems.



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CERTIFICATE COURSE

CERCH003: FOOD ADULTERATION IN DIARY 06

COURSE CURRICULUM

Course Name	Food Adulteration in Diary
Course Code	CERCH003
Year	2017-18
Course Designer	Ms. Shameera P
Couse Duration	30 Hrs
Course Schedule	June to September
Maximum Students Intake	60 Students



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1. COURSE LEVEL

Fundamental, skill-oriented certificate/vocational programme.

2. PREREQUISITE

None.

3. COURSE INTAKE & ADMISSION

Maximum 60 students will be given admission to the course based on First-Come-First-Serve basis. All the students of the MAMO College are eligible for free enrolment for the course. The enrolment notification will be issued for the course well in advance of the commencement of the course.

4. COURSE COORDINATOR

Ms. Shameera P, Assistant Professor, Department of Chemistry

5. COURSE PREAMBLE

This course aims to impart the hands-on knowledge about food adulteration, adulteration techniques, and different food adulteration techniques used in dairy products.

6. DURATION

Total Duration: 30 Hrs. [Contact Hrs. 8 Hrs, Course works: 10 and Assessment Works: 12]

7. CURRICULUM FOCUS

Enhance the employability of the learners through curriculum enrichment for additional skill development.



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8. COURSE OBJECTIVES

Learners are expected to

- (a) Study about the details of food adulteration
- (b) Acquire the knowledge about food adulteration in dairy products.
- (c) To study about different parameters used for the analysis of dairy products.

9. SKILL EXPECTED

On the successful completion of the course, learners will be able to:

- (a) Understand the food adulteration techniques.
- (b) Implement the practical aspects of food adulteration techniques in dairy products
- (c) Techniques of food adulteration

10. COURSE OUTCOMES

Upon the successful completion of the course, learners will be able to:

CO No	Course Outcome(CO)	Skill/Knowledge Attainment Level Based on Revised Bloom's Taxonomy
CO1	Introduction of food adulteration	Understand
CO2	Assess the practical application of adulteration techniques in dairy items.	Apply
CO3	Developing ideas about dairy products and adulteration.	Evaluate



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CO No	Course Outcome(CO)	Skill/Knowledge Attainment Level Based on Revised Bloom's Taxonomy
CO4	Knowledge about adulteration and purpose of adulteration in dairy products.	Create

11. MAPPING OF COs WITH PSO's AND POs

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	1	0	0	1	3	1	2	1	2	3	0	0	3	2
CO2	1	2	0	1	1	2	1	3	0	2	2	0	1	3	2
CO3	3	2	0	1	1	2	1	2	1	2	3	0	2	3	2
CO4	3	2	0	1	1	2	1	2	0	3	2	0	1	3	2
AVG	2.0	1.8	0.0	0.8	1.0	2.3	1.0	2.3	0.5	2.3	2.5	0.0	1.0	3.0	2.0

12. MODULE-WISE COURSE CONTENTS

MODULE 1: FUNDAMENTALS OF FOOD ADULTERATION

MODULE DURATION: 15 Hrs. [Contact Hrs. 8 Hrs., Courseworks: 3 and Assessment Works: 4]

MODULE CONTENT: Food adulteration – Introduction of Food adulteration, definition. New adulterants in foods 2. Historical Food legislation in India; Central food laboratory, Municipal laboratories, 3. Export inspection council laboratory, Central grain analysis laboratory, standards of weights and



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measures act, solvent extracted oil de oiled meal and edible flour order, export and quality control and inspection act and other acts and orders.

MODULE OUTCOME: To impart knowledge of various areas related to Food Science and Technology, To enable the students to understand food composition and its physicochemical, nutritional, microbiological and sensory aspects, To familiarize the students about the processing and preservation techniques of pulses, oilseeds, spices, fruits and vegetables, meat, fish, poultry, milk & milk products,

MODULE 2: GENERAL METHODS FOR ADULTERATION IN DAIRY PRODUCTS.

MODULE DURATION: 15 Hrs. [Contact Hrs. 8, Course works: 4 and Assessment Works: 3]

MODULE CONTENT: Testing adulteration of Milk and products: A) Adulteration of Milk Physical Tests: Detergent Test Filter Test Flow Test B) Chemical Tests: Clot on boiling test Test for starch in Milk Test for cane sugar in Milk Test for Buffaloes Milk in Cow's Milk Test for added colours in Milk Test for skim milk powder in milk Detect the presence of added carbonates and bicarbonates in milk

MODULE OUTCOME: To emphasize the importance of food safety, food quality, food plant sanitation, food laws and regulations, food engineering and packaging in food.

REFERENCES:

1. Heldman, Dennis R. IFT and the Food Science Profession. *Food Technology*, October 2006. p. 11.



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- Potter, Norman N.; Hotchkiss, Joseph H. (1998). *Food Science. Food Science Texts Series* (5th ed.). Springer. ISBN 9780834212657.
- Food Science Activity Guides*. IFT.org. Archived from the original on March 27, 2015. Retrieved February 2, 2015.

13. DELIVERY MODE

The course employs multi-mode delivery mechanism including contact lecture, online videos, and online and offline course works.

14. DELIVERY SCHEDULE

June to September.

15. DETAILED COURSE DELIVERY PLAN

Hour	Delivery Mode and Activity	Topics to be Covered
1	Contact Hour - 1: Classroom Discussion	Introducing the Course Food adulteration – Introduction definition. New adulterants in foods,
2	Contact Hour - 2: Classroom Interaction	Historical Food legislation in India; Central food laboratory, Municipal laboratories.,
3	Assessment Hour – 1	Quiz
4	Course Work – 1: Course Assignment	Assignment on New adulterants in foods,
5	Contact Hour - 3: Classroom Lecture	Export inspection council laboratory, Central grain analysis laboratory, standards of weights and measures act
6	Assessment Hour – 2	Quiz competition by making teams



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Hour	Delivery Mode and Activity	Topics to be Covered
7	Course Work – 2: Course Assignment	Google form quiz on Historical Food legislation in India
8	Course Work – 3: Course Assignment	Assignment standards of weights and measures act
9	Assessment Hour – 3	Quiz on standards of weights and measures act
10	Contact Hour - 4: Classroom Lecture	Solvent extracted oil de oiled meal and edible flour order, export and quality control and inspection act and other acts and orders.
11	Course Work – 4: Course Assignment	Assignment on export and quality control and inspection act and other acts and orders
12	Assessment Hour – 4	Quiz on export and quality control and inspection act and other acts and orders
13	Course Work – 5: Course Assignment	Assignment on solvent extracted oil de oiled meal and edible flour order
14	Assessment Hour – 5	Quiz on solvent extracted oil de oiled meal and edible flour order
15	Assessment Hour – 6	Test on module 1(online)
16	Contact Hour - 5: Classroom Discussion	Testing adulteration of Milk and products: Adulteration of Milk Physical Tests: Detergent Test Filter Test Flow Test
17	Assessment Hour – 7	Quiz on Testing adulteration of Milk and products



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Hour	Delivery Mode and Activity	Topics to be Covered
18	Contact Hour - 6: Classroom Interaction	Chemical Tests: Clot on boiling test Test for starch in Milk matrix, drug carriers
19	Assessment Hour – 8	Quiz
20	Course Work – 6: Course Assignment	Assignment on Chemical Tests
21	Contact Hour - 7: Classroom Lecture	Test for cane sugar in Milk
22	Assessment Hour – 9	Quiz competition by making teams
23	Course Work – 7: Course Assignment	Power point presentation on different tests for milk
24	Course Work – 8: Course Assignment	Test for starch in Milk matrix, drug carriers
25	Assessment Hour – 10	Quiz on Google form
26	Contact Hour - 8: Classroom Lecture	Detect the presence of added carbonates and bicarbonates in milk
27	Course Work – 9: Course Assignment	carbonates and bicarbonates in milk
28	Assessment Hour – 11	Quiz on Google form
29	Course Work – 10: Course Assignment	Assignment on Test for starch in Milk matrix, drug carriers
30	Assessment Hour – 12	Test on module 2(online)

16. ASSESSMENT COMPONENTS

Total Marks: 100

CLASSROOM AND GROUP PARTICIPATION: 20 Marks. This component aims at testing the course content understanding and the reflection skills and



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their attainment levels.

COURSE WORK: 30 Marks. This component aims at testing the skill attainment levels of the learners in analysing and implementing the real-world problem.

MID-COURSE ASSIGNMENT: 20 Marks. This component aims at testing the module-wise attainment levels of the course objectives and course outcome and module outcomes.

END-COURSE ASSESSMENT: 30 Marks. This component aims at testing overall attainment levels of the course with respect to course objectives, course outcome and module outcomes.

17. COURSE EVALUATION & GRADING

The course evaluation is done/coordinated entirely by the course coordinator. The following 10-point Indirect Grading System is used for awarding grades to students:

Percentage of Mark	Letter Grade	Interpretation	Class
95 and above	O	Outstanding	First Class with Distinction
85 to below 95	A+	Excellent	First Class with Distinction
75 to below 85	A	Very good	First Class with Distinction
65 to below 75	B+	Good	First Class
55 to below 65	B	Satisfactory	First Class
45 to below 55	C	Average	Second Class
35 to below 45	P	Pass	Third Class
Below 35	F	Failure	Fail
Incomplete	I	Incomplete	Fail
Absent	Ab	Absent	Fail



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The grade is awarded by the course-coordinator by considering the overall performance of the learner in all the assessment component of the course.

18. GRIEVANCE REDRESSAL

The grievances, if any, can be submitted to the Head of the Department for its redressal. Those grievances that cannot be redressed by HoD can be forwarded to Academic Council of the College for final decision on the matter.

19. ISSUANCE OF CERTIFICATES

The Course Completion Certificate will be issued to all the successful candidates showing the Total Marks and Grade Obtained.



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