J.S. University, Shikohabad

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VALUE ADDED COURSE

Dairy Technology and Processing: Enhancing Quality and Safety of Dairy Products

Faculty of Agricultural Sciences

	J.S. University, Shikohabad Faculty of Agricultural Sciences	Value Added Course
		AGVAC-23

Dairy Technology and Processing: Enhancing Quality and Safety of Dairy Products

Learning Objectives:

This value-added course on Dairy Technology and Processing aims to provide participants with in-depth knowledge and practical skills in the production of high-quality and safe dairy products. The course will cover the entire dairy value chain, from raw milk production to processing, preservation, and packaging of dairy products. It will also focus on the latest advancements in dairy technology and best practices for ensuring quality and safety in dairy processing.

Course Outcomes:

Upon completion of this course, students will be able to:

1. Understand the principles of dairy technology and processing, including milk composition, quality, and safety.
2. Gain knowledge of various dairy processing techniques, including pasteurization, homogenization, separation, and fermentation.
3. Learn about different dairy products, such as milk, cheese, butter, yogurt, and ice cream, and their processing techniques.
4. Understand the importance of quality control and food safety in dairy processing, including good manufacturing practices (GMPs) and hazard analysis and critical control point (HACCP) principles.
5. Learn about emerging trends and innovations in dairy technology, such as automation, digitalization, and sustainable practices.

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Duration: 8-10 weeks (depending on the pace of the student)

Intake: 60 students

Course Modules (Syllabus):

Module-1

Introduction to Dairy Technology and Processing

- Milk composition, quality, and safety
- Overview of dairy processing techniques
- Importance of quality control and food safety in dairy processing

Module-2

Dairy Processing Techniques

- Pasteurization: principles, methods, and equipment
- Homogenization: principles and applications
- Separation: principles and techniques for cream, skim milk, and whey
- Fermentation: principles and techniques for yogurt, cheese, and other fermented dairy products

Module-3

Quality Control and Food Safety in Dairy Processing

- Good manufacturing practices (GMPs) for dairy processing
- Hazard analysis and critical control point (HACCP) principles in dairy processing
- Regulatory requirements and compliance in dairy processing, including food safety regulations, labeling, and packaging standards
- Laboratory testing methods for milk and dairy products

Module-4

Emerging Trends and Innovations in Dairy Technology

- Automation and digitalization in dairy processing: robotic milking, process control systems, and data analytics
- Sustainable practices in dairy processing: energy-efficient technologies, waste reduction, and water conservation
- Innovation in dairy product development: functional dairy products, plant-based dairy alternatives, and novel processing techniques

Module-5

Hands-on Practical Sessions

- Demonstrations and lab sessions on dairy processing techniques, such as pasteurization, homogenization, separation, and fermentation
- Quality control measures and testing methods for milk and dairy products
- Case studies on real-world scenarios in dairy processing and problem-solving exercises
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Assessment:

- Weekly quizzes and assignments
- Final project on designing and implementing a dairytechnology and processing plan.

Reference books:

1. Dairy Science and Technology Handbook" by Y. H. Hui, et al.
2. Dairy Processing and Quality Assurance" by Ramesh C. Chandan, et al.
3. Introduction to Dairy Technology" by M. Walstra, et al.

(Name of Faculty)
Course Coordinator

(Name of Faculty)
Dean of Faculty

(Name of Faculty)
Director General