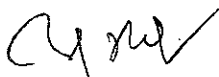


Name of the Department: Food Science & Technology

Paper UC-MSFT-511-19 Food Chemistry

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Students shall be aware of the underlying chemistry, properties and effects of processing on food components.	√	√	√	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Understanding of food components reactions and their impact on sensory, nutritional, and functional properties of foods.	√	√	√	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Ability to identify the structure of food constituents and relate the structure to the constituents function and importance in foods with respect to food quality, nutrition, safety, processing, etc..	√	√	√	√	√	√	√	√	√	Evaluation	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Ability to explain influence of factors such as temperature, pH, ionic characteristic and strength, bonding, etc. on chemical changes in food systems and judge how to adjust these conditions to improve or minimize chemical and biochemical deterioration of food systems.	√	√	√	√	√	√	√	√	√	Implication	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. Ability to integrate chemistry and biochemistry principles into real-world food science and nutritional problems.	√	√	√	√	√	√	√	√	√	Implication	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

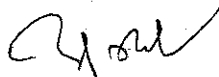

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Name of the Department: Food Science & Technology

Paper UC-MSFT-512- 19: PRINCIPLES OF FOOD ENGINEERING

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO 1. Students shall be able to understand Basics of Mass & Energy Conservation as applied to Food Processing Operations.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Students shall be able to understand Basics of Fundamentals of Food Processing Operations.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Students shall be able to understand working of equipments in Food Industry related to transport of Fluids, Thermal Processing and Material Handling along with basics as applied to Food Processing Operations.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Students shall be able to understand Basics of Psychrometrics & Air Conditioning Processes related to Food Processing Operations.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. Student shall be able to understand Basics of Mathematical Calculations related to above Engineering Applications as applied to Food Processing Operations.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

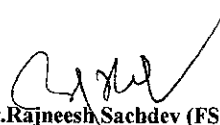

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Name of the Department: Food Science & Technology

Paper UC-MSFT-513- 19: FOOD MICROBIOLOGY

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Understand the principles involving food spoilage and preservation involving microorganisms and explain why microbiological quality control programmes are necessary in food production.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Ability to identify the characteristics of important pathogens and spoilage microorganisms in foods.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Evaluation	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Understand the role and significance of intrinsic and extrinsic factors on growth of microorganisms in foods and differentiate which organisms would be likely to grow in a specific food product.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Identify the conditions under which the important pathogens and spoilage microorganisms are commonly inactivated killed or made harmless in foods and identify ways to control microorganisms in foods.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analysis	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. Describe the beneficial role of microorganisms in fermented foods and in food processing.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Implication	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

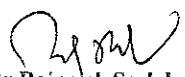

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Name of the Department: Food Science & Technology

Paper UC-MSFT-514- 19: FOOD PROCESSING & PRESERVATION

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. To impart knowledge on the causes of food spoilage.	√	√	√	√	√	√	√	√	√	Fundamentals	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. To learn principles of different techniques used in processing and preservation of foods.	√	√	√	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. To identify and select preservation methods appropriate for specific foods.	√	√	√	√	√	√	√	√	√	Analysis	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. To learn the effects of preservation methods on the quality of food.	√	√	√	√	√	√	√	√	√	Implication	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. To learn different permitted food additive used in food industry.	√	√	√	√	√	√	√	√	√	Implication	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

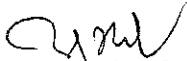

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Name of the Department: Food Science & Technology

Paper UC-MSFT-515- 19: LAB - I (FOOD MICROBIOLOGY)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Acquire the practical skills for the sampling of foods to carry out microbial analysis.	√	√	√	√	√	√	√	√	√	Implication	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Ability to carry out various sterilization techniques and to identify the most suitable technique for specific food.	√	√	√	√	√	√	√	√	√	Applicability	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Ability to isolate and identify common food borne microbial pathogens.	√	√	√	√	√	√	√	√	√	Applicability	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Understand microbiological analysis methods for food products and ability to analyze different foods for presence of hazardous microorganisms using food microbiology technology.	√	√	√	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. Ability to interpret microbiological analysis of food products.	√	√	√	√	√	√	√	√	√	Understanding &	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam



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Name of the Department: Food Science & Technology

Paper UC-MSFT-516- 19: LAB - II (FOOD PRESERVATION & ANALYSIS)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. To understand the sampling techniques and preparation of test samples.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understanding &	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. To understand the effect of various preservation techniques on the quality and safety of food products.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understanding &	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. To design and evaluate a processing procedure used to preserve a food product.	✓	✓	✓	✓	✓	✓	✓	✓	✓	creation & evalu	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. To understand the physical and chemical evaluation of thermally processed food.	✓	✓	✓	✓	✓	✓	✓	✓	✓	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. To understand and utilize different food preservation techniques.	✓	✓	✓	✓	✓	✓	✓	✓	✓	understanding &	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

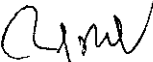

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Name of the Department: Food Science & Technology

Paper UC-MSFT-517- 19: NUTRACEUTICAL & FUNCTIONAL FOODS

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. To understand the concept of nutraceuticals and functional foods towards managing chronic diseases.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. To understand the source of various nutraceuticals and functional foods.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. to understand the role of various nutraceuticals and functional foods towards managing chronic diseases.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Describe a healthy diet and food choices, and explain why such choices will help prevent health problems.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. To learn the marketing and regulatory aspects of nutraceuticals and functional foods.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

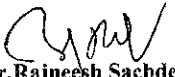

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Name of the Department: Food Science & Technology

Paper UC-MSFT-521- 19: DAIRY TECHNOLOGY

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Composition of milk and milk products.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Processing of milk and milk products.	√	-√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Different milk product development.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Organization and operations involved in milk processing unit.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. To understand legislation for the quality control of milk and milk products.	√	√	√	√	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

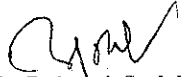

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Name of the Department: Food Science & Technology

Paper UC-MSFT-522- 19: TECHNOLOGY OF FRUITS AND VEGETABLES

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. The students shall be able to understand Biological, Chemical & Physical Properties of Fruits & Vegetables.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. The students shall be able to understand Technologies involved in Processing, Preservation & Value- Addition of Fruits & Vegetables.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Students shall be able to understand Industrial Processes for Commercial Production of Jams, Jellies, Marmalade, Fruit Juices, Concentrates, Fruit Juice Powder, Dehydrated Fruits, and Canning of Fruits & Vegetables.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Students shall be able to understand Basics of New Food Products Development & Ideas Generation for Product Development.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Students shall be able to understand Basics of By Product Utilization & Waste Utilization related to Fruits & Vegetables.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam



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Name of the Department: Food Science & Technology

Paper UC-MSFT-523- 19: PACKAGING TECHNOLOGY

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Rooney, M.L. (1995). Active Food Packaging: Blackie Academic & Professional, Glasgow, UK.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Coles, R. & Kirwan, M. (2011). Food and Beverage Packaging Technology (2 nd ed.): Wiley- Blackwell, UK.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Eiri Board of Consultants. (2007). Food Packaging Technology: Engineers India Research Institute, New Delhi.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Robertson, G. L. (2006). Food Packaging: Principles and Practice (2 nd ed.): CRC Press, Boca raton.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Piringar, O. P. & Baner, A. L. (2000). Plastic Packaging Materials for Food: Wiley-VCH, Weinheim.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

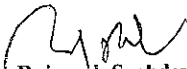

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Paper UC-MSFT-524- 19: LAB - III (DAIRY TECHNOLOGY)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. How to do sampling of milk and milk products.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Fundamentals	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Physical, Chemical & Microbial analysis of milk and milk products.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analytic skills	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Development of different milk products.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Creation and new product development	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Characterization of milk products.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analytic skills	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Quality control of milk & milk products.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Implications	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

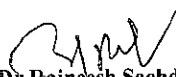

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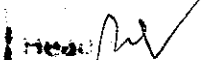
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Name of the Department: Food Science & Technology

Paper UC-MSFT-525- 19: LAB - IV (TECHNOLOGY OF FRUITS AND VEGETABLES)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Ability to assess the quality of fruit and vegetables.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analysis	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Ability to establish the quality specifications for the processing of fruit and vegetables.	✓	✓	✓	✓	✓	✓	✓	✓	✓	applicability	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Ability to develop various fruit and vegetable products with quality assurance and safety.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Creation and new product development	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Understand principles and methods of preservation of fruits and vegetables.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. To develop proficiency skill in preserving fruits and vegetables into various products.	✓	✓	✓	✓	✓	✓	✓	✓	✓	holistic development	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam



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Name of the Department: Food Science & Technology

Paper UC-MSFT-526- 19: LAB – V (PACKAGING TECHNOLOGY)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. To identify different types of materials and media used for packaging foods.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analysis	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Quality testing techniques for different packaging materials.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analysis	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Novel packaging used in food industry.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Knowledge upgradation	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Laws and regulation related to labelling of food product.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Knowledge upgradation	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Application of different packing materials for food industry.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Applicability	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

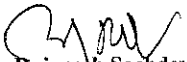

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Name of the Department: Food Science & Technology

Paper UC-MSFT-527- 19: BIOPROCESS TECHNOLOGY

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Appreciate the positive role and benefits of microorganisms and enzymes in food production, processing, and preservation.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Understand basic biological and chemical processes of living cells, enzymes, and microbial nutrition in relation to fermentation processes.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Understand principles of inoculum /starter culture development for industrial fermentations and fermenter /reactor design, control and operation.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Understand both upstream and downstream unit operations and technologies used for substrate preparation and recovery and purification of fermentation products.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Discuss and evaluate the operational considerations and relative advantages relating to the choice of techniques used in downstream processing of food products.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam



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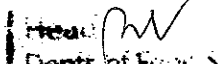
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Name of the Department: Food Science & Technology

Paper UC-MSFT-528- 19: TECHNOLOGY OF BEVERAGES

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Ability to understand the science and technology for processing different types of beverages.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Ability to explain processing of fruit juice beverages, carbonated beverages, citrus beverages, tea and coffee.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Understanding of permitted additives in beverages.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Ability to understand the impact of processing on quality of beverage.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Knowledge of recent high value added beverages and recent trends in beverage industry.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam



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Name of the Department: Food Science & Technology

Paper UC-MSFT-529- 19: LAB – VI (BIOPROCESS TECHNOLOGY)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Understand the various concepts of fermentation.	√	√	√	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Isolate and identify microorganisms from fermenting fruits, cereals and milk; produce some drinks and foods e.g. bread, beer, wine and vinegar resulting from alcoholic fermentation.	√	√	√	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Produce some foods and drinks e.g. yoghurt resulting from acidic fermentation.	√	√	√	√	√	√	√	√	√	Creation and new product development	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Experience in functioning within a team.	√	√	√	√	√	√	√	√	√	leadership	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. Understand principles underlying Quality Assurance.	√	√	√	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

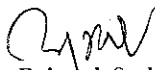

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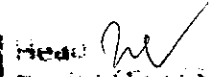
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Name of the Department: Food Science & Technology

Paper UC-MSFT-530- 19: LAB - VII (TECHNOLOGY OF BEVERAGES)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Ability to use laboratory techniques to analyze and measure important physicochemical parameters of beverages.	✓	✓	✓	✓	✓	✓	✓	✓	✓	analysis	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Ability to assess various quality parameters of beverages including sensory evaluation.	✓	✓	✓	✓	✓	✓	✓	✓	✓	evaluation	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Ability to understand regulatory requirements regarding quality of water for beverages.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Ability to acquire skill for development of high value added tea and coffee beverages.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Creation and new product development	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Ability to acquire skill for standardization of methods for developing beverages.	✓	✓	✓	✓	✓	✓	✓	✓	✓	introspection	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam



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Name of the Department: Food Science & Technology

Paper UC-MSFT-611- 19: TECHNOLOGY OF CEREALS, PULSES AND OILSEEDS

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Student will acquire the understanding of the technology for Wheat Milling & Wheat based Food Products.	✓	✓	✓	✓	✓	✓	✓	✓	✓		Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Student will acquire the understanding of the technology for Rice Milling & Rice based other Food Products.	✓	✓	✓	✓	✓	✓	✓	✓	✓		Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Student will acquire the understanding of working of equipments related to Wheat & Rice Milling along with equipments related to Wheat based & Rice based Food Products.	✓	✓	✓	✓	✓	✓	✓	✓	✓		Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Student will be able to understand technology for Milling of Corn & Corn based other Food Products along with equipments.	✓	✓	✓	✓	✓	✓	✓	✓	✓		Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Student will be able to understand technology for Oil Extraction & Oil Seed Processing along with equipments.	✓	✓	✓	✓	✓	✓	✓	✓	✓		Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

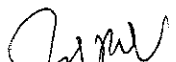

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Name of the Department: Food Science & Technology

PaperUC-MSFT-612- 19: FOOD SAFETY, STANDARDS AND QUALITY CONTROL

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. To create understanding of quality control and assurance system in food industry.	√	√	√	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. To understand the risk assessments procedure for food sector.	√	√	√	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. GMPs and GHP regulations in the food sector.	√	√	√	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. To understand the different food safety management used worldwide.	√	√	√	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. To understand the sensory evaluation methodology used in food industry.	√	√	√	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

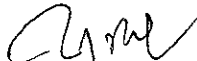

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Name of the Department: Food Science & Technology

Paper UC-MSFT- 613- 19: AGRI BUSINESS MANAGEMENT

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Ability to understand the basic concepts of marketing of food items.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Ability to understand market types, the procurement, marketing and management of raw and processed agricultural produce meant for human consumption.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Acquire knowledge of the legal and ethical environment impacting agriculture organizations and effectively evaluate the impact of trade policy.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Understand the need for careful management of a business human resources.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Understand the impact of planning, decision making and risk taking on an agri-business.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

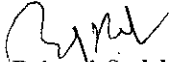

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Name of the Department: Food Science & Technology

Paper UC-MSFT-614- 19: LAB – VIII (TECHNOLOGY OF CEREALS, PULSES AND OILSEEDS)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Student shall be well versed with Processing Techniques of Cereals.	√	√	√	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Student shall be well versed with quality parameters of cereals.	√	√	√	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Student will be able to understand practical implication of Milling of Wheat & Rice.	√	√	√	√	√	√	√	√	√	understanding and implications	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Student will be able to get acquaintance with machinery being utilized in Milling of Wheat & Rice.	√	√	√	√	√	√	√	√	√	knowledge updr	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Student will be able to understand Lab SOPs for above.	√	√	√	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

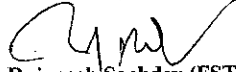

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Paper UC-MSFT-616- 19: NUTRITION AND HEALTH

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Utilize knowledge from the physical and biological sciences as a basis for understanding the role of food and nutrients in health and disease processes.	√	√	√	√	√	√	√	√	√		Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Describe the digestion and metabolism of the energy nutrients (carbohydrates, lipids, protein) and non-energy nutrients (vitamins/minerals).	√	√	√	√	√	√	√	√	√		Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Distinguish sound nutritional information from unreliable nutritional information.	√	√	√	√	√	√	√	√	√		Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Describe a healthy diet and food choices, and explain why such choices will help prevent health problems.	√	√	√	√	√	√	√	√	√		Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Review Biochemistry of Energy Transfer particularly the lactic acid system and the aerobic systems.	√	√	√	√	√	√	√	√	√		Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam



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Name of the Department: Food Science & Technology

Paper UC-MSFT-618- 19: LAB - X (NUTRITION AND HEALTH)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Describe methods used to assess nutrition status.	√	√	√	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Describe the methods used to carry out nutrition research.	√	√	√	√	√	√	√	√	√	skill development	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Understand how nutrition science studies are designed, analyzed and interpreted.	√	√	√	√	√	√	√	√	√	analysis and interpretation	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Experience in functioning within a team.	√	√	√	√	√	√	√	√	√	leadership	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Students will be able to demonstrate critical thinking skills to analyze data and interpret results in the nutritional sciences.	√	√	√	√	√	√	√	√	√	analysis and interpretation	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

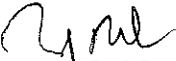

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Paper UC-MSFT-621- 19: SNACK FOOD TECHNOLOGY

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Students shall be able to understand Basics of Preparing Extruded Snack Foods Items along with working of equipments related to extrusion of Food Products.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2. Students shall be able to understand preparation of Breakfast Snacks in particular cereal based Snacks Food Items.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3. Students shall be able to understand preparation of Grain based Snacks Food Item.	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4. Students shall be able to understand preparation of Fruits & Vegetables based Snack Item along with introduction of related equipments.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5. Students shall be able to understand Basics Kitchen Recipe with scaling up to Commercial Level of all above.	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam



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Paper UC-MSFT-623- 19: TECHNOLOGY OF MEAT, FISH AND POULTRY

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Student shall know about the significance & necessity of organized animal product sector.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Students shall acquire the ability of value- addition to Meat, Poultry, Egg & Fish.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Student shall be well versed with processing, preservation & quality control of Meat, Egg & Fish in Food Industry.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Student shall be well versed with manufacturing practices of egg based, fish based and meat based by products & their processing techniques.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. Student will be having broad knowledge of status & scope of Meat, Egg, & Poultry industry world wide.	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

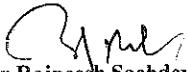

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**Name of the Department: Food Science & Technology
(M.Sc. Clinical Research)**

Paper UC-MSCR102-19 Fundamentals of Clinical Research

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Understand the strategies and techniques involved in drug discovery process	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Appreciate the impact of pharmaceuticals science in new drug development and clinical use of drugs	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Understand the preclinical phase of drug development	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Understand different phases of clinical trials	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. Understand the importance of use of placebo controls and placebo response in clinical trials	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam



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**Name of the Department: Food Science & Technology
(M.Sc. Clinical Research)**

Paper UC-MSCR 104-19 Clinical Research Lab I

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Prepare standard drug solutions of various concentrations	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Perform common biochemical test of clinical significance	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Prepare clinical trial protocol	✓	✓	✓	✓	✓	✓	✓	✓	✓	Create	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Perform validation and prepare standard operating procedures of laboratory equipments	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Understand the different routes of drug administration and pre-clinical non-invasive techniques for drug testing	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

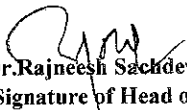

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Name of the Department: Food Science & Technology
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Paper UC-MSCR 105-19 Professional Communication

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Acquire basic proficiency in reading, comprehension and writing	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Understand spoken and written English language, particularly the language of their chosen technical field	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Produce on their own clear and coherent texts	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Learn about the standard organization of the essay	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Develop the skills to master in the writing formal e-mails and letters	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam



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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR 106-19 Journal Club

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Critically review the literature	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Develop an approach to analyse the various types of articles	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Become familiar with sources of bias and types of study designs	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Comprehend how results of study are clinically significant	✓	✓	✓	✓	✓	✓	✓	✓	✓	Evaluate	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Demonstrate skill in scientific communication both orally and in writing	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam


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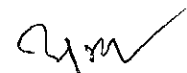
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**Name of the Department: Food Science & Technology
(M.Sc. Clinical Research)**

Paper UC-MSCR 111-19 Intellectual Property Rights

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurs hip	Assessment Tools to Measure Attainment of CO
CO1 Understand of the core doctrines of intellectual property law	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2 Understand the appropriate procedures for obtaining intellectual property protection	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3 Describe the international treaties, conventions on IPR	√	√	√	√	√	√	√	√	√	Remember	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5 Appreciate importance of compulsory licensing	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5 Understand the patent infringement related issues	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

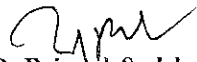
**Understand the patent infringement related issues
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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR201-19 Pharmacotherapeutics-1

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Develop an understanding of the basic concepts of common diseases prevalent in the society	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Apply their knowledge and understanding of the pathophysiology and management (pharmacological and non-pharmacological) of diseases	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Choose and justify appropriate drug and treatment duration to a given patient with regard to current recommendations and patient-related factors such as other diseases, age, organ functions and other drug treatment	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Integrate pharmacology, pathophysiology, pharmacodynamic, pharmacokinetics and other biomedical and pharmaceutical sciences as they pertain to clinical therapeutics of certain disorders	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Identify the need for further knowledge and formulate relevant learning outcomes	√	√	√	√	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

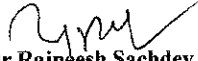

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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR202-20 Clinical Research Regulations & Ethics

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Comprehend clinical trial regulations and appreciate their importance	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Understand the practical use and evolution of these regulations	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Be familiar with the documents required to be compiled for an ethical & regulatory clinical trial application	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Appreciate the importance of quality system and SOPs	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Make comparison between the regulatory guidelines applicable in different regions	√	√	√	√	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam



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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR203-19 Clinical Research Lab II

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Understand the practical application of clinical trial regulations for conduct of clinical trials	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Trained about the sample collection and analysis and interpretation of lab data in compliance with GLP	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Develop SOPs and various documents required for conduct of quality clinical studies	√	√	√	√	√	√	√	√	√	Create	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Apply GCP in collection of clinical data	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Appreciate the significance of statistical analysis in clinical research	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam



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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR 204-19 Professional Communication Lab

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Acquire basic proficiency in listening and speaking English language	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2 Understand spoken and written English language, particularly the language of their chosen technical field	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3 Produce on their own clear and coherent texts	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4 Develop the skills to communicate in English language with clients at work place	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5 Identify the need for further knowledge and formulate relevant learning outcomes	√	√	√	√	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

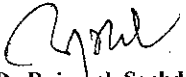

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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR 205-20 Medical Writing

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Improve medical writing skills and better understanding the biomedical publication process	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2 Demonstrate writing, reading, editing, and reviewing skills	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3 Become ready to be absorbed Professionals	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4 Understand about clinical research and the latest techniques and trends in the industry	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5 Understand career prospects in the medical writing	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam



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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR 206-19 Journal Club

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Critically review the literature	√	√	√	√	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Develop an approach to analyse the various types of articles	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Become familiar with sources of bias and types of study designs	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Comprehend how results of study are clinically significant	√	√	√	√	√	√	√	√	√	Evaluate	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Demonstrate skill in scientific communication both orally and in writing	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

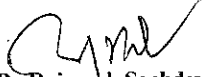

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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR 212-19 International Regulatory Affairs

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Understand the regulatory guidance's and guidelines for filing and approval process applicable in different regions	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2 Participate as an effective member in pharmaceutical regulatory affairs team	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3 Understand preparation of dossiers and their submission to regulatory agencies in different countries	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4 Understand clinical trials requirements for approvals for conducting clinical trials	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5 Make comparison between the regulatory guidelines applicable in different regions	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

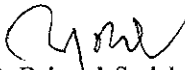

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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR 213-19 Biostatistics in Clinical Research

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Apply an appropriate statistical test	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Demonstrate skills in the analysis of clinical research data	√	√	√	√	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Demonstrate skills in interpreting and communicating the results of statistical analysis, orally and in writing	√	√	√	√	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Acquire practical understanding of parametric and nonparametric assumptions and tests	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Understand and apply statistical considerations when preparing a protocol	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

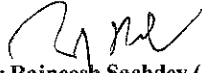

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 (Signature of Head of Department)

Head:
 Deptt. of Food Science & Technology
 J.K. Gujral Punjab Technical University
 KAPURTHALA

Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR301-19 Pharmacotherapeutics-II

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Develop an understanding of the basic concepts of common diseases prevalent in the society	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Apply their knowledge and understanding of the pathophysiology and management (pharmacological and non-pharmacological) of diseases	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Choose and justify appropriate drug and treatment duration to a given patient with regard to current recommendations and patient-related factors such as other	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Integrate pharmacology, pathophysiology, pharmacodynamic, pharmacokinetics and other biomedical and pharmaceutical sciences as they pertain to clinical therapeutics of certain disorders	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Identify the need for further knowledge and formulate relevant learning outcomes	✓	✓	✓	✓	✓	✓	✓	✓	✓	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

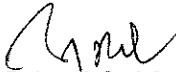

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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR302-20 Clinical Study Design

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Develop an understanding of the basic concepts of different types of clinical study designs	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Apply their knowledge and understanding in choosing the appropriate study design	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Understand the key study design elements for preventing bias	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Understand what are the essential documents required to conduct a clinical trial	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Learn about the trial design for special population	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam



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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR303-19 Research Methodology

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Develop an understanding of the basic concepts of research methodologies	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Apply their knowledge and understanding in defining specific research problems	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Develop an understanding about different research designs	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Differentiate between primary and secondary data and significance of each type of data	√	√	√	√	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Understand the basics of writing and presenting scientific data	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

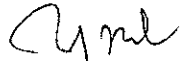

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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR304-19 Pharmacovigilance

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Develop an understanding of early detection of new adverse reactions and to introduce measures to manage those risks	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Define and classify ADRs, detection, reporting and causality assessment	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Demonstrate basic tools used in pharmacovigilance safety studies	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Develop practical understanding of signal detection and communication of safety signals with stakeholders	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Understand drug monitoring, risk management studies and apply statistical considerations when preparing a protocol	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

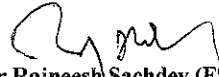

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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR 305-19 Clinical Research Lab III

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Understand the practical application of clinical trial regulations for conduct of clinical trials	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2 Develop SOPs and various documents required for conduct of quality clinical studies	√	√	√	√	√	√	√	√	√	Create	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3 Develop various documents essential in clinical research	√	√	√	√	√	√	√	√	√	Create	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4 Develop clinical study protocols	√	√	√	√	√	√	√	√	√	Create	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5 Comprehend the significance of documentation in clinical research	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

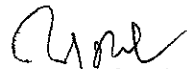

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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR 306-19 ICT Skills Lab

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Understand the basics of ICT and the terminologies used in ICT	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2 Appreciate the potential of technologies in modern society	✓	✓	✓	✓	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Learn about and using different kinds of IT tools suitably and safely	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4 Search information on the internet in digital encyclopedias, repositories, etc., or using search engines, in a systematic and coherent fashion	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5 Understand basic functions of a search engine and implement search criteria definition strategies for filtering the results obtained	✓	✓	✓	✓	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam



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Name of the Department: Food Science & Technology
M.Sc. Clinical Research

Paper UC-MSCR 307-19 Journal Club

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Critically review the literature	√	√	√	√	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2 Develop an approach to analyse the various types of articles	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3 Become familiar with sources of bias and types of study designs	√	√	√	√	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4 Comprehend how results of study are clinically significant	√	√	√	√	√	√	√	√	√	Evaluate	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5 Demonstrate skill in scientific communication both orally and in writing	√	√	√	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

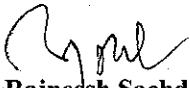

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 KAPURTHALA

Name of the Department: Food Science & Technology
B.Sc. (Hons) Food Technology

Paper - BSFT112-21 Tech. of Food Preservation

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
1. To impart knowledge on the causes of food spoilage.	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation (Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
2. To learn principles of different techniques used in processing and preservation of foods.	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation (Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
3. To identify and select preservation methods appropriate for specific foods.	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation (Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
4. To learn the effects of preservation methods on the quality of food.	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation (Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
5. To learn different permitted food additive used in food industry	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation (Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

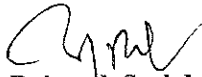

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Name of the Department: Food Science & Technology
B.Sc. (Hons) Food Technology

Paper -BSFT113-21 Lab Intro. to Food Science

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1: To acquaint the students to the work in the food analysis laboratory.	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO2: Introduction to fundamentals of food processing and evaluation.	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO3: Evaluation of composition and functionality of food products.	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO4: Explaining different methods used for food analysis.	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
CO5: Evaluation of food products by qualitative and quantitative methods	√	√	√	√	√	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

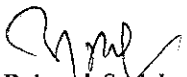

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Name of the Department: Food Science & Technology
B.Sc. (Hons) Food Technology

Paper - BSFT114-21 Lab Tech. of Food Preservation

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
1. To understand the sampling techniques and preparation of test samples.	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
2. To understand the effect of various preservation techniques on the quality and safety of food products	✓	✓	✓	✓	✓	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
3. To design and evaluate a processing procedure used to preserve a food product.	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
4. To understand the physical and chemical evaluation of thermally processed food.	✓	✓	✓	✓	✓	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
5. To understand and utilize different food preservation techniques.	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam


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Name of the Department: Food Science & Technology

B.Sc. (Hons) Food Technology

Paper - BTHU103-18 English

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
1. To help the students become the independent users of English language.	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
2. To develop in them vital communication skills which are integral to their personal, social and	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
3. The syllabus shall address the issues relating to the Language of communication.	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
4. Students will become proficient in professional communication such as interviews, group discussions, office environments, important reading skills as well as writing skills such as report writing, note taking etc.	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam


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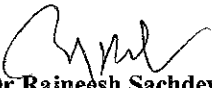
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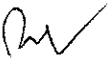


Name of the Department: Food Science & Technology
B.Sc. (Hons) Food Technology

Paper - BTHU104-18 Lab English

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
1. To help the students become the independent users of English language.	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
2. To develop in them vital communication skills which are integral to personal, social and professional interactions.	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
3. The syllabus shall address the issues relating to the Language of communication	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
4. Students will become proficient in professional communication such as interviews, group discussions and business office environments, important reading skills as well as writing skills such as report writing, note taking etc	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam


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Name of the Department: Food Science & Technology
B.Sc. (Hons) Food Technology

Paper - BSFT123-18 Lab Food and Nutrition

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
1. Determination of various food nutrients, sources, and associated deficiencies	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
2. Understanding about concept of nutritious snack, their preparation for different income groups.	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
3. Understanding the concept of nutrition labelling.	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
4. Understanding about food assimilation and malnutrition.	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam



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Name of the Department: Food Science & Technology
B.Sc. (Hons) Food Technology

Paper - BSCSEC-101-21 Enterpreneuship Dev

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
1.To help the students to become the food entrepreneur.	✓	✓	✓	✓	✓	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
2. To develop the ability to entrepreneurial skills.	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
3. To develop the skills related to Business feasibility analysis such as technical Feasibility,economic Feasibility, organizational feasibility and legal Feasibility.	✓	✓	✓	✓	✓	Analyze	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam
4.To able to develop Food Processing Business plan	✓	✓	✓	✓	✓	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz,Assignment,Seminar,Presentation Case Studies, Attendance,Class Participation) End semester exam

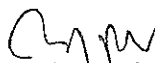

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Name of the Department: Food Science & Technology
 Ph.D. : Food Science & Technology (Batch 2020 onward)

Paper PHDFT-101-20: Research Methodology

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. The students would be acquainted with knowledge related to concept, types and objective of research.	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Knowledge of fundamentals of planning and hypothesising a research problem and designing the experiments would be helpful in effective pursuance of the research objectives.	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. The students would be acquainted with the effective means of writing, compiling, presenting and discussing the findings of the experiments and their further publications in the reputed journals.	√	√	√	√	√	Understand	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Knowledge of statistical tools would be instrumental in drawing inferences and conclusive reports from the laboratory experiment results.	√	√	√	√	√	Analyze, Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam


 Dr. Rajneesh Sachdev
 (Signature of Head of Department)

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