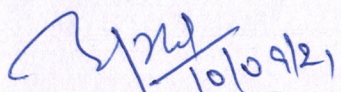


Name of the Department: Food Science & Technology

Paper MSFT-513- 18: 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

  
 Dr. Rajnesh Sachdev (FST)  
 (Signature of Head of Department)

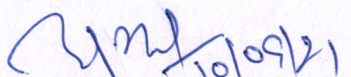
Head  
 Deptt. of Food Science & Technology  
 I.K. Gujral Punjab Technical University  
 KAPURTHALA

MP DRSI  
1.1.3

Name of the Department: Food Science & Technology

Paper MSFT-514- 18: 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

  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

P-12

P-2

Name of the Department: Food Science & Technology

Paper MSFT-515- 18: 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 & Evaluation	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

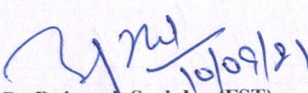
*[Signature]*  
10/09/21  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

Name of the Department: Food Science & Technology

Paper MSFT-516- 18: 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 & Evaluation	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 & Evaluation	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 & evaluation	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 & applicability	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

  
 10/09/21  
 Dr. Rajneesh Sachdev (FST)  
 (Signature of Head of Department)


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

P-10


Name of the Department: Food Science & Technology

Paper MSFT-524- 18: 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

  
 Dr. Rajneesh Sachdev (FST)  
 (Signature of Head of Department)

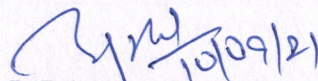
Head  
 Deptt. of Food Science & Technology  
 I.K. Gujral Punjab Technical University  
 KAPURTHALA

  
 P-5

Name of the Department: Food Science & Technology

Paper MSFT-525- 18: 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

  
 Dr. Rajneesh Sachdev (FST)  
 (Signature of Head of Department)

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

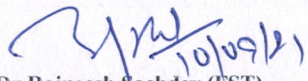
P-8

P-6

Name of the Department: Food Science & Technology

Paper MSFT-526- 18: 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

  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

Name of the Department: Food Science &amp; Technology

Paper MSFT-529- 18: 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

Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

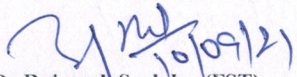
Head  
Deptt. of Food Science & Technology  
I.K. Gujral Punjab Technical University  
KAPURTHALA



Name of the Department: Food Science & Technology

Paper MSFT-530-18: 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

  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

Name of the Department: Food Science & Technology

Paper MSFT-612- 18: 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

*Rajneesh Sachdev*  
10/09/21

Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

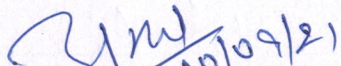
Head  
Deptt. of Food Science & Technology  
I.K. Gujral Punjab Technical University  
KAPURTHALA

P-9  
P-10

Name of the Department: Food Science & Technology

Paper MSFT-614- 18: 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 upgradation	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

  
10/09/21  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

P-11

P-3

Name of the Department: Food Science & Technology

Paper MSFT-617-18: LAB - IX (Food Additives)

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 do Chemical Analysis of Additives in food items.	√	√	√	√	√	√	√	√	√	analysis	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Ability to estimate Food Additives for extension of shelf life & safety.	√	√	√	√	√	√	√	√	√	analysis	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Ability to have good perception of quality of food by addition of additives.	√	√	√	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Ability to identify suitable additives for various food items.	√	√	√	√	√	√	√	√	√	introspection	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. Ability to acquire commercial aspects of food additives related to food industry.	√	√	√	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

Name of the Department: Food Science & Technology

Paper MSFT-618- 18: 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

Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

**Name of the Department: Food Science & Technology  
(M. Tech. Food Technology)**

**Paper MTF-531-18: Lab-VI (FROZEN FOOD TECHNOLOGY)**

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Cold storage of perishable products and their quality evaluation.	✓	✓	✓	✓	✓	✓	evaluation	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Calculating freezing load and freezing time for different foods.	✓	✓	✓	✓	✓	✓	evaluation	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Determination of mineral impurities in frozen food.	✓	✓	✓	✓	✓	✓	evaluation & analysis	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Packaging of frozen food and their shelf life evaluation.	✓	✓	✓	✓	✓	✓	understanding and evaluation	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

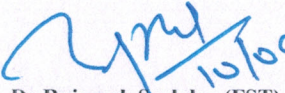
*(Signature)*  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

**Head  
Deptt. of Food Science & Technology  
I.K. Gujral Punjab Technical University  
KAPURTHALA**

Name of the Department: Food Science & Technology  
(M.Tech. Food Technology)

Paper MFTT-521-18 : ADVANCED FOOD PROCESS TECHNOLOGY

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Develop an appreciation about need of different emerging techniques used in food processing and preservation.	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Apply their knowledge on high pressure processing, pulsed electric processing, irradiation and hurdle technology in various food industries.	√	√	√	√	√	√	applicability	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Understand the concepts related to membrane technology, supercritical fluid extraction and quality assessment of food using ultrasonic techniques.	√	√	√	√	√	√	understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Get an overview on principles, mechanism and application of nanotechnology in food.	√	√	√	√	√	√	knowledge upgradation	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

  
 10/09/20  
 Head  
 Deptt. of Food Science & Technology  
 I.K. Gujral Punjab Technical University  
 KAPURTHALA  
 Dr. Rajneesh Sachdev (FST)  
 (Signature of Head of Department)

MPDFT

11.3

Name of the Department: Food Science & Technology  
(M.Tech. Food Technology)

Paper MTF-524-18: Lab-IV (CEREAL SCIENCE AND TECHNOLOGY)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Understand the recent methods of quality assessment of raw materials.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Knowledge about rheological characterization of dough through advanced rheological instruments.	√	√	√	√	√	√	Learning & knowledge upgradation	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Aware of role of ingredients and processing parameters on processed products.	√	√	√	√	√	√	Learning & knowledge upgradation	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Understand methods to evaluate the processed food quality.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

9-15

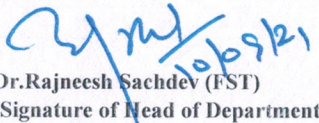
16



Name of the Department: Food Science & Technology  
(M.Tech. Food Technology)

Paper MFTT-525-18 : Lab-V (NOVEL FOOD PACKAGING)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Understand different types of food packaging materials.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Aware of symbols used in food industries.	√	√	√	√	√	√	Understanding & learning	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3 Understand the role and effectiveness of various packaging systems.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Shelf life evaluation of packaged foods.	√	√	√	√	√	√	evaluation	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

Name of the Department: Food Science & Technology  
(M.Tech. Food Technology)

Paper MTFT-612-18: Lab-VII (MILK AND MILK PRODUCTS QUALITY)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Understand different methods of milk quality analysis.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Grasp the detection methods of adulterants in milk.	√	√	√	√	√	√	analysis	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Apprehend the manufacturing of different dairy products.	√	√	√	√	√	√	new product development	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Perceive the quality analysis of dairy products.	√	√	√	√	√	√	analysis	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

*(Signature)*  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

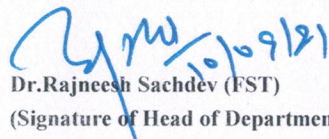
Head  
Deptt. of Food Science & Technology  
I.K. Gujral Punjab Technical University  
KAPURTHALA

MPDFST  
1.1.3

Name of the Department: Food Science & Technology  
(M.Tech. Food Technology)

Paper MTF-617 -18 : ADVANCED MEAT, FISH, POULTRY AND EGG TECHNOLOGY

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	Skill	Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Understand the technology for raw material characteristics, handling, processing, and preservation.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Grasp by-product utilization of meat, poultry, fish and egg products.	√	√	√	√	√	√	Applicability	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Apprehend the hygiene, sanitation and mechanized practices of meat, fish, poultry and egg industry.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Comprehend the food standards in relation to these food commodities.	√	√	√	√	√	√	Learning	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. Perceive the knowledge regarding transportation and storage practices.	√	√	√	√	√	√	Learning	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO6. Prepare various value added products.	√	√	√	√	√	√	New product development	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

  
 Dr. Rajneesh Sachdev (FST)  
 (Signature of Head of Department)

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

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

Paper MSCR-104-18 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

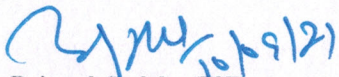
*(Signature)*  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

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

Paper MSCR-105-18 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

  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

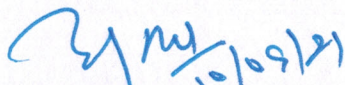
Head  
Deptt. of Food Science & Technology  
I.K. Gujral Punjab Technical University  
KAPURTHALA

MPOFST  
11.3

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

Paper MSCR-106-18 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

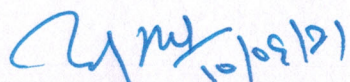
  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

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

Paper MSCR-203 -18Clinical 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

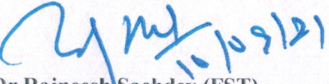
  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

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

Paper MSCR-204-18 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

  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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



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

Paper MSCR-205-18 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

Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

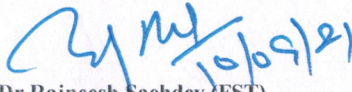
Head  
Deptt. of Food Science & Technology  
I.K. Gujral Punjab Technical University  
KAPURTHALA

M.P.D.F.S.T  
1.1.3

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

Paper MSCR-206-18Journal 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

  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

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

Paper MSCR-212-18 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

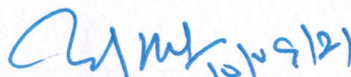
Dr. Rajneesh Sachdev  
(Signature of Head of Department)

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

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

Paper MSCR-302-18 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

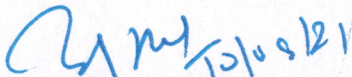
  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

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

Paper MSCR-303-18 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

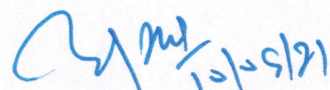
  
 Dr. Rajneesh Sachdev (FST)  
 (Signature of Head of Department)

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

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

Paper MSCR-305-18 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	√	√	√	√	√	√	√	√	√	Create	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

M.P.D.F.S.T  
1.1.3

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

Paper MSCR-306-18ICT 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

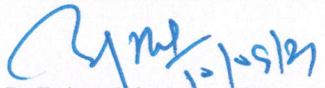
*Dr. Rajneesh Sachdev*  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

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

Paper MSCR-307-18 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

  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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



**Name of the Department: Food Science & Technology**  
**(M.Tech. Food Technology)**

Paper MTRM-101-18 RESEARCH METHODOLOGY AND IPR

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1. Understand research problem formulation.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Analyze research related information	√	√	√	√	√	√	Analyzing	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Follow research ethics	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. Understanding that when IPR would take such important place in growth individuals & nation, it is needless to emphasize the need of information about	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO6. Model Curriculum of Engineering & Technology PG Courses [Volume-I][ 16 ]	√	√	√	√	√	√	Apply	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO7. Intellectual Property Right to be promoted among students in general & engineering in particular.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO8. Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

*Rajneesh Sachdev*  
 Dr. Rajneesh Sachdev (FST)  
 (Signature of Head of Department)

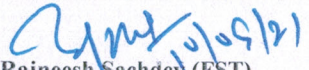
Head  
 Deptt. of Food Science & Technology  
 I.K. Gujral Punjab Technical University  
 KAPURTHALA

MPDFST  
1.1.3

Name of the Department: Food Science & Technology  
(M.Tech. Food Technology)

Paper UC-MTFT-524b-19: Lab-VI (NUTRACEUTICALS AND FUNCTIONAL FOODS)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Acquire knowledge on various nutraceutical components and their health benefits.	✓	✓	✓	✓	✓	✓	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Understand various extraction and estimation methods of nutraceuticals.	✓	✓	✓	✓	✓	✓	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO3. Apply their knowledge regarding extraction, isolation, characterization and application of nutraceuticals in food industries.	✓	✓	✓	✓	✓	✓	Analysis	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO4. Study and demonstrate various aspects regarding safety, quality and toxicology of food products including, nutraceutical and functional foods.	✓	✓	✓	✓	✓	✓	evaluation & analysis	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

Name of the Department: Food Science & Technology  
(M.Tech. Food Technology)

Paper UC-MTFT-527-19: Lab-VI (ADVANCES IN FOOD ANALYSIS)

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	Skill	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1 Grasp basic preparation of solutions and buffers.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO2. Perceive advanced analytical methods.	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO 3. Understand the functioning and principle of various analytical instruments	√	√	√	√	√	√	Understanding	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO 4. Interpret the spectrophotometric and chromatographic techniques.	√	√	√	√	√	√	Analysis	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam
CO5. Comprehend microstructural and DNA isolation techniques.	√	√	√	√	√	√	evaluation & analysis	Yes	MST, Comprehensive Continuous evaluation Quiz, Assignment, Seminar, Presentation Case Studies, Attendance, Class Participation) End semester exam

*Rajneesh Sachdev*  
Dr. Rajneesh Sachdev (FST)  
(Signature of Head of Department)

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

MP DFST  
1.1.3

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)

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

P-36