

Name of Faculty: - Mohit Jindal

Discipline: - Food Technology

Semester: - 1st

Subject: - 1.5 BASICS OF FOOD TECHNOLOGY (Theory & Practical)

Lesson Plan Duration: - 15 weeks (August-2025 to December-2025)

Workload (Theory / Practical) per week (in hours): Theory-03, Practical-06

WEEK 1

1. Theory: Introduction to food technology, key terminologies (Food Engineering, Biochemistry, etc.)
2. Theory: Activities of a food technologist and characteristics of the food industry
3. Theory: Functional divisions and classification of food industry based on product lines
4. Practical: List of general laboratory safety protocols
5. Practical: Draw and label common lab glassware
6. Practical: Demonstrate the working/SOP of hot air oven

WEEK 2

7. Theory: Classification of food constituents; Carbohydrates – Definition, formula, classification
8. Theory: Proteins and fats/oils – Definition, formula, classification
9. Theory: Vitamins, minerals, water, and fibre – Definition and classification
10. Practical: Demonstrate the working/SOP of muffle furnace
11. Practical: Demonstrate the working/SOP of single-stage distillation unit
12. Practical: Demonstrate the working/SOP of heating mantle

WEEK 3

13. Theory: Nutritional importance of carbohydrates, proteins, fats, and oils
14. Theory: Nutritional importance of vitamins, minerals, water, and fibre
15. Theory: Introduction to common unit operations in food processing
16. Practical: Demonstrate the working/SOP of shaking water bath
17. Practical: Demonstrate the working/SOP of centrifuge
18. Practical: Demonstrate the working/SOP of magnetic stirrer

WEEK 4

19. Theory: Detailed explanation of unit operations: Cleaning, separation, disintegration, mixing
20. Theory: Heat exchange operations – cooling, evaporation, drying
21. Theory: Food quality – definition, factors affecting food quality (appearance, texture, flavour)
22. Practical: Demonstrate the working/SOP of digital weighing balance
23. Practical: Demonstrate the working/SOP of humidity cabinet
24. Practical: Demonstrate the working/SOP of tray dryer

WEEK 5

25. Theory: Shelf life, causes and factors of food deterioration
26. Theory: Principles of food preservation: addition/removal of heat, pH, irradiation, etc.
27. Theory: Intermediate moisture food and food filtration
28. Practical: Demonstrate the working/SOP of autoclave
29. Practical: Demonstrate the working/SOP of refrigeration system
30. Practical: Demonstrate the working/SOP of microwave oven

WEEK 6

31. Theory: Modes of heat transfer: conduction, convection, radiation
32. Theory: Definitions and process of sterilization, pasteurization, blanching
33. Theory: Aseptic canning and criteria for heat treatment
34. Practical: Revision of working/SOP of hot air oven, muffle furnace
35. Practical: Revision of SOP of distillation unit, heating mantle
36. Practical: Revision of SOP of centrifuge, stirrer

WEEK 7

37. Theory: Introduction to thermal death curve
38. Theory: Cold preservation – refrigeration vs freezing, cold storage
39. Theory: Freezing methods – air, immersion, contact, cryogenic
40. Practical: Mock Demo Test on previous instruments
41. Practical: Equipment SOP evaluation (group-wise)
42. Practical: Viva on SOPs

WEEK 8

43. Theory: Concept of irradiation – sources, classification of radiant energy
44. Theory: Benefits and effects of food irradiation
45. Theory: Principles and applications of microwave and ohmic heating
46. Practical: Practice revision of SOPs
47. Practical: Repeat practice (Microwave oven, Tray dryer)
48. Practical: Mid practical test or internal evaluation

WEEK 9

49. Theory: Meat – definition, composition, nutritive value, classification
50. Theory: Fish and poultry – composition, classification
51. Theory: Eggs – definition, composition, nutritive value, weight-based classification
52. Practical: Introduction to SOP documentation format
53. Practical: Chart making on food constituents & nutritive values
54. Practical: Group activity on raw vs processed food values

WEEK 10

55. Theory: Cereal grains – structure, composition, nutritive value
56. Theory: Legumes and oilseeds – definition, composition
57. Theory: Vegetables and fruits – definition, classification, composition
58. Practical: Composition comparison (Cereals vs legumes)
59. Practical: Survey work – Common storage practices at home
60. Practical: Group discussion on nutrient losses

WEEK 11

61. Theory: Beverages – definition, classification
62. Theory: Fruit beverages, tea, coffee – basic intro and manufacturing
63. Theory: Alcoholic beverages – beer and wine (basic intro)
64. Practical: Identification of beverages and ingredients (demo)
65. Practical: Chart preparation – beverage classification
66. Practical: Revision of food groups

WEEK 12

67. Theory: Milk – definition, composition, basic processing, types of milk
68. Theory: Introduction to food packaging – definition and functions
69. Theory: Common food packaging materials and their requirements
70. Practical: Packaging material samples observation
71. Practical: Quiz – packaging materials & milk types
72. Practical: Chart making – classification of packaging materials

WEEK 13

73. Theory: Hunger – definition and related terms (malnutrition, underweight, etc.)
74. Theory: Nutritional problems – PEM, iron, iodine, vitamin deficiencies
75. Theory: Food security, infant mortality, stunting, etc.
76. Practical: Poster making – hunger-related issues
77. Practical: Group presentation – nutrition problems in India
78. Practical: Evaluation & feedback on poster/presentations

WEEK 14

79. Theory: Revision – Unit I & II
80. Theory: Revision – Unit III
81. Theory: Revision – Unit IV
82. Practical: Viva prep & SOP practice
83. Practical: Oral revision of lab safety & instruments
84. Practical: Internal test prep

WEEK 15

85. Theory: Revision – Unit V
86. Theory: Question paper discussion
87. Theory: Model test
88. Practical: Mock practical viva
89. Practical: Internal practical
90. Practical: Record checking & completion

WEEK 16

91. Theory: Final revision and discussion
92. Theory: Doubt clearing session
93. Theory: Subject wrap-up and future scope in food tech
94. Practical: Internal marks briefing and attendance review
95. Practical: Lab cleanup and submission
96. Practical: Farewell activity / motivational talk