

**Department of Food Technology**  
**Vikram University, Ujjain (MP)**

**SYLLABUS**  
**CERTIFICATE COURSE**  
**IN**  
**FOOD PROCESSING AND PRESERVATION**  
**(SIX MONTHS)**  
**(Regulation No. 15)**  
**(FOR UTD)**

**COURSE STRUCTURE AND SCHEME**

**2021-2022**

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**CERTIFICATE IN FOOD PRESERVATION AND PROCESSING  
SIX MONTHS PROGRAMS**

(Regulation No. 16)

**COURSE CONTENT: SYLLABUS/PROGRAMME 2021-2022  
SCHEME OF EXAMINATION**

S.N.	Paper Code	Title of Paper	Theory Marks		Internal Marks		Total
			External Marks	Min. Pass Marks	Marks	Min. Pass Marks	
1	CFPP 101	Food Processing	75	27	25	09	100
2	CFPP 102	Food Preservation	75	27	25	09	100
3	CFPP 103	Internship/ Industrial Training/ Project Work	150	54	50	28	200
<b>Total</b>							<b>400</b>

Minimum Pass Marks in each Paper (Theory) -36%  
Minimum Pass Marks in each Paper (Internal Assessment) -36%  
Minimum Pass Marks in Practical -36%

The Division shall be awarded as follows:

First Division : 60% or above of the aggregate marks  
Second Division : 48% or above but less than 60% of the aggregate marks.  
Pass : Less than 48% but 36% and above in aggregate.

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**SYLLABUS OF  
CERTIFICARE IN FOOD PRESERVATION AND PROCESSING  
COURSE CODE NO: CFPP 101: FOOD PROCESSING**

**Course Objectives:**

To enable students -

1. To understand the basic concept of various cookery
2. To become familiar with preparation of various cookery
3. To develop different bakery product
4. To study Role & chemistry of bakery & confectionary

**Course Outcome:**

Students shall develop the knowledge of need of food processing and learn various techniques. To study impart knowledge on the principles of different techniques used in processing of food and Knowledge about baking and milling of process.

**Unit I –**

**INTRODUCTION TO FOOD SCIENCE:** Concept of food, food science, Objectives of food Science, Functions of food, **CLASSIFICATION OF FOOD:** According to food science, Basic five food groups, Selection of food, **METHODS OF COOKING:** Traditional cooking methods, Modern cooking methods, Objectives and importance of cooking, **FOOD PREPARATION AND STORAGE:** Basic terms used in food preparation, Pre-preparation for cooking, Storage of raw and cooked food

**Unit II: -**

**CEREAL COOKERY:** Structure, composition and Importance of cereal grains, Types of cereals used in cooking, Cereal cookery- Gelatinization, Dextrinization and Identity of grain, Processed cereals, millets and Ready-To- Eat cereals used in cooking, **PULSE AND LEGUME COOKERY:** Definition, composition and structure of pulses, Cooking of Legumes, Factors Affecting cooking time of pulses and legumes, Uses of legumes in cookery, **NUTS AND OIL SEEDS COOKERY:** Types and composition of Nuts and Oil seeds, Toxic substances in Nuts and Oil seeds, Changes during cooking and storage, Function of Nuts and Oil seeds in cookery **FRUITS AND VEGETABLES COOKERY:** Classification of Fruits and vegetables, Colour pigments in Fruits and vegetables, Effect of heat, acids and alkali on Fruits and vegetables, Changes during cooking and storage

**Unit III:-**

**INTRODUCTION TO BAKERY:** Ingredients used in bakery products, Role of ingredients, Introduction to bakery machineries, Scope of bakery processing, **BAKERY PRODUCTS:** Biscuits & cookies – Introduction, Difference, Ingredients process, Packaging & storage,

Bread- Introduction, Difference, Ingredients process, Packaging & storage, Cake – Types - Introduction, Difference, Ingredients process, Packaging & storage, Judging & Grading of bakery product,

**Unit IV:-**

INTRODUCTION TO CONFECTIONARY: Ingredients used in confectionary, Role of ingredients, Types of confectionary, Cocoa Processing, CONFECTIONARY PRODUCT: Traditional product, Hard boiled candy, Soft boiled candy, Judging & Grading

**REFERENCE BOOKS**

1. Sumati R. Mudambi : Fundamentals of Food & Nutrition wiley Eastern Ltd., New Delhi
2. Food Microbiology by William Frazier
3. Food Microbiology by W.M. Fester
4. Laboratory manual of Food Microbiology by Neelima Garg, K .L .Garg
5. Fundamental Food Microbiology by Biber Ray & Arun Bhunia.
6. Handbook of culture media for Food Microbiology by Curtis R. M. Baird
7. B. Shreelaksmi : 'Food Science'' (second edition) (second edition), New Age International, New Delhi.
8. Swaminathan : 'Text book of Food Science'', Vol-1, BAPPCO, Bangalore
9. Devendrakumar Bhatt & Priyanka Tomar : An Introduction to Food Science, Technology & Quality Management, Kalyani Publishers.
10. Sumati R. Mudambi : Fundamentals of Food & Nutrition wiley Eastern Ltd., New Delhi.
11. Philips T E, Modern Cooking for teaching and trade, Volit orient longman, Bombay
12. Technology of biscuits, rusks, crackers & cookies by EiRi
13. Technology of confectionary, chocolate, toffee, candy, jelly product by EiRi
14. Textbook of bakery & confectionary by Vogambal Ashokkumar.
15. Complete technology book on bakery products by NIIR board.
16. Theory of bakery & patisserie by Parvindar S Bali
17. Desrosier NW & James N. (2007). Technology of food preservation. AVI. Publishers
18. Fellows, P.J. (2005). Food processing technology: Principle and Practice. 2nd Ed. CRC Publishers
19. Jelen, P. (2005). Introduction to Food Processing. Prentice Hall
20. N.M. Potter, Food Science and Technology

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## **COURSE CODE NO: CFPP 102: FOOD PRESERVATION**

### **Course Objectives:**

To enable students -

1. To study the microbiological techniques
2. To understand the food microbiology
3. To acquire knowledge of food preservation and preservation technique.
4. To know the importance and basic principles of food preservation.
5. To study the microbiological techniques
6. To understand the food microbiology

### **Course Outcome:**

Students shall develop the knowledge of need of food preservation and learn various Preservation techniques. To impart knowledge on the different techniques used in preservation of foods.

### **Unit I –**

**INTRODUCTION TO FOOD MICROBIOLOGY:** Introduction to Food Microbiology, Concept of Microorganisms, Types of Microorganisms, Importance of Microbes in Food

**FOOD CONTAMINATION & SPOILAGE:** Concept, definition, difference, between contamination & spoilage, Signs of contamination & spoilage in Food, Introduction to disease caused by spoiled food contamination of different food.

**IMPORTANCE OF MICROBIOLOGY IN FOOD:** Concept, useful, harmful microbes, Important Microorganisms for food, used necessity of microbes in Food preparations

### **Unit II:-**

**INTRODUCTION TO FOOD PRESERVATION:** Introduction: Definition and scope of Food science and technology, historical development of food processing and preservation, Concept, importance of food preservation, Common terms used in food preservation, Classification of food on the basis of pH value, technology, physiology changed condition, moisture content, Principles of preservation.

### **Unit III:-**

**CHEMICAL PRESERVATION:** Preservation of food by use of sugar, salt, chemicals, antibiotics & by Smoking, Concentration: Application in food Industry processes and equipment for manufacture of various concentrated foods and their keeping quality, Fermentation: Application in preservation of food pickling. Curing etc, **RADIATION:** Source of radiations, mode of action effect on microorganisms and different nutrients dose requirements for radiation preservation of food.

Microwave heating: Principles and application in Food processing

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#### Unit IV:-

**PRESERVATION BY DRYING:** Concept, history Types of drying and dryers, Treatments prior to drying, **PRESERVATION BY USE OF HIGH TEMPERATURE & LOW TEMPERATURE:** Concept and importance, Various methods used – Pasteurization, Boiling, sterilization and UHT processing, : Blanching, Canning, Effect of high temperature on microbial content of food., Different equipments used for preservation by low temperature, Processing and preservation by heat: extrusion cooking. Baking: Principle of baking & several changes in baked products

#### REFERENCE BOOKS

21. Food Microbiology by William Frazier
22. Food Microbiology by W. M. Foster
23. Laboratory manual of Food Microbiology by Neelima Garg, K.L.Garg
24. Fundamental Food Microbiology by Biber Ray & ArunBhunia.
25. Handbook of culture media for Food Microbiology by Curtis R. M. Baird
26. Prakash Triveni : Food Preservation, Aadi Publication, Delhi.
27. M. Shafiur Rahman : Hand Book of Food Preservation, Marcel Dekker Inc, New York.
28. Mc Willims and Paine : Modern Food Preservation, Surjeet Publication
29. B. Shreelaksmi : "Food Science" (second edition) (second edition), New Age International, New Delhi.
30. Swaminathan : "Text book of Food Science", Vol-1, BAPPCO, Bangalore
31. Devendra kumar Bhatt & Priyanka Tomar : An Introduction to Food Science, Technology & Quality Management, Kalyani Publishers.
32. Sumati R. Mudambi : Fundamentals of Food & Nutrition wiley Eastern Ltd., New Delhi.
33. Philips T E, Modern Cooking for teaching and trade, Volit orient longman, Bombay
34. B. Shreelaksmi : "Food Science" (second edition), New Age International, New Delhi.
35. Swaminathan : "Text book of Food Science", Vol-1, BAPPCO, Bangalore
36. Devendra kumar Bhatt & Priyanka Tomar : An Introduction to Food Science, Technology & Quality Management, Kalyani Publishers.

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**COURSE CODE NO: CFPP 103: INTERNSHIP/ INDUSTRIAL TRAINING/  
PROJECT WORK**

**Course Objective:**

1. Field project/Internships/Community engagements are designed to expand the depth and breadth of academic learning for you in your particular areas of study.
2. It is an opportunity for you to receive experience in applying theories learned in the classroom to specific experiences in the community and work world.
3. An internship can also heighten your awareness of community issues, motivate you to create opportunities, embrace new ideas, and give direction to positive change.
4. A successful internship can give you valuable information in making decisions about the direction of future studies or employment.
5. An internship is an opportunity to not only use and develop industry-related knowledge and skills, but also to enhance some of the skills that are transferable to any professional work setting.
6. This internship may be your first introduction to the world of work, or maybe you have been exposed to professionalism many times before.
7. No matter where your skills and understanding of professionalism lie, your internship is a chance to develop them even further.

**Course Outcome:**

By the end of the internship, our hope is that you will have:

- 1- Linked academic theory to practice in your discipline;
- 2- Applied your knowledge, skills, experience to a work environment;
- 3- Acquired new learning through challenging and meaningful activities;
- 4- Reflected on the content and process of the learning experience;
- 5- Advocated for your own learning in alignment with internship goals;
- 6- Demonstrated professional skills in the workplace;
- 7- Built and maintained positive professional relationships;
- 8- Demonstrated awareness of community and/or organizational issues;
- 9- Identified, clarified and/or confirmed professional direction as it relates to your academic studies and future career path;
- 10- Developed self-understanding, self-discipline, maturity and confidence;
- 11- Developed strong networking/mentoring relationships.

Review of the state of research in a particular problem involving food, and development of hypothesis, Planning and conducting the experiment, Periodic analysis of data and preparation of report, Final preparation of project report as dissertation to be submitted in partial fulfillment of Six Months Certificate Programme.

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