

Title of Vocation Programme : **Food Processing and Preservation**

Faculty : **Science**

Department : **Chemistry**

Food processing is the branch of Food Science, where a set of techniques and methods are used to change the raw ingredients into prepared food. It is a procedure in which food is prepared for consumption purposes by human and animals.

Food Processing is a brand term, in itself, which includes processing, preservation, manufacturing, packaging and canning of various food items. The modern food processing techniques have prompted the feasibility of the development of the present day stores.

In the late nineteenth and twentieth centuries, the modern food processing technology was developed in a large part to serve military needs.

**Career Scope :**

Career in Food Processing has a bright future." Food Processing industries lead to the highest employment in all industry. So, giving employment indirectly to the almost lakhs of people. In the upcoming year, there will be good demand for healthy, modern food products. The most areas of employment are canning. Dairy and Food Processing, Packaging. Frozen Food/Refrigeration and Thermo Processing Fisheries, Milk and product, Meat and Poultry, Alcoholic Beverages and Soft Drinks and Grain Processing. Students can also employ in the consumer product groups like confectionary, chocolates and Coca products, Soya-based products, mineral water and non-alcoholic fruit beverages etc.

Credit : 3	Programme : Vocational
Max. Marks : 100	Min. Passing Marks : 33
Department : Chemistry	Course Code : FPP
Duration of Programme : 2 SEM.	
Total No. of Lectures – Tutorials-Practical (in hours per week) : L-T-P : 1.0.2	

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Unit	Topics	No. of Lectures
I (Theory)	<p>Introduction of Food Processing and Preservation, Baking and Confectionary Technology, <b>Processing and Value addition of Fruits and Vegetables</b> – Principles – methods – importance – scope of fruit and vegetable processing; Spoilage – causes and preventive measures – FSSAL, GMP, ISO, APEDA applications for fruits and vegetable products.</p> <p><b>Preservation</b> by high and low temperature – importance – Principles – advantages – methods – pasteurization, sterilization, canning – canning of acid, non-acid foods; mechanical defects and spoilage; <b>Refrigeration</b> – Factors affecting the quality of refrigerated products, spoilage.</p> <p><b>Preservation by very</b> low temperature freezing, preservation by Sugar – importance, principles of gel formation, preparation of jam, jelly, marmalades, preserve, candy, glazed, crystallized fruits</p> <p><b>Preservation by chemicals</b> – application and role, types of permitted preservatives.</p> <p><b>Preservation by salt and acids</b>, Pickling, sauce and Ketchup.</p>	15
Unit II Practical	<p><b>Experiment-1</b> Canning of Fruits and Vegetables – apple, orange, pineapple, tomato, cucumber and beans etc.</p> <p><b>Experiment-2</b> Refrigeration – Cold storage unit.</p> <p><b>Experiment-3</b> Storage of fruits and vegetables under freezing</p>	30

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	<p>process - quality analysis of the fruits and vegetables ; Drying and Dehydration of fruits and vegetables - solar drying, mechanical dehydration.</p> <p><b>Experiment-4</b></p> <p>Production of fruit jam, jelly, marmalade, RTS from fresh fruits, preparation of unfermented beverages - juice, squash and crush.</p> <p><b>Experiment-5</b></p> <p>Use of chemical preservatives preparation of pickles, sauce, Ketchup, Tomato puree and paste with salt, oil and vinegar.</p>	
<p>Unit I Theory</p>	<p>(A) Functional foods - terminology, different classes, role for human health, properties, structure and functions, product development processing and preservation of foods, standard and specifications, packaging, safety and shelf life, marketing, relation of functional food and nutraceutical and drugs, herbs in functional food.</p> <p>(B) Industrial Scenario on Functional foods and nutraceuticals. Nutraceutical and the Future of Medical Science and Consumers. New technologies in development of functional foods and Nutraceuticals, Consumers evaluation, marketing strategies, Regulatory issues of functional food, knowledge on global regulations, labeling and claims on the products, The Role of marketing in the introduction of functional foods.</p>	<p>15</p>
<p>Unit II Practical</p>	<p><b>Experiment-1</b></p> <p>Estimation of total phenols, ascorbic acid, micronutrients phenolics and alkaloids using TLC.</p>	

	<p><b>Experiment-2</b> Extraction of free amino acid, crude fibre, crude pectic.</p> <p><b>Experiment-3</b> Detection of food additives.</p> <p><b>Experiment-4</b> Extraction and estimation of total sugars from food products.</p> <p><b>Experiment-5</b> Estimation of total nitrogen and protein of foods by Micro Kjeldahl methods.</p>	
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**Books and Study Materials :-**

1. The complete book on Managing Food Processing Industry waste by H. Panda.
2. Modern Technology of Agro Processing and Agricultural Waste Products by NIIR Board.
3. Food Processing and Preservation by – B. Shivasankar
4. Principles of Food Processing by Richard W. Hartel
5. Food Processing by Carl J. Schaschke
6. Modern Technology on Food Preservation (2<sup>nd</sup> Edition) by NPCS Board.
7. Vogel Qualitative/Quantitative Analysis.
  1. Vogel, Prentice Hall, 7<sup>th</sup> Edition.

**Suggested continuous Evaluation Methods :**

**Theory :** 20 Marks for Test/Quiz, 05 Marks for Class interaction.

**Practical :** 15 Marks for Record File/Assignment

05 marks for Viva-voce, 05 marks for class interaction.

**Eligibility :** Pass in 10+2

**Suggested equivalent online courses :**