Academic Council Meeting No. and Date : 03 / February 14, 2022

Agenda Number : 6 Resolution Number : 12 / 5.2

Vidya Prasarak Mandal's
B. N. Bandodkar College of
Science (Autonomous), Thane

Certificate Course

in

Fruit Preserves and Beverages

With effect from

Academic Year 2022-2023

PREAMBLE

Fruit preserves and beverages (course) is introduced as a skill development certificate course conducted by Dept. of botany VPM's B.N.Bandodkar College of Science, Thane. This course was previously offered as one day short term course titled "Home Scale production of Jam and Squash preparation." But due to the demand of small scale industry it has been developed into a skill development certificate course on "Fruit preserves and beverages". In choice based credit system the course would be of 60 hrs duration currently starting with basic level. There would a single paper based on syllabus consisting of 5 different units. This skill oriented training will offer a credit of 2.5 on successful completion of the course.

This course seeks to enrich the minds of students who have interest in learning the techniques of fruit preservation. It aims at developing a better understanding of the topic. It will aid plant science students to develop competence for food science. It will open various avenues for skill development, academic understanding and entrepreneurship. It is designed to impart knowledge that is career oriented.

Examination will be conducted in two parts; theory and practical. Practical examination will focus on project which will help in strengthening the knowledge and skills of students. The syllabus is appended with list of suggested readings for future references. Teaching time allotted will be 15 periods for theory and 45 periods for practical. Per week 2 periods (4hrs) will be devoted to the course. It will involve 01 (1 hr) periods of theory and 01(3 hrs) period of practice.

COURSE COVERAGE:

1. Introduction to Food Preservation
2. Principles of fruit product preservation
3. An overview on Post harvest technology
4. Preparation of Jam, Moramba, Squash and Syrup
5. General outline on production and marketing of fruit products

OBJECTIVES OF THE COURSE:

1. To introduce students to the basics of food science.
2. To familiarize them with processing and preservation techniques of fruits.
3. To impart knowledge about different techniques of fruit preservation and beverages.
4. To emphasize on the importance of principles of preservation, safety measures and quality assurance of fruit products.
5. To understand the difference between the industrial method and traditional method of fruit preservation.
6. To familiarize with the concept of post harvest technology.

LEARNING OUTCOMES: After completion of this course participant would be able to

1. Develop a professional / business aptitude in students.
2. Proficiency in preparing quality fruit preserves and beverages.
3. Operation knowledge of different equipments & principles of preservation techniques.
4. Learn the art of storing and marketing.
5. Maintaining the quality of products.

ELIGIBILITY:

1. Students pursuing T.Y.B.Sc Botany.

Certificate Course Fruit Preserves and Beverages

CourseCode	Course Title	No. of lectures	Credits
BNBCCFP1T1	**Fruit Preserves and Beverages**	**15**	**4**
BNBCCFP1P1	**Practicals**	**45**	

Syllabus
Theory

UNIT	SUB-TOPICS	No of Lectures
I	**<u>Introduction to Food Preservation</u>** a) Importance of fruits, objectives of fruit processing, chemical composition, selection and preparation, importance of asepsis in laboratory, importance of proper food containers b) Measurements and Weights	**3**
II	**<u>Principles of fruit product preservation</u>** a) Introduction to fruit preservation a) Causes of spoilage b) Aseptic handling b) Chemical Food Preservatives c) Use of preservatives c) Principles and techniques involved in different fruit preservations d) Traditional Method of Fruit preservation	**3**
III	**<u>Post harvest technology</u>** a) Importance of auxillary raw material b) Practice of reducing deterioration c) Pectin preparation d) Storage techniques for fruits e) Freezing – cryogenic freezing, freeze drying f) Canning	**3**
IV	**<u>Production of Jam, Moramba, Squash and Syrup</u>** a) Introduction and Principle of making Moramba, Jam, Squash and Syrup. b) Fruit preparation – Jam, Moramba, Squash and Syrup	**3**
V	**<u>Production and Marketing of Fruit products</u>** a) Nature of fruits in respect to its marketing aspects b) Grading, Packaging, Transportation c) Improving market value d) Shelf life of horticultural produce	**3**
	Total Theory Periods	**15**

Practicals

UNIT	SUB-TOPICS	No of Lectures
I	**Introduction to Food Preservation** a) Rules for observing asepsis in laboratory b) Fruit specific preserving technique c) Role and function of proper food containers d) Colour, Flavour and Preservatives e) Concept of labeling f) Understanding measurements and weights	**9**
II	**Principles of fruit product preservation** a) Traditional method of food preservation **b)** Testing of raw material and product for their quality **c)** Causes of spoilage d) Aseptic handling	**9**
III	**Post harvest technology** a) Instruments and Techniques– Refractometer and Titration b) Test pectin content in fruit juices and pulps c) Preparation of pectin extract d) Test for pectin	**6**
IV	**Production of Jam, Moramba, Squash and Syrup** a) Preparation of Jam b) Preparation of Moramba c) Preparation of Squash by Home Scale Method d) Preparation of Squash by Industrial Method e) Preparation of Synthetic Syrup	**15**
V	**Production and Marketing of Fruit products** a) Project – Assessment of Fruit products b) Unit wise assignments	**6**
	Total Practical Periods	**45**

Suggested Readings

1. Bennion Marion. Introductory Foods. 8th Ed. MacMillan Publishing Co., New York, 1985.
2. CFTRI Publication, Home Scale Processing and Preservation of fruits and Vegetables. The Wesley Press, Mysore, 1967.
3. Frazier W.C., Food Microbiology, TATA 3rd Ed., McGraw – Hill Publishing Co. Ltd., New Delhi, 1978, Reprint 1988.
4. Lal Girdhari, G.S. Siddhappa and G. L. Tandon, Preservation of Fruits and Vegetables. Publication and Information Divn., IACR, New Delhi, 1986.
5. Lowe B., Experimental Cookery, 4th Ed. Wiley, New York, 1955.
6. Smith Marye Cameron, The complete book preserving; Marshall Cavendish, London, 1976.
7. N.P.Singh. Fruit and Vegetable Preservation

Evaluation Scheme

Theory Examination: Suggested Format of Question paper

Duration: $2^{1/2}$ Hours **Total Marks: 75**

All questions are compulsory

Q. 1	Based on all Units (Objective type questions)	10
Q. 2	Based on Unit I	10
Q. 3	Based on Unit II	10
Q. 4	Based on Unit III	10
Q. 5	Based on Unit IV	10
Q 6	Based on Units V	10
Q 7	Based on all Units	15

Practical Examination

Details	Marks	Project	Viva	Journal	Total
Practical I	60	20	10	10	100

Internal Assignments have to be submitted in the hard copy format in the department

Total number of assignments:
(04 each carrying) **05 marks *4 assignments**
Active participation **05 marks**
Total marks: **25 marks**

Total of Internal Assignments **25 Marks (Minimum passing marks – 10)**
Total of Theory Examination **75 Marks (Minimum passing marks – 30)**
Total of Practical Examination **100 Marks (Minimum passing marks – 40)**
Grand Total **200 Marks**