

Syllabus for the B. Sc. (Hons.) Hort. 3rd Semester-

HORT 205: Postharvest Management of Horticultural Crops

3(2+1)

Theory

Importance of Postharvest Technology in horticultural crops. Maturity indices, harvesting, handling, grading of fruits, vegetables, cut flowers, plantation crops, spices, medicinal and aromatic plants. Pre-harvest factors affecting quality, factors responsible for deterioration of horticultural produce, physiological and bio-chemical changes during ripening, hardening and delaying ripening process. Respiration and factors affecting respiration. Postharvest treatments of horticultural crops. Quality parameters and specifications. Pre-harvest treatment and pre-cooling, pre-storage treatments. packaging methods and types of packages, Types of containers and cushioning materials. Methods of storage for local market and export. Modes of transport.

Practical

Practice in judging the maturity of various horticultural produce, determination of physiological loss in weight and quality. Grading of horticultural produce, post-harvest treatment of horticultural crops, physical and chemical methods. Packaging studies in fruits, vegetables, plantation crops, spices and cut flowers by using different packaging materials, methods of storage, post harvest disorders in horticultural produce. Visit to markets, packing houses and cold storage units.

Suggested reading:

Verma, L. R. and Joshi, V. K. 2000. Post Harvest Technology of Fruits and Vegetables. Vol. I & II. Indus Publishing Co., New Delhi
Wiils, McGlasson and Graham, J. 2007. Post Harvest- An Introduction to the Physiology and Handling of Fruits, Vegetables and ornamentals. Cab International
Stanley, J. K. 1998. Post Harvest Physiology of Perishable Plant Products. CBS, New Delhi.
Neetu Sharma and Mashkoo Alam, M. 1998. Post Harvest Diseases of Horticultural Perishables. International Book Distributing Co., Lucknow.

HORT 207: Fundamentals of Food Technology

2(1+1)

Theory

Food and its function, physico-chemical properties of foods, food preparation techniques, nutrition, relation of nutrition of good health. Characteristics of well and malnourished population. food elements – carbohydrate, fat and proteins. Energy, definition, determination of energy requirements, food energy. Mineral nutrition: macro and micro-minerals (Ca, Fe and P), function, utilization, requirements, sources, effects of deficiency. Vitamins: functions, sources, effects of deficiency, requirements of water soluble and fat-soluble vitamins. Balanced diet: recommended dietary allowances for various age groups.

Practical

Methods of measuring food ingredients, effect of cooking on volume and weight, determination of percentage of edible portion. Browning reactions of fruits and vegetables. estimation of energy value, proteins and fats of foods. Planning diet for various age groups.

Suggested Reading

Manay, S.N, Shadaksharaswamy, M.1998. Food-facts & Principles New Age International Publishers, New Delhi

Srilakshmi, B. 1995. Food Science. New Age International Publishers, New Delhi

6th Semester-

HORT 352: Processing of Horticultural Crops

3(1+2)

Theory

Importance and scope of fruit and vegetable preservation industry in India, food pipe line, losses in post-harvest operations, unit operations in food processing. Principles and guidelines for the location of processing units. Principles and methods of preservation by heat - pasteurization, canning, bottling. Methods of preparation of juices, squashes, syrups, cordials and fermented beverages. Drying and dehydration. Jam, jelly and marmalade. Preservation by sugar and chemicals, candies, crystallized fruits, preserves chemical preservatives, preservation with salt and vinegar, pickling, chutneys and sauces, tomato and mushrooms, freezing preservation. Processing of plantation crops, products, spoilage in processed foods, quality control of processed products, Govt. policy on import and export of processed fruits. Food laws.

Practical

Equipments used in food processing units. Physico-chemical analysis of fruits and vegetables. Preparation of squash, RTS, syrup, jam, jelly, marmalade, candies, preserves, chutneys, sauces, pickles (hot and sweet). Dehydration of fruits and vegetables – tomato product, refrigeration and freezing, cut out analysis of processed foods. Processing of plantation crops. Visit to processing units.

Suggested reading:

Verma, L. R.and Joshi, V. K. 2000. Post Harvest Technology of Fruits and Vegetables. Vol. I & II. Indus Publishing Co., New Delhi.

Dauthy, M. E. 1995. Fruits and Vegetables Processing- FAO Bulletin 119. International Book Distributing Co., Lucknow.

Srivastava, R. P. & Sanjeev Kumar. 2002. Fruits and vegetable Preservation – Principles and Practice. International Book Distributing Co., Lucknow.

7th Semester-

STUDENT READY: Rural Horticultural Work Experience Programme with other Departments of the Faculty-

HORT 401: Rural Horticultural Work Experience Programme & Industrial Attachment

20(0+20)

8th Semester-

STUDENT READY: Experiential Learning Programme-

ELP 453: Processing of fruits and vegetables for value addition: Planning and execution of a market survey, preparation of processing schedule, preparation of project module based on market information, calculation of capital costs, source of finance, assessment of working capital requirements and other financial aspects, identification of sources for procurement of raw material, production and quality analysis of fruit and vegetable products at commercial scale, packaging, labeling, pricing and marketing of product.