جامعة الشرقية
A' SHARQIYAH UNIVERSITY

Course Descriptor

FSHN F417 Beverages and plant products technology

Proposed Academic Year	2021-22	**Last Reviewed Academic Year**	2020-21
Course Code	FSHN F417	**Course Title**	Beverages and plant products technology
Credit hours	3 (2+1)	**Level of study**	degree
College / Centre	Applied Sciences	**Department**	Food Science and Nutrition
Co-requisites	NIL	**Pre-requisites**	Must have completed 6 semesters or 96 credits

1. COURSE OUTLINE

Beverage industry: Beverages: classification – still, carbonated, alcoholic. General properties of plant products such as fruits and vegetables: chemical composition, nutritional aspects, structural features, choice of processing technologies. Maintaining post-harvest quality of fruits and vegetables: quality criteria, quality deterioration measurement and maintenance. Spoilage factors (chemical, enzymatic, biological) and their control. General procedures for fruits and vegetables preservation: an overview. New technologies for processing of fruits and vegetables: minimal processing technology, modified atmosphere packaging, edible coatings and high pressure processing – introduction, applications, impact on bacteria, enzymes, product quality. Future trends in fruits and vegetables processing. The theoretical material offered in the lectures will be supported by practical sessions and or plant visit(s).

2. AIMS

This course aims at providing a step-by-step, hands-on approach by offering students essential information on beverages, fruits and vegetables with respect to production, marketing and distribution both locally and globally; Processes and equipment concerned with the manufacture of fruit and vegetable products. Characteristics of raw materials and the relationship of end product characteristics to product formulation, processing and storage. Emphasis will be placed upon the safety of products and maintaining or enhancing the health nutritional properties of products.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS (Indicative)

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
1. Define processes employed in the manufacture of fruit and vegetable based products and beverages through construction of Process Flow Diagrams.	Lectures and seminars	*In-class tests, quizzes and Written Examination*
2. Understand the properties of fruit and vegetable based products in terms of raw material properties, formulation, processing and storage.	Lectures and seminars	*In-class tests, quizzes and Written Examination*
3. Monitor and control the storage and distribution of minimally processed fruits and	Lectures and seminars	*In-class tests, quizzes and Written Examination*

vegetables properties of the possible end properties.		
4. Design packaging solutions for fruits, vegetables and beverages.	Lectures and seminars	*In-class tests, quizzes and Written Examination*
5. Understand and apply the principles underpinning the safe and effective production of beverages (such as soft drinks, sports drinks, packaged water and fruit juices)	Lectures and seminars	*In-class tests, quizzes and Written Examination*

4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Assignments	10
Quizzes	20
Mid-term Examination	30
Final Examination	40
TOTAL	**100%**

5. ACHIEVING A PASS

Students will achieve **3** credit hours (including 1 credit hour of Laboratory) for this course by passing **ALL** of the course assessments and achieving a **minimum overall score of 50%**

6. COURSE CONTENT (Indicative)

General introduction and classification of beverages
Processing and technologies of beverages
Beverages: Physical, microbiological, and chemical properties of both raw materials and finished products;
Beverages: packing and packaging
Food safety for beverages.
Raw material handling, storage and preparation; processing of fruits and vegetables;
Production of fermented food products from vegetables
Post-harvest changes in fruits and vegetables.
Control distribution of minimally processed fruits and vegetables properties

6. COURSE CONTENT (Indicative)	
Preservation of fruits and vegetables by heat, chemicals, sugar, salt, fermentation, drying etc.	
Canning of fruits and vegetables, tin cans, glass containers seaming technology, aseptic canning technology.	
Fruit and vegetable juices, preparation of syrups, cordials and nectars, juice concentrates pectin and related compounds, jams, jellies, marmalades, preserves.	
Theory of gel formation, quality control, pickles, chutneys, and vinegar production, tomato products.	
Freezing and freeze-drying of food and frozen products	
TOTAL HOURS	**45**
Plus **RECOMMENDED INDEPENDENT STUDY HOURS**	**90**
TOTAL COURSE HOURS	**135**

7. RECOMMENDED REFERENCES

Core Text:

1. Ashurst, P.R. and Hargitt, R. 2009. Soft drink and fruit juice problems solved. Woodhead Publishing. Ltd., Abington, Cambridge, UK.
2. Shachman, M. 2000. The soft drinks companions: A technical handbook for the beverage industry. CRC Press Taylor & Francis Group, Boca Raton, Florida, USA.
3. Varnam, H.A. and Sutherland, J.M. 1999. Beverages: technology, chemistry and microbiology. CRC Press Taylor & Francis Group, Boca Raton, Florida, USA.

Library + online resources:

Open Educational Resources: