Course Descriptor
FSHNF414 Food Processing and Packaging

Proposed Academic Year	2021-2022	**Last Reviewed Academic Year**	2020-21
Course Code	FSHNF412	**Course Title**	Food Processing and Packaging
Credit hours	3	**Level of study**	Bsc
College / Centre	CAHS	**Department**	CAHS/FSHN
Co-requisites		**Pre-requisites**	FSHNF 111

1. COURSE OUTLINE

[This course provides students with the scientific underpinnings of the manufacturing processing various foods such as drying, canning, refrigeration, freezing and others, to produce high quality and nutritional value of food products. This course also Provides knowledge and skills in the handling and packaging of foods, and to develop values about the safety and environmental impact of packaging.]

2. AIMS

[In this course, students will be provided with the necessary tools to handle the raw materials during food processing and packaging. Various processing techniques will be discussed during this course include: thermal processing, low-temperature preservation, dehydration and evaporation, and crystallization techniques. A novel food processing technology such as high pressure, ultrasound and microwave irradiation will be also discussed in this course. Equipment in various types of food processing and packaging will be also discussed in this course.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

Learning Outcomes *(Definitive)* Upon successful completion of this course, students will be able to**:**	**Teaching and Learning methods *(Indicative)***	**Assessment *(Indicative)***
1. Identify and assess all the methods used in food processing	Lecture presentations	*In-class tests, quizzes and Written Examination*
2. Review the principles of thermal and Non-Thermal processing operations	Lecture presentations	*In-class tests, quizzes and Written Examination*
3. To ensure the safe handling of the raw materials used.	Lecture presentations	*In-class tests, quizzes and Written Examination*
4. Identify all problem evaluation and problem solving skills regarding food processing	Lecture presentations	*In-class tests, quizzes and Written Examination*

operations that can affect the quality of foods		
5. Describe the technology involved in the production, shaping and printing of various packaging materials and packages	Lecture presentations	*In-class tests, quizzes and Written Examination*

4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Assignments	10
Quizzes	15
Term-paper & Oral Presentation	15
Midterm Exam	20
Final Exam	40
TOTAL	**100%**

5. ACHIEVING A PASS

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

NB *Ensure that ALL learning outcomes are taken into account

6. COURSE CONTENT (Indicative)

LECTURE TOPIC
1. Introduction to the concept of food processing and packaging.
2. Preparation methods and handling of food raw materials.
3. Unit operation in food processing.
4. Principles of thermal processing and non thermal food processing
5. Low-temperature preservation, the means used in refrigeration and cooling load calculation. Food Freezing, freeze time and expense of freezing systems.
6. Application of high hydrostatic pressure in food processing.
7. Application of ultrasonic and microwave irradiation in food processing
8. Examples of some food processing industries such as sugar processing, yogurt, cheese……
9 Environmental considerations for food processing and preservation operations
10 The role, function and selection of packaging materials.
11 Structure of the packaging materials, physical and chemical properties of the packaging materials
12 Mass transfer in food packaging. Interaction between packaging materials and food
13 Food packaging lines.
14 Regulatory aspects of packaging and labelling.
15 Advances in packaging science and technology. Nanotechnology in food packaging

TOTAL HOURS
Plus **RECOMMENDED INDEPENDENT STUDY HOURS**
TOTAL COURSE HOURS

7. RECOMMENDED READING

Core text/s:

Core text:

1. Smith, J. Scott, and Yiu H. Hui, eds. Food processing: principles and applications. John Wiley & Sons, 2008.
2. Robertson, Gordon L. *Food packaging: principles and practice*. CRC press, 2012.

Additional Reading:

1. Nonthermal Processing Technologies for Food (2010) Haward Q.Zhang, Gustavo V. Barbosa-Canovas, V.M.
2. Nanotechnologies in the Food (2010) Chandhury,Q. and Casstle L. Royal society of chemistry.
3. Emerging Technologies for Food Processing (2005) Gustavo V. Barbosa-canovas, Maria S. Tapia and Pilar M. Taylor and Francis e- Library

Library + online resources:

Open Educational Resources: