UNIVERSITI TEKNOLOGI MARA

HTF279: PRINCIPLES OF FOOD SCIENCE

Course Name (English)	PRINCIPLES OF FOOD SCIENCE APPROVED
Course Code	HTF279
MQF Credit	3
Course Description	This course will introduce the principles of food science and provide exposure towards food chemistry, food processing and its terminology. The students will be exposed to the biological and chemical topics such as food components, food preservation, plant foods, basic preservation and food processing techniques that are relevant towards food service industry.
Transferable Skills	Soft skills in planning especially involving group work assessments. Knowledge transfer in regards to food science information. Video-based teaching on relevant topics.
Teaching Methodologies	Lectures, Presentation
CLO	CLO1 Discover food constituents and its function in food service operation. CLO2 Display on how food constituents influences food processing and quality in food service operation. CLO3 Show effective teamwork in conducting a project related to food science.
Pre-Requisite Courses	No course recommendations

Topics
1. 1.0 Overview of Food Science 1.1) 1.1 What is Food Science? 1.2) 1.2 What is Food Technology? 1.3) 1.3 Density 1.4) 1.3.1 Apparatus used to measure density 1.5) 1.4Types of thermometer 1.6) 1.5 Buffer 1.7) 1.6 Boiling and melting point 1.8) 1.7 Food Rheology
2. 2.0 Food System and Sustainability 2.1) 2.1 Foodservice system 2.2) 2.1.1 Equifinality 2.3) 2.1.2 Differences in foodservice system 2.4) 2.5) 2.2 Conventional Foodservice System 2.6) 2.2.1 Advantages and disadvantages 2.7) 2.8) 2.3 Ready-Prepared Foodservice System 2.9) 2.3.1 Advantages and disadvantages 2.10) 2.11) 2.4 Commissary Foodservice System 2.12) 2.4.1 Advantages and disadvantages 2.13) 2.14) 2.5 Assembly-serve Foodservice System 2.15) 2.5.1 Advantages and disadvantages

3. 3.0 Chemistry of Food 3.1) 3.1 Water 3.2) 3.1.1 Free, bound and entrapped water. 3.3) 3.1.2 Water activity and water hardness 3.4) 3.5) 3.2 Carbohydrate 3.6) 3.2.1 Functions in food 3.7) 3.2.2 Reactions involved in carbohydrate 3.8) 3.2.2.1 Mailard reaction 3.9) 3.2.2.2 Crystallization 3.10) 3.2.2.3 Gelatinization 3.11) 3.2.2.4 Retrogradation 3.12) 3.13) 3.3 Protein 3.14) 3.3.1 Functions in food 3.15) 3.3.2 Enzymes 3.16) 3.3.3 Coagulation and denaturation of protein 3.17) 3.18) 3.4 Lipids 3.19) 3.4.1 Functions in food 3.20) 3.4.2 Melting point, cloud point and smoke point 3.21) 3.4.3 Hydrogenation
4. 4.0 Quality factors in foods 4.1) 4.1 Sensory evaluation 4.2) 4.1.1 Appearance factor 4.3) 4.1.2 Textural factor 4.4) 4.1.3 Flavor factor
5. 5.0 Preservation 5.1) 5.1 Food spoilage 5.2) 5.2 Heat approach to preservation 5.3) 5.3 Cold approach to preservation 5.4) 5.4 Drying and dehydration 5.5) 5.5 Food additives
6. 6.0 Packaging 6.1) 6.1 Types of packaging 6.2) 6.2 Food packaging materials and form 6.3) 6.3 Packages with special features. 6.4) 6.4 Environmental consideration 6.5) 6.5 Innovations in packaging
7. 7.0 Plant and pigments 7.1) 7.1 Composition of plants. 7.2) 7.2 Plant pigments.

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Create one group assignment (e-magazine) consisting of Chapter 5 (preservation)	10%	CLO3
Group Project	Group of TWO (2) students creating TWO (2) infographics based from Chapter 3 (Chemistry of Food) & 6 (Packaging)	40%	CLO1
Presentation	Individual video review presentation based on Chapter 5 (Preservation)	10%	CLO2

Reading List

Recommended Text	• **Sunetra Roday 2012, *Food Science and Nutrition, 2e*, 2nd Ed., OUP India India [ISBN: 0-19-807886-2]**
Reference Book Resources	• **Amy Brown 2007, *Understanding Food: Principles and Preparation*, 3rd Ed., Cengage Learning Umited States of America [ISBN: 0-495-10745-X]** • **Simon Quellen Field 2012, *Culinary Reactions*, 1st Ed., Chicago Review Press United States of America [ISBN: 978-1-56976-7]**

Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources