UNIVERSITI TEKNOLOGI MARA

FST254: PRINCIPLES OF FOOD PRESERVATION

Course Name (English)	PRINCIPLES OF FOOD PRESERVATION APPROVED
Course Code	FST254
MQF Credit	3
Course Description	This course introduces several principles of food preservation including a brief study on the deteriorative factors of food constituents. The principles of food preservation include chemical preservatives, osmoanabiosis, heat treatment, dehydration, freezing, new food preservation techniques and packaging. The laboratory works cover the application of these principles in the processed food.
Transferable Skills	Expert in field.
Teaching Methodologies	Lectures, Blended Learning, Lab Work
CLO	CLO1 Discover the preservation techniques in food industry. CLO2 Construct the analytical observation of food preservation laboratory works. CLO3 Demonstrate communication skills through projects related to food preservation.
Pre-Requisite Courses	No course recommendations

Topics
1. 1. Introduction to food preservation. 1.1) 1.1 Aims of food preservation. 1.2) 1.2 Deteriorative factors of foods. 1.3) 1.3 Stable, semi-perishable and perishable foods.
2. 2. Preservation by chemical additives. 2.1) 2.1 Definition of food additives. 2.2) 2.2 Classification of food additives. 2.3) 2.3 Types of chemical additives and their functions. 2.4) 2.3 Classification of food preservatives. 2.5) 2.4 Types of chemical preservatives and their functions.
3. 3. Preservation by osmoanabiosis. 3.1) 3.1 Principle of osmotic dehydration. 3.2) 3.2 Relationship between water activity (aw) and osmoanabiosis. 3.3) 3.3 Applications of osmoanabiosis in foods: 3.4) 3.3.1 Sugaring 3.5) 3.3.2 Salting 3.6) 3.3.3 Curing
4. 4. Preservation by heat treatment. 4.1) 4.1 Principle of heat treatment. 4.2) 4.2 Heat transfer, heat penetration and cold point location. 4.3) 4.3 Thermal destruction of microorganisms. 4.4) 4.4 Methods of heat preservation. 4.5) 4.4.1 Pasteurisation 4.6) 4.4.2 Sterilisation 4.7) 4.4.3 Boiling water treatment 4.8) 4.5 Canning process.
5. 5. Preservation by dehydration. 5.1) 5.1 Principle of dehydration. 5.2) 5.2 Factors affecting the drying rate. 5.3) 5.3 Drying equipment in food industry.

6. 6. Preservation by freezing. 6.1) 6.1 Principle of freezing. 6.2) 6.2 Freezing point of foods. 6.3) 6.3 Slow freezing and fast freezing methods. 6.4) 6.4 Effect of freezing methods on food quality. 6.5) 6.5 Freezing equipment in food industry.
7. 7. Preservation by new preservation techniques. 7.1) 7.1 Food Irradiation. 7.2) 7.2 Ohmic Heating. 7.3) 7.3 Innovative Non-Thermal Method.
8. 8. Packaging as a method of preservation. 8.1) 8.1 Types of packaging materials. 8.2) 8.2 Modified Atmosphere Packaging (MAP). 8.3) 8.3 Aseptic packaging. 8.4) 8.4 Vacuum packaging.

Assessment Breakdown	%
Continuous Assessment	70.00%
Final Assessment	30.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Assignment	20%	CLO3
Test	Test	30%	CLO1
Written Report	Lab Report	20%	CLO2

Reading List

Recommended Text

- **Aisah Bujang 2007, *Principles of Food Preservation Practical Manual for Diploma in Food Technology*, UiTM Press Shah Alam [ISBN: 9789833644872]**
- **Aisah Bujang 2013, *Principles of Food Preservation for Diploma in Food Technology*, UiTM Press Shah Alam**

Reference Book Resources

- **Peter Zeuthen and Leif Bogh-Sorenson 2003, *Food Preservation Techniques.*, Wood head Publishing Limited England [ISBN: 0849317576]**
- **P.J. Fellows 2009, *Food Processing Technology: Principles and Practise*, 3 Ed., Woodhead Publishing Limited. [ISBN: 9781439808214]**
- **Peter S. Murano 2000, *Understanding Food Science and Technology*, Wadsworth/Thomson Learning Inc. [ISBN: 053454486X]**
- **M. Shafiur Rahman 2007, *Handbook of Food Preservation*, 2nd Ed., CRC Press London [ISBN: 9781574446067]**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources