

ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD
(Department of Home and Health Sciences)

Course: Food Theory and Its Application (7512)

Semester: Autumn, 2013

Level: Postgraduate

Credit: 3(2+1)

CONTENT LIST

1. Course Book (Unit 1-9)
2. Theory Assignments One
3. Practical Assignment One
4. Assignment's Forms Six
5. Schedule for submitting the assignments and tutorial meetings.

Note: - If any one of the above items is missing from your study pack, kindly contact:

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WARNING

1. **PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.**
2. **SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE'S OWN WILL BE PENALIZED AS DEFINED IN "AIOU PLAGIARISM POLICY".**

Course: Food Theory and Its Application (7512) Semester: Autumn, 2013
Level: Postgraduate Total Marks: 100
Credit: 3(2+1) Pass Marks: 40

ASSIGNMENT No. 1
(Unit 1-7)

- Q. 1 Write short notes on the following: **(16)**
- a) Hygroscopicity
 - b) Bacteria, major source of food borne illness
 - c) Types of Solutions
 - d) Acids, Bases and Buffers
- Q. 2 Define gelatinization and discuss its process in detail. How different factors affect the gelatinization process? **(12)**
- Q. 3 Draw and elaborate the structure of wheat kernel. Also discuss nutritional composition in detail. **(12)**
- Q. 4 What do you know about the abnormalities in structure and composition of egg? Also discuss the use of egg in foam formation. **(12)**
- Q. 5 Elaborate sugars substitutes in detail. Also explain syrup by quoting suitable examples. **(12)**
- Q. 6 What do you know about the functions of numerous ingredients in dough making? Write in detail. **(12)**
- Q. 7 What is mean by food protection systems? Discuss HACCP system food of protections in detail. **(12)**
- Q. 8 Define sensory evaluation. Enlighten different sensory tests in details. **(12)**

ASSIGNMENT No. 2

Total Marks: 100

Pass Marks: 40

A Workshop is compulsory for all the students. Marks obtained during the workshop will be included in your final result. This assignment is practical in nature and all the students will visit a local food industry under supervision of resource person to carry out the following activity:

Visit a local industry of your area and prepare a report (20-25 pages) covering industrial food processing steps starting from receipt of raw material till production of end product. Focus on the food preservation techniques, HACCP system operations and others relevant features of the industry in the context of theory course studied.

FOOD THEORY & ITS APPLICATION (7512) COURSE OUTLINE

UNIT-1: Basic Principles in Food Science

- Properties of Matter
- Energy and its Forms
- Bonding Forces (Ionic Bonds, Covalent Bonds)
- Acids, Bases, Buffers and pH
- Types of Solutions

UNIT-2: Grains and Starches

- Structure and Composition of Cereal Grains
- Common Cereal Grains and their Uses
- Structure and Composition of Starches, Pectin and Gums
- Factors Requiring Control in Gelatinization
- Gelation or Setting of Gelatinized Starch Pastes
- Starch Uses in Food Systems

Unit-3: Eggs and Egg Products

- Physical Structure and Composition of Eggs
- Inspections and Grading for Egg Quality
- Processing/Preservation of Eggs
- Denaturation and Coagulation
- Effect of Added Ingredients on Coagulation
- Nutritive Value of Eggs
- Safety of Eggs

UNIT-4: Sugars, Sweeteners, and Confections

- Sources of Sugar
- Types of Sugars and Sugar Syrups

- Properties of Sucrose
- Sugar Substitutes
- Confections
- Nutritive Value of Sugars and Sweeteners

UNIT-5: Baked Products: Batters and Dough

- Classes of Batters and Dough
- Function of Various Ingredients in Batters and Dough
- The Leavening Process of Baked Products
- Storage of Baked Products

UNIT-6: Evaluation of Food Quality

- Aspects of Food Quality
- Taste Sensitivity
- Sensory Evaluation
- Objective Evaluation
- Comparison of Subjective and Objective Evaluation

UNIT-7: Food Safety

- Biological Hazards
- Chemical Hazards to the Food Supply
- Physical Hazards to the Food Supply
- Food Protection Systems
- The HACCP System of Food Protection

UNIT-8: Food Preservation and Processing

- Heat Preservation
- Refrigeration Freezing, Dehydration and Concentration
- Added Preservatives
- Radiation

UNIT-9: Packaging and Labelling of Food Products

- Types of Packaging Containers
- Packaging Materials
- Packaging of the Future
- Packaging as a Communication and Marketing Tool
- The Food and Drug Administration
- Food Labelling

Recommended Books:

1. Vickie A. Vaclavik & Elizabeth W. Christian (2008) *Essentials of Food Science, 3rd Edition.*
2. Devendra Kumar Bhatt and Priyanka Tomar (2006) *An Introduction to Food Science and Technology & Quality Management.*
3. *Food Sciences and Its Application Course Code-867, AIOU Compiled Material.*