

SEMESTER I

METHODOLOGY OF HOME SCIENCE AND FOOD SCIENCE

Course Code: HS1BO1U

CORE
THEORY- 1

Teaching hours: 2hrs/week (Hrs./Sem.36)

Credit: 4

Objectives:

- To familiarize with basic areas of Home Science
- To understand the basic methodology of research, principles and techniques
- To understand the composition, chemistry of foods and their applications in food preparations.

Methodology of Home Science

Module I: Home Science – A Multidisciplinary Approach (2 hrs)

Concept and Scope of Home Science

Areas of Home Science – Human Development, Family Resource Management, Nutrition and Dietetics, Textile Science and Fashion Designing and Extension Education.

Module 2: Thrust Areas of Research (10 hrs) Definition, Importance, Research Trends in Home Science

Research Methods – Need for research and types (case study, experimentation, survey, observation)

Tools of data collection (Rating scale, Questionnaire, Interview schedule) Sampling techniques – definition, random sampling, - simple random sampling, systematic random sampling, non random sampling, -probability sampling (purposive, stratified, convenience, snowball sampling)

Tabulation – definition, parts of a table, presentation (diagram, bar, pie) Components of a project report

Related experience

Development of an interview schedule/questionnaire related to any area of Home Science.

Core Readings:

- Gupta S.P(2007), Statistical Methods, Sulthan Chand and Sons, New Delhi
- Yadla V. and Jasrai S(2005), Reference Book for UGC National Eligibility test in Home Science, Kalyani Publishing , Ludhiana.
- Khan J.A(2007), Research Methodolgy, Methods and Techniques, New Age International, New Delhi.

- Premlatha, M(2006), Textbook of Home Science, Kalyani Publishers, Ludhiana, 2nd Edition.
- Chandra, A., Shah, A. and Joshi U(1995) Fundamentals of Teaching Home Science, Sterling Publishers Pvt. Ltd., New Delhi.

Food Science

Module 3: Introduction to Food Science

(2 hrs)

Food as a source of nutrients, functions of foods, food groups(basic five – ICMR), food preparation – objectives and methods. Genetically Modified Foods, organic foods- basic concepts

Module 4 : Study of macronutrients

Carbohydrates (5 hrs) Definition, composition, classification, starch - structure of starch granules, effect of cooking, gelatinisation, factors affecting, basic concepts of gelation, retrogradation, dextrinisation. Sugar cookery and its applications. Carbohydrates in food preparation.

Proteins

(5 hrs)

Structure, classification based on function(complete, partially complete, incomplete), denaturation, food proteins- non traditional proteins- single cell(yeast), leaf proteins (spirulina), textured vegetable protein(soya).

Lipids (5 hrs) Lipids in foods(visible and invisible), fatty acids(saturated, unsaturated, essential), rancidity- types, factors leading to rancidity, prevention, hydrogenation, applications of lipids in food preparations.

Module 5: Studies of Foods

1. Cereals

(3 hrs)

Structure, composition and nutritive value, gluten formation, role of cereals in cookery, common cereals and millets in India, role of cereals in cookery.

2. Pulses

(3 hrs)

Nutritive value and composition, germination, fermentation, advantages, anti nutritional factors(trypsin inhibitors, lathyrism). Important pulses in india.

3. Milk and milk products

(3 hrs)

Composition and nutritive value, pasteurisation, homogenisation, advantages. milk products (whey proteins, skim milk, evaporated , condensed, dry milk, khoa, icecream, toned milk, flavoured milk, fermented milk, butter, cheese, curd).

- 4. Egg** (3 hrs)
Structure, composition and nutritive value, deterioration in egg quality, evaluation of egg quality, egg white foam, factors affecting, culinary role of eggs designer eggs.
- 5. Meat** (2 hrs)
Structure, composition and nutritive value, classes of meat and products.
- 6. Fish** (2 hrs)
Classification, types, composition and nutritive value, fish spoilage and preservation, fish products.
- 7. Vegetables and fruits** (4 hrs)
Classification, composition and nutritive value, pigments, flavour components, organic acids and enzymes, effect of cooking on pigments, changes in fruits during ripening, enzymatic and non-enzymatic browning, methods of prevention, anti-oxidant role.
- 8. Spices** (2 hrs)
Types, functions, culinary role
- 9. Food Preservation** (3 hrs)
Food spoilage, principles and methods of food preservation (low temperature, high temperature, high osmotic pressure, irradiation, dehydration, high concentration of sugar and salt)

Core Readings

- Srilakshmi B (2007), Food Science, New Age International(P) Ltd, New Delhi.
- Benion M (1995) Introductory Foods, 10th Ed, Prentice Hall, USA
- Swaminathan M (1998), Handbook of Food Science and Experimental Foods
- Chandrasekhar U(2002), Food Science and its Applications in Indian Cookery, Phoenix Publishing House, New Delhi
- Manay N.S and Shadaksharaswamy M, Foods, Facts and Principles, New Age International, New Delhi.
- Potter, N.M(1996), Food Science, 5th Ed, CBS Publishers, New Delhi.
- Peckham, G.C(1994), Foundations of food Preparations, McMillan, London
- Roday, S(2007), Food Science and Nutrition, Oxford University, New Delhi.
- Gopalan C, Ramasastry, B.V and Balasubramanian S (2004) Nutritive Value of Indian Foods, NIN, Hyderabad

Methodology of Home Science and Food Science - Practical

Course Code: HS1B01U (P)

**Teaching hours: 2hrs/week
(Hrs./Sem.36)**

CORE PRACTICAL- 1

Credit: 1

Course Outline

1. Determination of taste threshold for sweet, salt, sour and bitter
2. Factors influencing the stability of egg white foam
3. Stages of sugar cookery
4. Gelatinization temperatures of various types of starches
5. Effect of cooking on vegetable pigments
6. Enzymatic and Non-enzymatic browning, Methods to prevent browning in fruits
7. Food preservation techniques (jams, squashes, pickles)

A record of practical should be maintained