**Department of Home Science**

**Program Specific Outcomes:**

Towards the end of the program, students will be able to:

* promote knowledge in Nutrition and Food Science ,develop leadership and critical thinking skills necessary for achievement of excellence in the profession of Food & Nutrition
* Demonstrate how the ecological and systems theory framework explains variations in individual and family development across the life span
* Strengthen knowledge on concepts related to the Textiles and Fashion, social and psychological aspects of textiles and apparel
* Develop knowledge on family dynamics, identify a variety of resources available to the families, describe the bidirectional relationship between resources and family functioning , effect of social institutions on family resources and resource management
* Gain knowledge in the areas of Extension and the transfer of knowledge to the target group

**Program Outcomes:**

* Strengthen skills and potentials of students through scientific principles ,knowledge and

Experience required for optimum living

* Development of entrepreneurial skills at various levels
* Understand and appreciate the role of interdisciplinary sciences in the development and well

being of individuals ,families and communities

* Learns about the sciences and technologies that enhance quality of life
* Acquires professional and entrepreneurial skills for economic empowerment of the students

in particular and community in general

* To develop professional skills in Food, Nutrition, Textiles, Housing, Product development

Communication technologies and Human Development and Transfer the knowledge and

technologies from laboratory to community

**FIRST YEAR**

**Semester-I**

**HSc-101 Basic Nutrition**

**Theory:** 4hrs/week

**THEORY**

**Objectives:**

1. To know the functions of various nutrients in the body and the clinical manifestations of their deficiency.
2. To learn the RDA of various nutrients for different age groups.
3. To get knowledge on Macro and Micro Minerals
4. To study the principles of calorimetric, Energy metabolism.

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| --- | --- | --- | --- |
| **Unit I** |  | **Definition and introduction to nutrition and RDA**   * Nutrition – definition, importance, Good nutrition and mal nutrition, visible symptoms of good health, Guidelines for good health * RDA: Definition, Reference Man and Women, Factors affecting on RDA of individual, Uses of RDA |  |
| **Unit II** | : | A) **Energy**: Definition, functions, dietary sources, RDA, deficiency.  B) Determination of energy value of food by Bomb calorimeter. Basal metabolic rate - Definition, factors affecting on BMR, Thermic effect of food, Specific Dynamic Action of food. |  |
| **Unit III** | : | **Macro Nutrients** –   * **Carbohydrates** – Classification, functions, dietary sources, RDA, deficiency, role of fibre in human nutrition * **Lipids** – Classification, functions, dietary sources, RDA, deficiency, recommended combinations of oils for optimal health benefits. Essential Fatty Acids – Functions, deficiency * **Proteins** – Classification (Chemical and nutritional), functions, dietary sources, RDA, deficiency |  |
| **Unit IV** | : | **VITAMINS**   * **Fat soluble** **Vitamins-** Functions, Deficiency, RDA, Food sources of Vitamin A, Vitamin D, Vitamin E, Vitamin K * **Water soluble –** Functions, Deficiency, RDA, Food sources of Thiamin (B1), Riboflavin(B2), Niacin (B3), Pyridoxine (B6), Folate, Vitamin B12 and Vitamin-C |  |
| **Unit V** | : | **MINERALS**   * **Macro Minerals –** Functions, Deficiency, RDA, Food sources of Calcium, Potassium and Sodium * **Micro Minerals –** Functions, Deficiency, RDA, Food sources of Iron, Iodine and Zinc.   **COURSE OUT COMES** |  |

1. Defines health, nutrition, nutrients, malnutrition, optimum nutrition, under nutrition and over nutrition
2. Classifies nutrients and differentiates their functions and sources
3. Describes the effects of deficiency of various nutrients
4. Explains the importance of dietary fibre and water
5. Develops a positive attitude towards good food and for good health

**FIRST YEAR**

**Semester- I**

**HSc-102 Biochemistry**

Theory: 4hrs/week

Practicals: 2 hrs./week

**Objectives:**

* To help the students to understand the importance of Biochemistry as the base for Nutrition.
* To impart knowledge on role of enzymes and co-enzymes.
* To make them aware of the fundamentals of macronutrients and their reactions.

**Unit-I**

**Chemistry of carbohydrates**: Definition, classification, physical and chemical properties of carbohydrates, Isomerism (Stereo – Geometrical & optical isomerism), colour reactions of carbohydrates.

**Unit II**

**Chemistry of lipids**: Definition, Classification, physical and chemical properties of lipids. Colour reactions of lipids, saturated and unsaturated fatty acids.

**Unit–III**

**Chemistry of proteins:** Definition, classification, Classification of amino acids. Colour reactions of proteins.

**Unit–IV**

**Enzymes:** Definition, classification IUB, Inhibition. Factors affecting enzyme activity. List of Co enzymes.

**Unit–V**

Functions and structure of Nucleic acids,Functions and structure of Nucleotides,Structure and types of RNA ,Nucleoproteins

**PRACTICALS**

1. Qualitative analysis of carbohydrates-
2. Monosaccharides (Glucose, Fructose),
3. Disaccharides (Lactose, Maltose and Sucrose) and
4. Polysaccharides (Starch).
5. Stages in acid hydrolysis of starch
6. Qualitative analysis of amino acids (Tyrosine, Tryptophan and Argenine).
7. Qualitative analysis of Lipids

**.Course Outcomes:**

1. Students will understand the fundamentals of Macronutrients and their functions which forms a base for understanding nutrition
2. Students gain knowledge about enzymes, coenzymes ,nucleic acids as they are useful to study for the courses like medical & Lab technician.

**FIRST YEAR**

**Semester- I**

**HSc-103 Microbiology**

Theory: 4hrs/week

Practical: 2 hrs./week

**Objectives:**

* To help the students to understand the importance of Microbiology in our lives.
* To impart knowledge classification of microbes and their characteristics.
* To make them aware of the role of microbes in different environments.

**THEORY**

**Unit - I:** Classification of microorganisms-Based on plants/animals-based on cellularity,-based on nature of nuclear material-Five kingdom concept

Scope and importance of microbiology

1. Bacteria-General Characteristics, classification, morphology,
2. Bacterial physiology, nutrition, reproduction, growth curve, temperature, oxygen and PH

**Unit - II:**

a.Virus-Morphology-classification-reproduction-lab culture

b.Fungi- morphology, physiology, lab culture, economic importance

c. Sexually Transmitted Diseases-Syphilis, Gonorrhoea, HIV/AIDS

**Unit - III:**

**a.Immunology:**

Infection-organism and host related factors, Immunity (definition,-types-active-passive immunity), Resistance

**b**. **Food contamination and spoilage**: 1.Cereals, 2.Fruits, 3.Vegetables,4.Milk & Milk products, 5.Meat & Fish, 6.Eggs

**Unit -IV:  
Microbiology of special environments**

Microbiology of soil -Nitrogen cycle, carbon cycle

Microbiology of water, Microbiology of sewage

**Unit - V:**

Causes, symptoms, mode of infection, diagnosis, treatment and control of the following diseases:

a. Bacterial diseases (Cholera, Typhoid, Tuberculosis, Diphtheria, Pertusis, Tetanus)

b. Viral (Measles, Rubella, Hepatitis)

c. Protozoal: Diseases (Amoebiasis, Malaria)

**PRACTICALS**

1. Study of Microscope and its parts
2. Simple staining method
3. Gram staining
4. Acid fast staining
5. Laboratory equipment
6. Observation of fixed slides

**Course Outcomes**

Up on completion of this course student will be able to

* Demonstrate knowledge of microbial classification.
* Differentiate between subfields of Microbiology.
* Distinguish the characteristics of different microorganisms.
* Understand the relation of microbes with different environment and food.