**B.Sc., HOME SCIENCE**

**I year – I semester**

**COURSE CODE: 7BHFA1**

**ALLIED COURSE - I – BASIC NUTRITIION**

**Objectives:**

To enable non-major students

1. Understand the importance of food and health
2. Know changing health scenario
3. Learn healthy food pattern

**Unit – I Health**

Concept and Definition of health, dimension of health, factors affecting health. Stress-types, stress related diseases and control measures. Health hazards- Consequence of junk food over health, healthy eating habits. Adulteration-harmful effect and prevention.

**Unit – II Health promotion**

(a) Definition of food, nutrition, optimum nutrition, nutrients and nutritional status.

(b) **Functions of foods**-physiological, psychological and social functions

 Constituents of food and its function

(c)**RDA**-definition,general principles,referencebody weights of Indians,recommended

 dietary allowance for Indians, uses and limitations.

**Unit – III Health improvement:**

(a)**Balanced diet**-definition and objectives, food guide pyramid and its uses, food

 selection, meal planning – principles involved.

(b**)Health education**-Definition,importance of health education and personal hygiene.

**Unit – IV Chronic health problems**

(a**)Diabetes,Hypertension,Heart diseases**-causes, signs and symptoms and dietary

 strategy for prevention and management.

(b)**Eating disorders**-anorexia nervosa, binge eating and bulimia nervosa—causes and

 preventive measures.

**Unit – V Role of food in health**

(a)Sources and beneficial effects of dietary fiber and antioxidants in treating diseases.

(b) Impact of physical exercise on health

**Books for Reference:**

1. Mudambi.S.R. and Rajagobal.M.V.,Nutrition and diet therapyNew age international pvt.ltd., 2008.
2. Shills, E.M. Olson, A.J. and Shike, Lea and Febiger, Modern Nutrition in Health and Diseases,Lippincott Williams ans Wilkins publishing,2006
3. Srilakshmi,B., Dietetics,6th edition, New Age International Pvt. Ltd, 2010.
4. Srilakshmi, B., NutritionScience, edition, NewAgeInternationalPvt.Ltd., 2010.
5. Mahan,L.K.Arlin.M.T,Krause’s,Food,NutritionandDietTherapy11thEd.W.B.Saunder Company, London ,2000.
6. Gopalan, C., Nutritive value of Indian Foods, NIN, Hydrebad, 1989.

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**I year – II semester**

**COURSE CODE: 7BHFA2**

**ALLIED COURSE - II - NUTRITION THROUGH LIFE CYCLE**

**Objectives:**

To enable the students

1. Understand the nutritional demands in various stages of life cycle.
2. Acquire skills in planning adequate meals in different stages of life cycle.

**Unit – I Basic Principles of Meal Planning**

Definition, principles involved in meal planning and factors affecting meal planning. Recommended allowance-RDA for Indians, basis for requirement, energy allowance for various activities. General concepts about growth and development through different stages of life.

**Unit – II Pregnancy and lactation**

**Nutrition during Pregnancy** – Weight gain, physiological changes, nutritional requirements, complications and nutritional problems in pregnancy.

**Nutrition during Lactation** - physiology of lactation, hormonal control. Milk out put and factors affecting it, nutritional components of colostrum and mature milk. Nutritional requirements of lactating women.

**Unit – III Infancy**

**Nutrition during Infancy** - Growth and development, factors influencing growth, advantages of breast feeding, breast feeding vs bottle feeding, factors to be considered in bottle feeding. Weaning Foods - Weaning foods and commercial baby foods. Nutritional requirements of infants. Problems in feeding normal and premature infants.

**Unit – IV Preschool and school going children**

**Nutritional needs of pre-school children (1-5 year)** - Nutritional and food requirements of pre school children. Factors to be considered while planning meals for pre-school children. Eating problems of children and their management, preparation of supplementary foods using available low cost foods.

**Nutrition for School children** - Nutritional requirement, meal planning for school children,dental caries and packed lunch.

**Unit – V Adolescence, Adulthood and Geriatric nutrition**

**Nutrition during Adolescence** - Physical growth and nutritional requirements, Nutritional problems in adolescence- Iron deficiency anemia, obesity , anorexia nervosa and bulimia nervosa.

**Nutritional needs of adults (men and women)** – Nutrition and work efficiency, nutritional requirement of the adult in relation to occupation.

**Nutrition During Old Age** - Physiological changes in ageing, psycho-social and economic factors affecting eating behaviour.Nutritional problems of aged and their management.

**Books for Reference:**

1. Vinodhini Reddy, Prahlad Rao, Gouthm Sastry and Kashinath, Nutrition Trends in India NIN, Hyderabad, 1993.
2. Shills, E.M. Olson, A.J. and Shike, Lea and Febiger, Modern Nutrition in Health and Diseases,Lippincott Williams ans Wilkins publishing,2006
3. Srilakshmi,B., Dietetics,6th edition, New Age International Pvt. Ltd, 2010.
4. Srilakshmi, B., NutritionScience, edition, NewAgeInternationalPvt.Ltd., 2010.
5. Mahan,L.K.Arlin.M.T,Krause’s,Food,NutritionandDietTherapy11thEd.W.B.Saunder Company, London ,2000.
6. Davidson S Passmore.R, Brock.J.P, Human Nutrition and Dietetics, ELBS and Churchill Livingstone.
7. Mudambi S.R., and Rajagopal M.Y., Fundamentals of foods and Nutrition, Wiley Eastern Ltd.
8. ICMR- Nutritive value of Indian Foods, 1989.
9. Bonnie S.Worthinton, Roberts, Sue Rod well Williams, Nutrition throughout the life cycle, Tata McGraw- Hill company,1996.
10. Virginia Beal, Nutrition in the life span, John Wiley & sons New York.

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**i year – I/II semester**

**COURSE CODE: 7BHFAP1**

**ALLIED PRACTICAL - I -** **NUTRITION THROUGH LIFE CYCLE LAB**

1. Planning, calculation of nutritive value and preparation of adequate meals for different age groups – infancy, pre-school, school, adolescent boy and girl, adult man & woman in relation to occupation, elderly, pregnancy and lactation.
2. Preparation of various weaning foods and supplementary foods.

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**iI year – III semester**

**COURSE CODE: 7BHFA3**

**ALLIED COURSE - III - FOOD PRODUCT DEVELOPMENT AND MARKETING**

**Objectives:**

1. Understand and know various aspects of food product development including Food Science and Technology
2. To understand the importance of Consumer Research, Finance and Communication

**Unit - I**

New Food Products development, Phases in Food Product Development. Definition, classification, characterization, factors in fluency new product development – social concerns, health concerns impact of technology and market place influence (Corporate, market place, technological and governmental influences).

**Unit II**

Generation of New Product Ideas. Internal sources of ideas-census data, magazine, reward cards, surveys. Polling, membership list, seller/retailer and distributor, telephone and mails. External sources of ideas –competitors, food conference/exhibition, tradeshows and research symposia, public libraries, trade literature, government publications. Market place analysis, SWOT analysis

**Unit III**

Screening and refining the screening procedure for the product-Objectives of screening.-Sensory Evaluation.Shelf life testing.Food standards needed to introduce new product.

**Unit IV**

Development Process-Market Sector perspective and market research, Recipe development and standardization, newer techniques adopted in product development.

**Unit V**

Test Marketing; Evaluating results and analyzing.Entrepreneurship: Plant location, investment, financing the project **Books for Reference:**

1. Fuller, G. W. (1994). **New Food Product Development : From Concept to Market P**

**Place,** New York: CRC Press.

2. Man, C.M. D. and James, A.A. (1994). **Shelf life Evaluation of Foods. Blackie Academic and Professional**, London:

3. Olickle, J. K. (1990). **New Product Development and value added. Food Development**

**Division**, Canada : Agriculture,

4. Graf, E. and Saguy I.S. (1991). **Food Product Development : From concept to the Market Place**, New York : Van Nostrand Reinhold.

 **Journals:**

1. International Journal of Food Science and Technology
2. Food Technology
3. Journal of Food Technology
4. Trends in Food Science and Technology
5. Critical Reviews is Food Science and Nutrition

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**iI year – IV semester**

**COURSE CODE: 7BHFA4**

**ALLIED COURSE - IV - FOOD PACKAGING**

**Learning outcome:**

1. To gain knowledge about various packing materials
2. To be familiar with packing media and packing laws and regulations

**Unit I**

**Food Packaging**: Definition, functions of packaging materials for different foods and characteristics of packaging material.

**Unit II**

**Packaging materials:** Purpose, types of containers-primary, secondary and tertiary. Types of packaging materials- Traditional; Leaves, Vegetable fibers, Bamboo, Earthen ware, Coconut palm. Modern packaging materials: Glass container, Metal cans, flexible films, polypropylene, PET, Laminated films. Biodegradable packaging material-biopolymer based edible firm.

**Unit III**

**Types of packaging:** MAP, CAP, Retort packaging, Bag in box, tetra packaging and Shrink packaging. Merits and demerits of the above food packaging system.

**Unit IV**

**Packaging Design:** Food marketing and role of packaging; Packaging aesthetic and graphic design; Packaging –Laws and regulations

**Unit V**

 **Environmental Issues in Packaging -**Coding and marking including bar coding and Environmental & Eco issues, recycling and wastedisposal.

**Labeling:** Definition, types of ink and adhesive used in food packaging. Labeling regulation, bar coding, health claims, nutrition labeling, ingredients list.

**Text books:**

1. [Richard Coles](http://www.google.co.in/search?tbo=p&tbm=bks&q=inauthor:%22Richard+Coles%22), [Mark J. Kirwan](http://www.google.co.in/search?tbo=p&tbm=bks&q=inauthor:%22Mark+J.+Kirwan%22), (2011). [**Food and Beverage Packaging Technology**](http://books.google.co.in/books?id=fUJE4Vvzup8C&printsec=frontcover),
2. Robertson G.L, (2000) **Food Packaging Technology,** New York.
3. Sachrarow and Grilin (2005), **Food Packaging** – AVI Publications.

**Books for Reference**:

1. [Parker](http://www.google.co.in/search?tbo=p&tbm=bks&q=inauthor:%22R.+O.+Parker%22), R.O., (2001). **Introduction to Food Science** [**Technology & Engineering**](http://www.google.co.in/search?tbo=p&tbm=bks&q=subject:%22Technology+%26+Engineering%22).
2. [Mohammad Shafiur Rahman](http://www.google.co.in/search?tbo=p&tbm=bks&q=inauthor:%22Mohammad+Shafiur+Rahman%22) (2007). Handbook of Food Preservation, Second Edition.

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**i year – III/IV semester**

**COURSE CODE: 7BHFAP1**

**ALLIED PRACTICAL - II -** **Food Product development and packaging practical**

**Learning Outcome:**

1. To Understand and know various aspects of food product development including Food Science and Technology and Consumer Research.

**Unit - I**

New Products development, Factors influencing product development, Consumer oriented product development

**Unit - II**

How to develop a New Product, Statistical experimental methods, modeling for process and recipe**.**

**Unit - III**

Refining the screening procedure for the product Sensory Evaluation, Shelf life testing, Product integrity and conformance to standards Test Marketing; evaluating results and analyzing Packaging, design graphic and labeling

**Unit - IV**

Steamed seaweed products, seaweeds in salads, Pickles, Jams and wafers.

**Unit - V**

Value adding bakery products using seaweeds, popularizing seaweeds as food.

**Text Books:**

1. Fuller G.W., (1994). **New Food Product Development: From Concept to Market place,** New York: CRC Press.

2. Man, C.M.D and James, A.A. (1994). **Shelf life Evaluation of Foods.** London: Blackie Academic and Professional.

3. Olickle, J.K., (1990). **New Product Development and value added**. Canada: Food Development Division, Agriculture.

4. International Journal of Food Science and Technology.

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