

Course code: 22BHFA1		Allied -IA	T/P	C	H/W
		BASIC NUTRITION	T	3	3
Objectives	1. To understand the functions and role of nutrients, their requirements and the effect of deficiency and excess (in brief) and 2. To understand the concept of an adequate diet and the importance of nutrients in recommended Dietary Allowances.				
Unit -I	Definitions - food, nutrition, health, Nutraceuticals and Nutrigenomics. Dimension of health and functions of food - Physical, social and mental health. Food guide – Basic food groups, my plate.				
Unit-II	Energy requirements: Factors affecting energy requirements, BMR - activity, age, climate, diet induced thermo genesis (SDA), Physiological conditions. RDA (ICMR) - formation, uses.				
Unit -III	Macro Nutrients - Protein, Carbohydrate, Fat - Classification, functions, Digestion & absorption (in brief), RDA, sources and deficiencies.				
Unit- IV	Micronutrients Macrominerals Calcium, Phosphorus and magnesium: Functions, absorption, RDA, sources and deficiencies. Micro Minerals: Iron, Zinc, Fluorine and Iodine: function, absorption, RDA, sources and deficiency. Vitamins Fat-soluble Vitamins (A, D, E & K) Function, RDA, sources and deficiency and excess. Water soluble vitamins: Thiamin, Riboflavin, Niacin, B12, Folic acid, Biotin and Vitamin C: functions, RDA, food sources, deficiencies and excess.				
Unit -V	Water and Electrolytes. (7Hrs) Water: Functions, requirements, sources, water balance Electrolyte and acid base balance: Electrolyte - Sodium, Chloride, Potassium sources and RDA, functions. Functional foods and Phytonutrients: Phytates, Tannins and Polyphenols, their sources and functions.				
Reference and Textbooks					
Gopalan, C., Nutritive value of Indian Foods, NIN, Hyderabad, 1989.					
Mahan,L.K. Arlin.M.T, Krause’s, Food, Nutrition and Diet Therapy. (11 th Ed.) W.B. Saunder Company, London ,2000.					
Mudambi.S.R. and Rajagobal.M.V., Nutrition and Diet Therapy, New Age International Pvt.ltd., 2008.					
Shills, E.M. Olson, A.J. and Shike, Lea and Febiger, Modern Nutrition in Health and Diseases, Lippincott Williams and Wilkins publishing,2006					
Srilakshmi, B., Nutrition Science, edition, New Age International Pvt.Ltd., 2010.					
Srilakshmi,B., Dietetics,6 th edition, New Age International Pvt. Ltd, 2010.					

Course code:	Allied Practical-IA	T/P	C	H/W
22BHFAP1	BASIC NUTRITION LAB	P	2	2
PRACTICALS				
<ol style="list-style-type: none"> 1. Weights and measures. 2. Standardization of recipes. 3. Introduction to Recommended Dietary Allowances / Nutritive value of foods. 4. Calculation of energy balance among college going girls. 5. Enhancing the traditional recipes with specific nutrients (protein, carbohydrate, fat, vitamin A, vitamin C, calcium and iron). 6. Plan, prepare and calculate adequate meals for various deficiency conditions like Protein, Calcium, Iron, Vitamin A, 				

Course code: 22BHFA2	Allied -IB	T/P	C	H/W
	FAMILY MEAL MANAGEMENT	T	3	3
Objectives	To enable the students to: <ul style="list-style-type: none"> ➤ Acquire knowledge of the principles of planning diets for various stages of life cycle. ➤ Develop ability to plan balanced diets for various activity groups and for various socioeconomic levels. 			
Unit -I	Introduction to Meal Management - Balanced diet - food guide, food pyramid. Basic principles of meal planning - objectives - steps in meal planning - food cost.			
Unit-II	a. Nutrition in Pregnancy - physiological stages, food selection - complications of pregnancy. b. Nutrition during Lactation - Physiology of lactation – nutrition requirements, special foods given during lactations. c. Nutrition during Infancy - Growth and development – nutrition requirements - Breast feeding - Infant formula – Introduction of supplementary foods.			
Unit -III	a. Nutrition during Early Childhood (Toddler/ Preschool) - Growth and Nutritional needs - nutrition related problems. Feeding patterns - acceptance. b. Nutrition of School Children - Nutritional requirement - Importance of snacks - school lunch. c. Nutrition during Adolescence - Growth development and nutrient needs - food choices, eating habits – factors influencing them.			
Unit- IV	a. Nutrition of School Children - Nutritional requirement - Importance of snacks - school lunch. b. Nutrition during Adolescence - Growth development and nutrient needs - food choices, eating habits – factors influencing them.			
Unit -V	Nutrition during Adulthood and Geriatric Nutrition - Factors affecting food intake and nutrient use - nutrient needs -nutrition related problems.			
Reference and Textbooks				
Anderson L. et al, " <i>Nutrition in Health and Disease</i> ", 1982, 17th ed, J.B Lippincott Co Philadelphia.				
Guthrie H.A. & Others, " <i>Introductory Nutrition</i> ", 1986, 6th ed. Times Mirror/Mosby College Pub Louis.				
Guthrie, H.A., " <i>Introductory Nutrition</i> ", 6th ed., Times Mirror/Mosby College Publ. - St Louis 1989.				
Mudambi, S.R. & M.N. Rajagopal - " <i>Fundamentals of Food and Nutrition</i> ", 3rd ed. Wiley Eastern Ltc New Delhi-19.				
Recommended Dietary Intakes for Indians, I.C.M.R. 1989.				
Whitney E.N., Hamilton E.N. & Raffles S.R., " <i>Understanding Nutrition</i> ", 5th ed. West Pub. Co. New York.				
Worthington Roberts, Bonnie S & others - " <i>Nutrition in Pregnancy & Lactation</i> ", 3rd ed. Times Mirror Mosby College, St. Louis, 1985.				

Course code: 22BHFAP2	Allied Practical-IB	T/P	C	H/W
	FAMILY MEAL MANAGEMENT LAB	P	2	2
Objectives	To enable the students to: <ul style="list-style-type: none"> ➤ Learn the principles of meal planning. ➤ Plan & prepare meals for the family members at different income levels. ➤ Plan meals for special groups - infants, preschoolers, adolescents, pregnant & Lactating mothers and the aged. 			
PRACTICALS :				
<ol style="list-style-type: none"> 1. Basic principles of meal and menu planning. 2. Daily food guide - The 5 food groups, the use of the food groups. Food Costing. 3. Plan and Prepare diet for an adult man and woman during different physical activities - sedentary, moderate, heavy worker. 4. Plan and prepare a balanced diet for a pregnant woman and nursing mother. 5. Plan and prepare a balanced diet for infancy and prepare different types of weaning foods. 6. Plan and Prepare a balanced diet for a toddler and pre-school children 7. Plan and Prepare a balanced diet during school age 8. Plan and Prepare a balanced diet during adolescence 9. Plan and Prepare a balanced diet for senior citizen 				

Course code: 22BHFA3	Allied -IIA	T/P	C	H/W
	EARLY CHILDHOOD CARE AND EDUCATION	T	3	3
Objectives	<p>The course will enable the students to:</p> <ul style="list-style-type: none"> ➤ Understand the need and significance of early childhood care and education, ➤ Develop knowledge and skills in designing the curriculum for children below six years, ➤ Develop an insight into the educational thoughts of Indian and western educationists on ECCE. 			
Unit -I	<p>Concept and Significance of ECCE - Understanding terminologies, “Child”, “Childhood”, and “Early Childhood Care and Education”. Importance and significance of ECCE - Human right perspective. Contributions of Thinkers and Educationists in ECCE - educational thoughts of Frobel, John Dewey, Montessori, Gandhi, Tagore and Aurobindo on understanding of childhood.</p>			
Unit-II	<p>Policies and Programmes in ECCE in India - ECCE Policy Framework: National Policy on Education (1986), Article 45 in Indian Constitution and 86th Amendment, National Curriculum Framework (2005), National Policy on ECCE (2013); New Education Policy 2020. Programmes and provisions in ECCE in India: ICDS; Rajiv Gandhi Crèche Scheme; ECCE in SSA.</p>			
Unit -III	<p>Physical arrangements needed for an ideal ECCE centre – Building, site, safety, space; Furniture – types, shapes, safety. Other equipment – play equipment – selection, use and storage. Setting up the learning environment – indoor area, outdoor area, learning activity corners. Quality Standards as per ECCE policy.</p>			
Unit- IV	<p>Early Childhood Curriculum – Definition and concept of curriculum: Curriculum Approaches – Subject centered, learner centered, community centered. Developmentally Appropriate Practice (DAP) – definition, myths and consequences. Components and essential features of ECCE curriculum. Planning a DAP curriculum – approaches, key principles and types of plans.</p>			
Unit -V	<p>Organizational Management and Community Involvement Evaluation of ECCE, ECCE professionals - competence, skill and methodology – programmes - infrastructure, safety, school - Maintenance of records. Evaluation of pre school participation.</p>			
Reference and Textbooks				
<p>Aggarwal, J. C. (2007). <i>Early Childhood Care and Education: Principles and Practices</i>. Shipra: New Delhi.</p> <p>Arni, K. and Wolf G. (1999). <i>Child Art with Everyday Materials</i>. TARA Publishing.</p> <p>Fleer, M. (2010). <i>Early learning and development: Cultural –historical concepts in play</i>. Cambridge: Cambridge University Press</p> <p>Kaul, V. (2009). <i>Early Childhood Education Programme</i>. National Council of Educational Research and Training. Newdelhi.</p> <p>Mohanty, J. Mohanty, B. (1996). <i>Early childhood care and Education</i>. Deep And Deep Publication, New Delhi.</p> <p>Morrison, G. S. (2003). <i>Fundamentals of early childhood education</i>. Merrill/Prentice Hall:</p> <p>Muralidharan, R. and Banerji.V. (1989) A Guide Booklet of nNursery Teachers, New Delhi : NCERT.</p> <p>Swaminathan, M. (1998). <i>The First five Years</i>. Sage Publications.</p>				

Virginia Singh, A. (1995). *Playing to Learn: A training manual for Early Childhood Education*. M. S. Swaminathan Research Foundation.

Course code: 22BHFAP3	Allied Practical-IIA	T/P	C	H/W
	EARLY CHILDHOOD CARE AND EDUCATION LAB	P	2	2

PRACTICALS :

1. Visit to an Anganwadi and assess physical infrastructure facilities and resources available in the centre.
2. Visit to a Nursery school and assess physical infrastructure, facilities and resources available in the centre.
3. Identify, plan and record activities and methods of playful interactions to foster development in children birth – 2nd years and two - six years.
4. Methods and tools to assess progress of children – Growth chart and measurement of height, weight and mid arm circumference etc.
5. Prepare a short project on (anyone) :
 - a. Breast feeding practices and problems,
 - b. Supplementary feeding to children,
 - c. Prenatal care,
 - d. Problems in children's growth,
 - e. Childhood illness.
6. Preparation of Language Kits (anyone) :
 - a. Story telling techniques
 - b. Flash cards
 - c. Sequence cards
 - d. Alphabet cards
 - e. Colors and shapes
 - f. Vegetables and fruits cards
 - g. Visual discrimination booklets (pictures of animals, vehicles, etc.)
7. Prepare a collage on various development
8. Setting up a crèche /preschool.
9. Activities for cognitive development
10. Preparation of story and song books for young children.

Course code: 22BHFA4	Allied Course-IIB	T/P	C	H/W
	FOOD PRESERVATION AND BAKERY	T	3	3
Objectives	<ul style="list-style-type: none"> ➤ To make students understand about the mechanism of spoilage and deterioration in foods, the basic food preservation principles, and methods to preserve foods. ➤ To develop professional and practical knowledge in bakery and confectionary and make them competent as an entrepreneur 			
Unit -I	Food preservation – Definition, General Principles and Methods of Food Preservation. Preservation by addition of sugar – General principles and preparation method of jams, jellies, squashes and syrups. Preservation by addition of salt - Pickling. Preparation of Indian Pickles.			
Unit-II	<p>Preservation by Use of High Temperature – Pasteurization, Sterilization and their types. Canning – steps, types of cans, advantages, disadvantages. Bottling – steps, advantages, disadvantages.</p> <p>Food dehydration – concept of dehydration and sun drying. Types of driers – advantages, disadvantages.</p> <p>Radiation of Foods - Mode of action of irradiation, Microwave heating, properties of microwaves, applications in food processing and preservation.</p>			
Unit -III	<p>Preservation by use of Low Temperature, Types – Common types of cold storage, refrigeration – requirement of refrigerated storage, characteristic of refrigerant, refrigeration during transport, defects in cold storage. Freezing – Principles and methods of freezing, Advantages and disadvantages of freezing.</p> <p>Preservation with chemicals - Inorganic & Organic preservatives, Antibiotics and Mold inhibitors.</p>			
Unit- IV	Introduction to bakery - aims and objectives. Wheat flour and its role in bakery products. Wheat – type, varieties, composition, principles of flour milling, and their classification. Millet based Flour – types of flour incorporated items - biscuits, cake, pastry, snacks.			
Unit -V	<p>Other ingredients and their function in baking. Yeast – types, function, uses, effects of over and under fermentation. Eggs - composition, function in bakery and confectionery. Sugar – types, different forms and its uses. Fats – Composition, classification, function, effect of cooking. Milk products, emulsifiers, dried fruits, enzymes, cream, other leavening agents.</p> <p>Baking process – basic concepts, batch / continuous, dough mixing, dividing, moulding, panning, proofing and baking.</p>			
Reference and Textbooks				
Borvers, J. (1992). <i>Food Theory and Application</i> (2ndEd), New York: Maxwell MacMillan International Edition.				
Kent K. L. (1975). <i>Technology of Cereals – with special reference to Wheat</i> , New York: Pergamon Press.				
Manay, N. S. and Sharaswamy, S. M. (1997). <i>Foods: Facts and Principles</i> New Delhi: New Age International Publishers.				
Matz S. A. (1989). <i>Technology for Materials of Baking</i> , England: Elsevier Science Publishers.				
McWilliams, M (2007). <i>Foods: Experimental Perspectives</i> 5th Ed, New Jersey: Macmillan Publishing Co.				
Potter, N. N. and Hutchkiss, J. H. (1997). <i>Food Science</i> , 5th Ed, New Delhi: CBS Publishers and Distributors.				
Rick Parker (2003) <i>Introduction to Food Science</i> , New York: Delmar Thomson Learning.				
Scottsmith and Hui Y.H (Editors) (2004) <i>Food Processing – Principles and</i>				

Applications London Blackwell Publishing.

Subbulakshmi, G and Udipi, S. A. (2001). *Foods Processing and Preservation*, New Delhi: New Age International (P) Ltd. Publishing.

Sultan W. J. (1976). *Practical Baking Manual – for students and instructors*, West Port: AVI Publishing.

Swaminathan, M. (1995). *Food Science Chemistry and Experimental Food*. The Bangalore Printing and Publishing Co. Ltd.

Vacklavick, V. and Christian, E. (2003). *Essentials of Food Science*. New York: Kluwer Academic/ Plenum Publisher.

Course code:	Allied Practical-IIB	T/P	C	H/W
22BHFAP4	FOOD PRESERVATION AND BAKERY LAB	P	2	2

PRACTICALS :

A. Food Preservation

1. Preparation of product by using salt as preservative.
2. Preparation of product by using sugar as preservative.
3. Preparation of product by using oil as preservative
4. Preparation of Product by using chemicals preservative
5. Preparation of food product by Freeze drying and
6. Sensory analysis of preserved and processed foods.

A. Bakery

1. Preparation of sweet and salt biscuits
2. Preparation of wheat bread and milk bread
3. Preparation of sweet buns
4. Preparation of varieties of cookies
5. Preparation of varieties cakes
6. Preparation of pizza
7. Visit to production Module of a bakery.