

Programme	Class B.Sc First Year	Sem I and II
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SUBJECT HOME SCIENCE

Course Title: Medical Nutrition Therapy

Course Description This course prepares the students to use advanced knowledge about food and nutrition for prevention as well as treatment of diseases and also maintain human health. Dietetics focuses on food management through proper planning, preparation, monitoring, implementation and supervision of a patient's modified diet and to develop basic counselling skills as dietitian.

Learning Objectives

- Understand the role of dietitian and to maintain good nutritional status, correct deficiencies or disease conditions of the patients
- Gain knowledge on the principles of diet therapy and designing or formulating different therapeutic diets for various disease conditions
- Develop skill to plan and prepare therapeutic diets for prevention of disease conditions
- Diet therapy may include prescribing specialized dietary regimes or meal plans. As entrepreneur.

Learning Outcomes:

- Integrate knowledge of research principles and methods associated with nutrition and dietetics practice.
- Use effective and appropriate communication skills in providing information, advice and professional opinion to individuals, groups and communities.
- Collect, organize and assess data relating to the health and nutritional status of individuals, groups and populations.
- Demonstrate initiative and judgment using a professional, ethical and entrepreneurial approach advocating for excellence in nutrition and dietetics.
- Independently plan and execute a research project in regard to nutrition and dietetics practice.

CREDIT: 4	MINOR ELECTIVE
MAX. MARKS:25+50+25	MIN. PASSING MARKS:
TOTAL NO OF LECTURES-TUTORIALS-PRACTICAL(IN HOURS PER WEEK)	L-T-P:3-0-2

UNIT	TOPICS	NO. OF LECTURES
I	Concepts in diet therapy : Growth and Scope of Dietetics, Purposes and Principles of Therapeutic Diets, Modifications of Normal Diets, Classification of the Therapeutic Diets, Role of Dietitians, Characteristics of Dieticians, Diet Counseling, Team Approach to Nutritional Care, Principles of Food Prescription, Indian Dietetic Association, Computer Assisted Instructions (CAI) - Diet Planning using computers, Use of Technology in diet counseling.	10

II	Medical Nutrition Therapy in Obesity, Underweight and Diabetes Mellitus: Etiology, Pathophysiology, Clinical symptoms, metabolic alterations, Assessment/Indicators, Lifestyle & Dietary guidelines for the following conditions : Obesity (Bariatric Surgery: types, Management) , Underweight, Diabetes Mellitus (Acute and Chronic Complications of Diabetes Diet Modifications, Use of Food Exchange Lists, Insulin-Types and Use, Oral Hypoglycemic Agents, Carbohydrate counting, Glycemic Index, Glycemic Load)	10
III	Medical Nutrition Therapy in GastroIntestinal Disorders and Diseases of the liver: Etiology, Pathophysiology, Clinical Symptoms, Assessment/Indicators, Lifestyle & Dietary guidelines for the following conditions : Diarrhea,Dysentery, Constipation and Peptic Ulcer, Jaundice, Hepatitis, Fatty Liver, Cirrhosis, Hepatic Coma	10
IV	Medical Nutrition Therapy in Diseases of the Cardio Vascular System and Kidney Diseases: Etiology, Pathophysiology, Clinical Symptoms, Lifestyle & Dietary guidelines for the following conditions: Atherosclerosis, Hyperlipidemia, Ischemic Heart Disease,Congestive Heart Failure, Bypass Surgery Hypertension (DASH Diets) Nephrotic Syndrome Nephrolithiasis, Acute and Chronic Renal Failure, Dialysis – Principles and Types, Kidney Stones	10
V	Medical Nutrition Therapy for Fever, Food Allergy and Cancer Febrile Conditions: Acute and chronic infectious disease-Typhoid, Tuberculosis And HIV and AIDS a. Guidelines for management of tuberculosis and infectious diseases. Food Allergy - Definition, Causes, Science and Symptoms, Types of Allergy, Diagnosis, Dietary Modifications , Gluten sensitivity and Lactose intolerance, Cancer: Etiology, Metabolic alterations, Types of Cancer, Dietary Recommendation for Cancer Survivors. Nutritional therapy for Cancer	10
Practical Topics	Modification of Diets in Obesity, Modification of Diets in Underweight, Modification of Diets in Diabetes Mellitus, Diets for Febrile Conditions – TB, Typhoid, Diets for Cardiovascular diseases – Sodium Restricted, Fat Controlled, Modification of Overview/desk review on DASH diet, Mediterranean diet, Paleo diet, FODMAP diet, Keto diet VLCD etc.	10

Learning Experience

- Regular lectures, demonstrations, Exercises on observation and follow up with group discussions, case studies, ICT enabled teaching and learning experiences in terms of video lessons and documentary film shows.



Evaluation

Announced and unannounced class tests, seminars and assignments and Record works related to their Practical's

A. Internal Assessment	Marks
Weekly test	10
Group discussion	5
Quiz	5
Assignment	5

B. External Assessment/field work 50 Marks

C. Practical Exam

Report on types of diet	15
Viva -Voice	10

Reference

- Srilakshmi, B. Dietetics ,New Age International P. Ltd., New Delhi, 2018.
- Dietary Guidelines of Indians – A Manual, National Institute of Nutrition, Hyderabad, 2015.
- Garg, M. Diet, Nutrition and Health, ABD Publishers, 2006.
- Krause, M.V. and Mahan, L.K. Food, Nutrition and Diet Therapy, 9th Ed., W.B. Saunders Company, Philadelphia, 2019.
- Maimun Nisha, Diet Planning for Diseases, Kalpaz Publishers, 2016.
- Dietary Guidelines of Indians – A Manual, National Institute of Nutrition, Hyderabad, 2011.
- Brown, J (2014). Nutrition now (7thed). Wadsworth, USA, ISBN- 13:978-1-133-93653-4, ISBN 10:1-133-93653-9
- Nelms M, Sucher K (2015). Nutrition Therapy and Pathophysiology. (3rd edition) Cengage Learning, USA. ISBN-13: 978-1305111967, ISBN-10: 1305111966

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MA

CSA

Programme	Class B.Sc First Year	Sem I and II
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SUBJECT: HOME SCIENCE

Course Title: Techniques of Food Preservation

Course Description This course helps us to understand what is possible in the world of food preservation; then understanding the factors that cause food to deteriorate. Once you understand that, you proceed to study the different ways foods can be preserved from chemical treatments, to changing the environmental conditions (temperature, moisture content, etc.) Food preservation is something that should be understood by anyone who handles food; whether for their own use, or on a commercial basis.

Learning Objectives:

- To learn the principles behind the methods of preservations
- To understand the stages of cookery and chemical characteristics in the preservation of fruits and vegetables
- Able to formulate preserved food products
- Acquire skills to preserve different types of food items based on their perish ability.

Learning outcomes:

- Know the principles of preservation behind the methods of preservation
- Understand the stages of sugar cookery, quality of pectin and acidity in the development of preserved food products
- Acquire skills to formulate food based products
- Explore the principles of preservation in fruits and vegetables based products
- Skills to prepare cereals and pulse based preserved products and develop new products with retention of quality.

CREDIT: 3	SKILL DEVELOPMENT PROGRAMME
MAX. MARKS:25+75	MIN. PASSING MARKS:35
TOTAL NO OF LECTURES-TUTORIALS-PRACTICAL(IN HOURS PER WEEK)	L-T-P:2-0-2

UNIT	TOPICS	NO. OF LECTURES
I	Concept of Food Preservation: Importance of Food Preservation, Types of Food spoilage by Micro organisms and by Enzymes, Basic Principles of Food Preservation, Food preservatives- Use of Salt, Acid, Sugar, natural food preservatives and artificial preservatives, Starting a food preserving unit, Product Promotion strategies and marketing skills	6
II	Preparation of dehydrated products : Methods of drying & dehydration , different types of driers , freeze drying-lyophilisation , packing & storage, Drying methods for theselected products -Rice, Sago, Wheat, Maida, Rice flakes, black gram dhal, green gram dhal, Horse gram dhal	12

	Roots and Tubers, General tips with drying foods ,Preparation of salted, dehydrated, preserves (Traditional Indian varieties of chips, Papads, Khakharasetc and Masala Powders, onion, garlic, ginger powder etc) , Hands on experience :Dryingof vegetables- peas, potato, carrot, French beans, Reconstitution ofdried vegetables, Drying & preparation of powders- garlic, ginger, spices mix etc	
III	Preservation by Using Sugar: Role of Pectin in Preserved foods ,Stages in Sugar Cookery , Sugar Concentrates – Principles of Gel Formation , Hands on Experience:Preparation of Jam, Jelly, Marmalades, Sauce and Squash , Preserves, Candied, Glazed, Crystallized Fruits, Toffee, Evaluation of pH, Acidity and pectin quality , Visit to Fruits and Vegetable processing industry	12
IV	Preservation by Using Chemicals and Salts and Fermentation : Preparation and Preservation of Fruit Juices, RTS ,Pickling – Principles Involved and Types of Pickles, Chemical Preservatives – Definition, Role of Preservation, Permitted Preservatives, FSSAI guidelines, Foods fermented by Yeasts, Foods fermented by Bacteria, Common Fermented Foods, Wine and Cheese Making, Hands on experience: Pickle making , Visit to Commercial Pickle Manufacturing Food Industry and Wine industry	12
V	Preservation by Advanced Preservation Technology: Meaning and needs of freezing foods , Types of Freezing and managing freezers, Guidelines for types of frozen foods-Fruits, Vegetables, fish, meat and poultry, Smoking foods , Pasteurization and Sterilization, Food Irradiation, Vacuum Packing , Canning and Bottling, Food Packaging Materials for preserved food products, Hands on experience: Blanching of fruits & Vegetables, Visit to Food Industries	3

Learning Experiences : Regular lectures, Demonstrations, Exercises on observation and follow up with group discussions, case studies, ICT enabled teaching and learning experiences in terms of video lessons and documentary film shows. Hands on experience in laboratory and in food industries

Evaluation : Announced and unannounced class tests, seminars and assignments and Record works related to their Practical works.

A. Internal Assessment	Marks
Weekly test	10
Group discussion	5
Demonstration	5
Assignment	5

A. External Assessment/field work 50 Marks

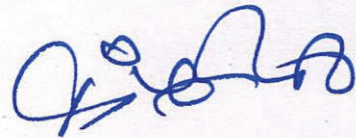
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Reference

- Srivastava R.P. (2012), Fruit and vegetable preservation – Principles and Practices, International Book Distributing Co., (IBDC), New Delhi.
- Maria Parloa (2009), canned fruit, preserves and jellies: Household methods of preparation, US Department of Agriculture, Washington.
- Shafiur, Rahman, M. (2007), Handbook of Food Preservation, 2 nd edition, CRC press, New Delhi.

Shaurabh





SUBJECT HOME SCIENCE

COURSE TITLE: ENERGY AND ENVIRONMENT

Course Description This course prepares the students to acquaint the students with, The physical environment and its components. The need for energy conservation and the action needed for checking environmental threats.

Learning Outcome

To identify the dimensions of environment.

To explore the energy sources, both renewable and non-renewable.

To implement the action needed for checking environmental threats.

Programme	Class B.Sc First Year	Sem I and II
CREDIT: 4	MINOR ELECTIVE	
MAX. MARKS: 100	MIN. MARKS:35	PASSING
TOTAL NO OF LECTURES-TUTORIALS-PRACTICAL(IN HOURS PER WEEK)	L-T-P:4-0-0	
UNIT	TOPICS	NO. OF LECTURES
Unit I	Introduction- Meaning and definition of energy and environment. Scope of the subject. Dimensions of environment. Sources of energy- renewable and non-renewable. Classification. Advantages and disadvantages of fossil fuels, wind energy, tidal energy, geothermal energy, hydel energy and nuclear energy	10
Unit II	Solar Energy Significance. Solar radiation. Solar collectors. Solar energy applications- Solar cooker, solar water heater, solar photovoltaic cell. Advantages and limitations of solar energy	9
Unit III	Biomass Energy Classification/Types of biomass. Biomass conversion process. Biogas generation. Factors affecting bio digestion. Classification/Types of biogas plants. Advantages and Limitations of biogas plants.	6
Unit IV	Land Pollution Land as a resource, Land pollution sources, Major health hazards, Waste management – classification of waste, characteristics, importance of waste management program, methods of solid waste disposal, methods of liquid waste treatment and disposal. Concept of Micro-plastic	10
Unit V	Air and Water Pollution Air pollutants, Sources, Health hazards. Greenhouse effect, acid rain and ozone layer depletion- causes, effects and control measures. Water as a resource. Water pollution- sources and pollutants. Health hazards. Water management- ways of augmenting water resources - rain water harvesting, irrigation- drip and	15

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	sprinkler methods. Water purification techniques, Water quality and standards	
Unit VI	Environmental Protection Need, Environmental Protection programs, laws and social movements.	10

Learning Experience

• Regular lectures, Exercises on observation and follow up with group discussions, case studies, ICT enabled teaching and learning experiences in terms of video lessons and documentary film shows.

Evaluation

Announced and unannounced class tests, seminars and assignments and Case study discussions

Serial No	Mode of Evaluation	Total Marks
1	Assignment	10
2	Quarterly Test	05
3	Quiz	10
4	Examination	75

Reference

1. Jadhav .H. V (1977), Energy and Environment ,Himalaya Publishers, Mumbai
2. Pawar.S.N and Patil, R.B(1998)Sociology of Environment, Rawat Publisher, Jaipur.
3. Karpagam,M(1993),Environmental Economics :A Text book, Sterling Publishers, NewDelhi.
4. Vrshney,.C.K.Water Pollution and Management(1983)
5. Pal.C Environment Pollution and Development: Environmental Law, Policy and role of Industry ,Mittal Publishers NewDelhi(1999)
6. Ghanta R and Rao,B.D :Environmental Education Problems and Prospects, NewDelhi,(1998)
7. Mark L Brusseau, Ian L Pepper, Chrales Gerba (2019), Environmental and Pollution Science, 3rd ed. , Academic Press

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