

ASB
51

COURSE: B.A. Programme

DISCIPLINE: Nutrition and Health Education (NHE)

SEMESTER MODE

NUMBER OF PAPERS: 6

SCHEME OF EXAMINATION

Semester	Paper no.	Title of paper	Subject code		Maximum marks	Credits	Duration of exam
			old	proposed			
I	1	Introduction to food, nutrition and health	A158	1158	100	4	3 hours
II	2	Life cycle nutrition		2158 Theory	50	2	2 hours
				Practical	50	2	3 hours
III	3	Public health nutrition I	B158	3158	100	4	3 hours
IV	4	Public health nutrition II		4158 Theory	50	2	2 hours
				Practical	50	2	3 hours
V	5	Community nutrition I	C158	5158 Theory	50	2	2 hours
VI	6	Community nutrition II		Practical	50	2	3 hours
				6158	100	4	3 hours

As per University guidelines, for all **theory** papers, 25% marks are reserved for internal assessment.

COURSE: B.A. PROGRAMME
DISCIPLINE: Nutrition and Health Education (NHE)

Semester I: Paper No. 1

Title of Paper: Introduction to food, nutrition and health

Subject code: 1158

Maximum marks: 100

Duration of examination: 3 hours

Periods/week: 4+1 tutorial

Periods in semester: 48

Objectives:

1. To familiarize students with fundamentals of food, nutrients and their relationship to health
2. To create awareness with respect to deriving maximum benefit from available food resources

CONTENTS

UNIT 1 Fundamental concepts

4 periods

- Basic concepts of food, nutrition and health
- Determinants of good health
- Functions of food

UNIT II Elementary knowledge of nutrients

20 periods

- Energy- factors affecting energy requirements

Functions, food sources, deficiency and excess of the following:

- Carbohydrates including dietary fibre
- Proteins and amino acids
- Lipids- fats and fatty acids; cholesterol and lipoprotein fractions
- Vitamins
 - Fat soluble vitamins: A, D, E, K
 - Water soluble vitamins: B₁, B₂, B₃, B₆, folic acid and B₁₂, vitamin C
- Minerals: calcium, phosphorus, sodium potassium, iron, zinc, iodine, fluoride
- Water

UNIT III Food guide

10 periods

- Food groups and food pyramid
- Introduction to different foods
- Balanced diet
- Novel foods- convenience foods, fast foods, organic foods, GM foods, health foods

UNIT IV Food preparation and processing

14 periods

- Selection and storage of foodstuffs at household level
- Methods of cooking and their effects on nutrients and non nutritional components
- Ways and means of conserving nutrients during food preparation
- Ways and means of enhancing nutrients during food preparation
- Food preservation
 - Causes of food spoilage
 - Principles of preservation
 - Methods of preservation at household level

Recommended readings:

1. Mudambi, SR and Rajagopal, MV. Fundamentals of Foods, Nutrition and Diet Therapy; Fifth Ed; 2007; New Age International Publishers
2. Mudambi, SR, Rao SM and Rajagopal, MV. Food Science; Second Ed; 2006; New Age International Publishers
3. Srilakshmi B. Nutrition Science; 2002; New Age International (P) Ltd.
4. Srilakshmi B. Food Science; Fourth Ed; 2007; New Age International (P) Ltd.
5. Swaminathan M. Handbook of Foods and Nutrition; Fifth Ed; 1986; BAPPCO.
6. Bamji MS, Rao NP, and Reddy V. Text Book of Human Nutrition; 2009; Oxford & IBH Publishing Co. Pvt Ltd.
7. Wardlaw GM, Hampl JS. Perspectives in Nutrition; Seventh Ed; 2007; McGraw Hill.
8. Lakra P, Singh MD. Textbook of Nutrition and Health; First Ed; 2008; Academic Excellence.
9. Manay MS, Shadaksharaswamy. Food-Facts and Principles; 1998; New Age International (P) Ltd.
10. Potter NN, Hotchkiss JH. Food Science; Fifth Ed; 1997; CBS Publishers and Distributors.
11. Jain P et al. *Poshan va swasthya ke mool siddhant (Hindi)*; First Ed; 2007; Academic Pratibha.
12. Vrinda S. *Aahar Vigyan (Hindi)*; 2003; Shyam Prakashan.

Semester II: Paper No. 2

Title of Paper: Life cycle nutrition (Theory)

Subject code: 2158

Maximum marks: 50

Duration of examination: 2 hours

Periods/wcek: 2+1 tutorial

Periods in semester: 24

Objectives:

1. To enable students to formulate balanced diets for various age groups.
2. To enhance their skills as meal planners who will be equipped to satisfy special nutritional needs of vulnerable groups.

CONTENTS

UNIT I Meal planning

4 periods

- Fundamentals of meal planning
- Factors affecting meal planning

UNIT II Nutritional needs during the life cycle

20 periods

- Nutritional needs and feeding pattern during the following age groups:
 - Infancy: breast feeding and complementary feeding
 - Preschool children
 - School going children and adolescents

- Nutritional requirements and diet pattern for the following age groups at different income levels:
 - Adults including concept of reference man and woman
 - Pregnancy
 - Lactation
 - Old age

Semester II: Paper No. 2

Title of paper: Life cycle nutrition (Practical)

Subject code: 2158

Maximum marks: 50

Practicals/week: 1 (4 periods)

Practicals in semester: 12

Objectives:

1. To develop in students, the concept of portion sizes
2. To impart basic cooking skills and healthy cooking practices

Content:

Planning and preparation of balanced diets and nutritious snacks for various age groups:

- Infancy- complementary foods **1 practical**
- Children and adolescents **3 practicals**
- Adults including pregnancy and lactation **6 practicals**
- Elderly **2 practicals**

Recommended readings:

1. Mudambi, SR and Rajagopal, MV. Fundamentals of Foods, Nutrition and Diet Therapy; Fifth Ed; 2007; New Age International Publishers
2. Wardlaw GM, Hampl JS. Perspectives in Nutrition; Seventh Ed; 2007; McGraw Hill.
3. Edelstein S, Sharlin J (ed). Life Cycle Nutrition- An Evidence Based Approach; 2009; Jones and Barlett Publishers.
4. Khanna K et al. Textbook of nutrition and dietetics; 1997; Phoenix Publisher.
5. Sharma S, Wadhwa A. Nutrition in the community- A textbook; 2003; Elite Publishing House Pvt. Ltd.
6. Jain P et al. *Poshan va swasthya ke mool siddhant (Hindi)*; First Ed; 2007; Academic Pratibha.
7. Malhan, Gupta, Jain. *Aahar aayojan, khadya sangrakshan evam griha vyavastha (Hindi)*; 1993; Sultan Chand & Sons Publishing.
8. Vrinda S. *Aahar Vigyan (Hindi)*; 2003; Shyam Prakashan.
9. Ghosh S. Nutrition and child care- A practical guide; 1997; Jaypee Bros.
10. Savage King F, Burgess A. Nutrition for developing countries; Second Ed; 1993; Oxford University Press.
11. Dietary guidelines for Indians- A Manual; 2003; NIN, ICMR, Hyderabad.
12. Gopalan, C et al. Nutritive Value of Indian foods; 1994; NIN, ICMR, Hyderabad.
13. Raina U, Kashyap S et al. Basic Food Preparation-Complete Manual; Third Ed. 2003; Orient Longman

Semester III: Paper No. 3
Title of Paper: Public health nutrition I
Subject code: 3158

Maximum marks: 100
Duration of examination: 3 hours
Periods/week: 4+1 tutorial
Periods in semester: 48

Objectives:

1. To create awareness among students about dangers to health due to faulty lifestyles and environment.
2. To impart knowledge about various aspects of food safety in order to create consumer awareness.

CONTENTS

UNIT I Introduction to PHN

- Definition of PHN
- Levels of health care services

4 periods

UNIT II Lifestyle related diseases

Causes, symptoms and prevention through dietary/ lifestyle modification of the following:

16 periods

- Obesity
- Diabetes mellitus with special emphasis on Type II DM
- Hypertension
- Cardiovascular disease

UNIT III Environmental health

- Water pollution
 - Causes and effects
 - Domestic purification of water
- Air pollution: causes and effects
- Soil pollution: causes and effects

10 periods

UNIT IV Food safety and hygiene

- Concept of food safety
- Food safety measures: basic concept of HACCP
- Maintaining food hygiene at household level
- PFA definition of food adulteration
- Adulterants in commonly consumed food items
- Accidental contamination: botulism, staphylococcal and aflatoxin intoxication
- Importance of food labels in processed foods
- Food laws, regulations and standards
 - Codex Alimentarius
 - Prevention of Food Adulteration (PFA) Act
 - Agmark
 - Fruit Products Order (FPO)
 - Meat Products Order (MPO)
 - Bureau of Indian Standards (BIS)

18 periods

Recommended readings:

1. Mudambi, SR and Rajagopal, MV. Fundamentals of Foods, Nutrition and Diet Therapy; Fifth Ed; 2007; New Age International Publishers
2. Mudambi, SR, Rao SM and Rajagopal, MV. Food Science; Second Ed; 2006; New Age International Publishers.
3. Wardlaw GM, Hampl JS. Perspectives in Nutrition; Seventh Ed; 2007; McGraw Hill.
4. Shils et al. Modern Nutrition in Health and Disease; Tenth Ed; 2006; Lippincott Williams and Wikins.
5. Gibney et al. Public Health Nutrition; 2004; Blackwell Publishing
6. Khanna K et al. Textbook of Nutrition and Dietetics; 1997; Phoenix Publisher.
7. Sharma S, Wadhwa A. Nutrition in the Community- A textbook; 2003; Elite Publishing House Pvt. Ltd.
8. Lakra P, Singh MD. Textbook of Nutrition and Health; First Ed; 2008; Academic Excellence.
9. Jain P et al. *Poshan va swasthya ke mool siddhant (Hindi)*; First Ed; 2007; Academic Pratibha.
10. Jain P. Principles and Practice of Medicine; 2004; Life Publication.
11. Bharucha E. Textbook of Environmental Studies; 2005; Universities Press.
12. Rajagopalan R. Environmental Studies: From Crisis to Cure; 2005; Oxford University Press.

Semester IV: Paper No. 4

Title of Paper: Public health nutrition II (Theory)

Subject code: 4158

Maximum marks: 50

Duration of examination: 2 hours

Periods/week: 2+1 tutorial

Periods in semester: 24

Objectives:

1. To enable students to identify and contribute to the prevention of public health/ social health problems in the country.
2. To equip students with workable knowledge to treat common illnesses at home.

CONTENTS

UNIT I Nutritional deficiency diseases

14 periods

Causes, symptoms, treatment, prevention and relevant government programmes for the following:

- Protein Energy Malnutrition (PEM)
- Vitamin A Deficiency (VAD)
- Iron Deficiency Anaemia (IDA)
- Iodine Deficiency Disorders (IDD)
- Zinc Deficiency

UNIT II Diet during common illnesses

Types, causes and dietary management of the following:

- Fevers
- Diarrhea
- Constipation

6 periods

UNIT III Social health problems

- Smoking
- Alcoholism
- Drug addiction
- AIDS including AIDS Control Programme

4 periods

Semester IV: Paper no. 4

Title of Paper: Public health nutrition (Practical)

Subject code: 4158

Maximum marks: 50

Practicals/week: 1 (4 periods)

Practicals in semester: 12

Objectives:

1. To enable the students to develop recipes for treating various nutritional deficiencies
2. To develop in them the skill to modify normal diets for disease conditions

Content:

- Planning and preparation of snacks for PEM, VAD and IDA **6 practicals**
- Planning and preparation of diets for fever, diarrhea and constipation **6 practicals**

Recommended readings:

1. Mudambi, SR and Rajagopal, MV. Fundamentals of Foods, Nutrition and Diet Therapy; Fifth Ed; 2007; New Age International Publishers
2. Wardlaw GM, Hampl JS. Perspectives in Nutrition; Seventh Ed; 2007; McGraw Hill..
3. Gibney et al. Public Health Nutrition; 2004; Blackwell Publishing
4. Khanna K et al. Textbook of Nutrition and Dietetics; 1997; Phoenix Publisher.
5. Sharma S, Wadhwa A. Nutrition in the Community- A textbook; 2003; Elite Publishing House Pvt. Ltd.
6. Srilakshmi B. Dietetics; Fourth Ed; 2002; New Age International (P) Ltd.
7. Bamji MS, Rao NP, and Reddy V. Text Book of Human Nutrition; 2009; Oxford & IBH Publishing Co. Pvt Ltd.
8. Lakra P, Singh MD. Textbook of Nutrition and Health; First Ed; 2008; Academic Excellence
9. Jain P et al. *Poshan va swasthya ke mool siddhant (Hindi)*; First Ed; 2007; Academic Pratibha.
10. Malhan, Gupta, Jain. *Aahar aayojan, khadya sangrakshan evam griha vyavastha (Hindi)*; 1993; Sultan Chand & Sons Publishing.

Semester V: Paper No. 5
Title of Paper: Community nutrition I (Theory)
Subject code: 5158

Maximum marks: 50

Duration of examination: 2 hours

Periods/week: 2+1 tutorial

Periods in semester: 24

Objectives:

1. To develop, in students, skills for extension work.
2. To equip students to conduct nutritional status assessment of communities

CONTENTS

- | | |
|---|------------------|
| UNIT I Extension education | 8 periods |
| <ul style="list-style-type: none">• Extension education: meaning and definition• Extension methods:<ul style="list-style-type: none">- Individual approach: personal contact, home visits, personal letters- Group approach: lectures, demonstrations, discussion meetings, tours, use of local leaders- Mass approach: television, radio/ recordings, films, newspaper, printed matter, circular letters, exhibitions, campaigns etc. | |
| UNIT II Teaching aids in community nutrition (part I) | 8 periods |
| <ul style="list-style-type: none">• Definition and importance of audio-visual (AV) aids• Classification of teaching aids• Non-projected aids: advantages, limitations and types | |
| UNIT III Nutritional status assessment | 8 periods |
| <ul style="list-style-type: none">• Importance of assessment• Methods of assessment: an introduction• Anthropometric assessment of PEM<ul style="list-style-type: none">- Height- Weight- MUAC- Importance of growth charts• Diet surveys- methods and analysis | |

Semester V: Paper No. 5
Title of Paper: Community nutrition (Practical)
Subject code: 5158

Maximum marks: 50
Practicals/week: 1 (4 periods)
Practicals in semester: 12

Objectives:

1. To train students to prepare simple visual aids with locally available material
2. To train students to use tools for nutritional status assessment

Content:

1. Preparation of simple visual aids for nutrition and health education **4 practicals**
2. Diet assessment of self **2 practicals**
3. Anthropometric assessment: demonstration of tools used **2 practicals**
4. Development of questionnaires for conducting survey studies in the areas of nutrition and health **4 practicals**

Recommended readings:

1. Wadhwa, A. and Sharma, S. Nutrition in the Community; 2003; Elite Publishing House Pvt. Ltd.
2. Supe, S.V. An introduction to Extension Education; 1983; Oxford & IBH.
3. Werner, D., Bower, B. Helping Health Workers Learn; 1983; Voluntary Health Association of India.
4. Dahama OP, Bhatnagar OP. Education and Communication for Development; 1985; Oxford & IBH.
5. Webster-Gandy J et al (ed.). Oxford Handbook of Nutrition and Dietetics; 2006; Oxford University Press.
6. Gibney et al. Public Health Nutrition; 2004; Blackwell Publishing
7. Ghosh, S. Feeding and Care of Infants and Young Children; 1985; Voluntary Health Association of India.

Semester VI: Paper No. 6
Title of Paper: Community nutrition II
Subject code: 6158

Maximum marks: 100
Duration of examination: 3 hours
Periods/week: 4+1 tutorial
Periods in semester: 48

Objectives:

1. To develop in students, skills to impart nutrition and health education to the community.
2. To create awareness in them about efforts undertaken to combat malnutrition.

CONTENTS

UNIT I Communication 10 periods

- Communication: meaning, definition
- Importance of communication
- Elements of communication
- Models of communication
- Barriers in communication: physical, social and psychological

UNIT II Nutrition and health education 12 periods

- Meaning and definition of nutrition education
- Importance of nutrition education
- Concept of communication for behaviour change (CBC)
- Planning nutrition and health education programmes for the community
- Constraints of nutrition education

UNIT III Teaching aids in community nutrition (part II) 10 periods

- Projected aids: advantages, limitations and types
- Use of traditional folk media- songs, drama, story telling, puppets
- Use of computers and internet in nutrition education

UNIT IV National level nutrition and health programmes 8 periods

- Integrated Child Development Services (ICDS) scheme
- Mid day meal (MDM) programme
- Universal immunization programme
- Diarrheal diseases control programme

UNIT V Role of national/ international agencies in nutrition/ health activities 8 periods

- Voluntary Health Association of India (VHAI)
- National Institute of Public Cooperation and Child Development (NIPCCD)
- United Nations Children's Fund (UNICEF)
- World Food Programme (WFP)
- Cooperation for American Relief Everywhere (CARE)

Recommended readings:

1. Wadhwa, A. and Sharma, S. Nutrition in the Community; 2003; Elite Publishing House Pvt. Ltd.
2. Supe, S.V. An introduction to Extension Education; 1983; Oxford & IBH.
3. Werner, D., Bower, B. Helping Health Workers Learn; 1983; Voluntary Health Association of India.
4. Dahama OP, Bhatnagar OP. Education and Communication for Development; 1985; Oxford & IBH.