SYLLABUS
FOR
B.A

NUTRITION AND HEALTH

EDUCATION

CHOICE BASED CREDIT SYSTEM

2016-2017 ONWARDS

ANNEXURE – I
HOME SCIENCE DEPARTMENT
HIMACHAL PRADESH UNIVERSITY

SCHEME AND SYLLABUS FOR CHOICE BASED CREDIT SYSTEM IN B.A NUTRITION AND HEALTH EDUCATION TO BE IMPLEMENTED FROM THE SESSION 2016-2017 ONWARDS

CONTENTS

Sr. No	Course	Course Name	Semester	Course Code	Award Type	Credits	Marks	
							Min	Max
SEMESTER-I								
1.	Core Course	English/MIL-1	I	Common for all Students				
	Ability Enhancement Compulsory Course (AECC)	(English/MIL communication) Or Environmental Science	I	Common for all Students				
	NHE Core -1A	Fundamentals of Nutrition and Food Science	I	BANHE 101	Theory (ESE)	2	18	40
	NHE Core -1A	Fundamentals of Nutrition and Food Science	I	BANHE 101(P)	Practical (ESE)	2	14	30
	NHE Core -1A	Fundamentals of Nutrition and Food Science	I	BANHE 101	Internal Assessment (CCA)	2	14	30
	Core Course	DSC-2A (Choice based course from other discipline)	I					
SEMESTER-II								
	Core Course	English/MIL-1	II	Common for all Students				
	Ability Enhancement Compulsory	(English/MIL communication) Or	II	Common for all Students				

	Course (AECC)	Environmental Science						
2.	NHE Core -2A	Nutrition for the Family	II	BANHE 202	Theory (ESE)	2	18	40
	NHE Core -2A	Nutrition for the Family	II	BANHE 202(P)	Practical (ESE)	2	14	30
	NHE- Core -2A	Nutrition for the Family	II	BANHE 202(A)	Internal Assessment (CCA)	2	14	30
	Core Course	DSC-2B (Choice based course from other discipline)	II					
SEMESTER-III								
	Core Course	English/MIL-2	III					
3.	NHE Core -3A	Introduction to Food Safety	III	BANHE 303	Theory (ESE)	2	18	40
	NHE Core -3A	Introduction to Food Safety	III	BANHE 303(P)	Practical (ESE)	2	14	30
	NHE Core -3A	Introduction to Food Safety	III	BANHE 303(A)	Internal Assessment (CCA)	2	14	30
	NHE SEC-1	Home based Catering	III	BANHE 304	Theory (ESE)	1	14	30
4.	NHE SEC-1	Home based Catering	III	BANHE 304(A)	Internal Assessment (CCA)	1	4	10
	Core Course	DSC-3B (Choice based course from other discipline)	II					
SEMESTER-IV								
	Core Course	English/MIL-2	IV					

5.	NHE Core -4A	Public Health Nutrition	IV	BANHE 405	Theory (ESE)	2	18	40
	NHE Core -4A	Public Health Nutrition	IV	BANHE 405(P)	Practical (ESE)	2	14	30
	NHE Core -4A	Public Health Nutrition	IV	BANHE405(A)	Internal Assessment (CCA)	2	14	30
	Core Course	DSC-4B (Choice based course from other discipline)	IV					
6.	NHE SEC-2	Nutrition and Fitness	IV	BANHE 406	Theory (ESE)	1	14	30
	NHE SEC-2	Nutrition and Fitness	IV	BANHE 406(A)	Internal Assessment (CCA)	1	4	10
SEMESTER-V								
7.	NHE SEC-3	Maternal and Child Nutrition	V	BANHE 507	Theory (ESE)	1	14	30
	NHE SEC-3	Maternal and Child Nutrition	V	BANHE 507(A)	Internal Assessment (CCA)	1	4	10
8.	NHE DSE-1	Public Nutrition	V	BANHE 508	Theory (ESE)	2	18	40
	NHE DSE-1	Public Nutrition	V	BANHE 508(P)	Practical (ESE)	2	14	30
	NHE DSE-1	Public Nutrition	V	BANHE 508(A)	Internal Assessment (CCA)	2	14	30
	NHE GE-1	Human Nutrition	V	BANHE 509	Theory (ESE)	2	18	40
	NHE-GE-1	Human Nutrition	V	BANHE 509(P)	Practical (ESE)	2	14	30

9.	NHE GE-1	Human Nutrition	V	BANHE 509(A)	Internal Assessment (CCA)	2	14	30
SEMESTER-VI								
10.	NHE-SEC-4	Food and Nutrition	VI	BANHE 610	Theory (ESE)	1	14	30
	NHE SEC-4	Food and Nutrition	VI	BANHE 610(A)	Internal Assessment (CCA)	1	4	10
11.	NHE DSE-2	Therapeutic Nutrition	VI	BANHE 611	Theory (ESE)	2	18	40
	NHE DSE-2	Therapeutic Nutrition	VI	BANHE 611(P)	Practical (ESE)	2	14	30
	NHE DSE-2	Therapeutic Nutrition	VI	BANHE 611(A)	Internal Assessment (CCA)	2	14	30
12.	NHE GE-2	Nutrition: A Lifespan Approach	VI	BANHE 612	Theory (ESE)	2	18	40
	NHE GE-2	Therapeutic Nutrition	VI	BANHE 612(P)	Practical (ESE)	2	14	30
	NHE GE-2	Therapeutic Nutrition	VI	BANHE 612(A)	Internal Assessment (CCA)	2	14	30

ANNEXURE – II

DISTRIBUTION OF MARKS FOR CONTINUOUS COMPREHENSIVE ASSESSMENT IN EACH COURSE IN EACH SEMESTER

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(1) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

i) Ten MCQ's of ½ marks each = 5 marks.
ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

ANNEXURE – III

Paper Setting Scheme for Semester Term End Examination

Maximum marks: 40 **Minimum marks: 18** **Maximum time: 3 hrs.**

1. **Instructions for Paper setters:**
   The question paper will consist of 5 sections:

   A. Compulsory
   B. Unit I
   C. Unit II
   D. Unit III
   E. Unit IV

   Section A : It will be compulsory consisting of 12 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 3 short answer type questions of 2 marks each covering the entire syllabus.

   Section B: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

   Section C: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

   Section D: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

   Section E: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

   Total marks: 12+7+7+7+7 = 40

2. **Instructions for the students**:
   The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

ANNEXURE – IV

Paper Setting Scheme for Semester Term End Practical Examination

Maximum marks: 30 **Minimum marks: 14** **Maximum time: 3 hrs.**

1. **Instructions for Paper setters and candidates:**
   Laboratory examination will consist of three parts:
   (i) Performing a practical exercise assigned by the examiner – 20 marks
   (ii) Viva voce examination – 5 marks
   (iii) Practical file – 5 marks

Note: Viva voce examination will be related to the practical performed / seminar / assignment done by the candidate related to the paper during the course of the semester.

B.A. NUTRITION AND HEALTH EDUCATION

Category of Paper	Name of Papers	Theory Credits	Practical/ Tutorial Credits
Discipline Specific Course (DSC)	**1. Fundamentals of Nutrition and Food Science**	4	2
	2. Nutrition for the Family	4	2
	3. Introduction to Food Safety	4	2
	4. Public Health Nutrition	4	2
Discipline Specific Elective (DSE)	**1. Public Nutrition**	4	2
	2. Therapeutic Nutrition	4	2
Skill Enhancement Course (SEC)	**1. Home Based Catering**	2	
	2. Nutrition and Fitness	2	
	3. Maternal and Child Nutrition	2	
	4. Food & Nutrition		2
Generic Electives (GE)	**1. Human Nutrition**	2	
	2. Nutrition: A Life Span Approach	4	2

B.A. NUTRITION AND HEALTH EDUCATION

SEMESTER-I

BANHE101: FUNDAMENTALS OF NUTRITION AND FOOD SCIENCE (DSC)

(CREDITS: THEORY-4, PRACTICAL-2)

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.

Distribution of marks for Continuous Comprehensive Assessment

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(1) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

(i) Ten MCQ's of ½ marks each = 5 marks.
(ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

Semester Term End Examination

Maximum marks: 40 **Minimum marks: 18** **Maximum time: 3 hrs.**

(2) **Instructions for Paper setters:**
The question paper will consist of 5 sections:

A Compulsory
B Unit I
C Unit II
D Unit III
E Unit IV

Section A : It will be compulsory consisting of 12 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 3 short answer type questions of 2 marks each covering the entire syllabus.

Section B: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section C: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section D: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section E: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Total marks: 12+7+7+7+7 = 40

3. **Instructions for the students**:
The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

THEORY **LECTURES: 60**

UNIT 1 Basic concepts in food and nutrition **5**

Basic terms used in study of food and nutrition

Understanding relationship between food, nutrition and health

Functions of food - Physiological, psychological and social

UNIT II Nutrients **20**

Functions, dietary sources and clinical manifestations of deficiency/excess of the following nutrients:

Carbohydrates, lipids and proteins

Fat soluble vitamins - A, D, E and K

Water soluble vitamins – thiamin, riboflavin, niacin, pyridoxine, folate, vitamin B_{12} and Vitamin C

Minerals – calcium, iron and iodine

UNIT III Food Groups **25**

Selection, nutritional contribution and changes during cooking of the following food groups:

Cereals

Pulses

Fruits and vegetables

Milk & milk products

Eggs

Meat, poultry and fish

Fats and Oils

UNIT IV Methods of Cooking and Preventing Nutrient Losses **10**

Dry, moist, frying and microwave cooking

Advantages, disadvantages and the effect of various methods of cooking on nutrients

Minimizing nutrient losses

BANHE101 (P) **PRACTICAL** **30 periods**

OBJECTIVES

1. Weights and measures; preparing market order and table setting
2. Food preparation, understanding the principles involved, nutritional quality and portion size

- Beverages: Hot tea/ coffee, Milk shake/ lassi, fruit based beverages
- Cereals: Boiled rice, pulao, chapatti, parantha, puri, pastas
- Pulses: Whole, dehusked
- Vegetables: curries, dry preparations
- Milk and milk products: Kheer, custard
- Egg preparations: Boiled, poached, fried, scrambled, omelette
- Soups: Broth, plain and cream soups
- Baked products: Plain cake, Marble cake, Sponge cake
- Snacks: pakoras, cutlets, upma, poha, sandwiches
- Salads: salads and salad dressings

RECOMMENDED READINGS

Mudambi, S.R and Rajagopal, M V. Fundamentals of Foods, Nutrition and Diet Therapy; Fifth Ed; 2012; New Age International Publishers

Mudambi, S. R, Rao, S.M and Rajagopal, M.V. Food Science; Second Ed; 2006; New Age International Publishers

Srilakshmi, B. Nutrition Science; 2012; New Age International (P) Ltd.

Srilakshmi, B. Food Science; Fourth Ed; 2010; New Age International (P) Ltd.

Swaminathan, M. Hand book of Foods and Nutrition; Fifth Ed; 1986; BAPPCO.

Bamji, M.S, Rao,N.P and Reddy, V. Text Book of Human Nutrition; 2009; Oxford & IBH Publishing Co. Pvt. Ltd.

Wardlaw, G.M, Hampl, J.S. Perspectives in Nutrition; Seventh Ed; 2007; McGrawHill.

Lakra, P., Singh, M.D. Textbook of Nutrition and Health; First Ed; 2008; Academic Excellence.

Manay, M.S, Shadaksharaswamy. Food – Facts and Principles; 2004; New Age International (P) Ltd.

Potter, N.N, Hotchkiss, J.H. Food Science; Fifth Ed; 2006; CBS Publishers and Distributors.

Sethi, P. and Lakra, P. Aahaar Vigyaan, Poshan Evam Suruksha, Elite Publishing House, 2015

Jain, P *et al*. *Poshan vaswasthya ke mool siddhant* (*Hindi*); First Ed; 2007; Acadamic Pratibha.

Vrinda, S. *Aahar Vigyan* (Hindi); 2003; Shyam Prakashan

Suri, S.and Malhotra, A. Food Science, Nutrition & Food Safety. Pearson India Ltd. 2014.

Raina, U, Kashyap, S, Narula, V, Thomas, S, Suvira,Vir, S, Chopra, S. Basic Food Preparation – A Complete Manual. Orient Longman, 2005.

Khanna, K, Gupta, S, Seth R, Mahana, R, Rekhi, T. The Art and Science of Cooking. Phoenix Publishing House Private Limited, Delhi, 1998.

SEMESTER-II

BANHE202: NUTRITION FOR THE FAMILY (DSC)

(CREDITS: THEORY-4, PRACTICAL-2)

OBJECTIVES

1. To enable the students to understand the concepts of balanced diet, various food groups, recommended dietary allowances.
2. To understand the concept of meal planning, nutritional requirements of different age groups.

Distribution of marks for Continuous Comprehensive Assessment

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(1) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

(i) Ten MCQ's of ½ marks each = 5 marks.

(ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

Semester Term End Examination

Maximum marks: 40 **Minimum marks: 18** **Maximum time: 3 hrs.**

(3) **Instructions for Paper setters:**
The question paper will consist of 5 sections:

A Compulsory
B Unit I
C Unit II
D Unit III
E Unit IV

Section A : It will be compulsory consisting of 12 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 3 short answer type questions of 2 marks each covering the entire syllabus.

Section B: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section C: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section D: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section E: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Total marks: 12+7+7+7+7 = 40

4. **Instructions for the students**:

The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

THEORY **LECTURES: 60**

UNIT I Basic concepts of meal planning **14**

- Food groups and concept of balanced diet
- Food exchange list
- Concept of Dietary Reference Intakes
- Factors effecting meal planning and food related behavior

UNIT II Nutrition during the adult years **20**

Physiological changes, RDA, nutritional guidelines, nutritional concerns and Healthy food choices

- Adult
- Pregnant woman
- Lactating mother
- Elderly

UNIT III Nutrition during childhood **20**

Growth and development, growth reference/standards, RDA,

Nutritional guidelines, nutritional concerns and healthy food choices in:

- Infants
- Preschool children
- Schoolchildren .
- Adolescents

UNIT IV Dietary Pattern of Adults **6**

- Dietary guidelines for Indians
- Food pyramid
- Balanced Diet and the factors affecting the planning of diets

BANHE202 (P) **PRACTICAL** **30 periods**

OBJECTIVES

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

Introduction to meal planning

- Use of food exchange list
- Planning and preparation of diets and dishes
    - For young adult
    - Pregnant and Lactating woman
    - Pre-school child
    - School age child and adolescents
    - Elderly

RECOMMENDED READINGS

Edelstein, S, Sharlin, J (ed). Life Cycle Nutrition – An Evidence Based Approach; 2009; Jones and Barlett Publishers.

Khanna, K *et. al*. Textbook of Nutrition and Dietetics; 2013; Phoenix Publisher.

Sharma, S., Wadhwa, A. Nutrition in the Community - A textbook; 2003; Elite Publishing House Pvt. Ltd.

Jain, P *et. al*. *Poshan vaswasthya ke mool siddhant* (*Hindi*); FirstEd; 2007; Acadamic Pratibha.

Malhan, Gupta, Jain .*Aaharaayojan, khadya sangrakshan evam grihavyavastha*
(Hindi); 1993; Sultan Chand & Sons Publishing.

Vrinda, S. *Aahar Vigyan* (Hindi); 2003; Shyam Prakashan.

Ghosh, S. Nutrition and Childcare – A Practical Guide; 1997; Jaypee Bros.

Savage, King F, Burgess, A. Nutrition for developing countries; Second Ed; 1993; Oxford University Press.

Dietary Guidelines for Indians – A Manual; 2011; NIN, ICMR, Hyderabad.

Gopalan, C *et. al*. Nutritive Value of Indian Foods; 1994; NIN, ICMR, Hyderabad.

Raina, U, Kashyap, S *et. al*. Basic Food Preparation – Complete Manual; 2005; Orient Longman.

Seth,V. and Singh, K(2006). Diet Planning throughout the Life Cycle: Part1Normal Nutrition. A Practical Manual. Elite Publishing House Pvt. Ltd. NewDelhi.

Chadha, R and Mathur, P. eds. Nutrition: A Lifecycle Approach. Orient Blackswan, NewDelhi.2015.

SEMESTER-III

BANHE303: INTRODUCTION TO FOOD SAFETY (DSC)
(CREDITS: THEORY-4, PRACTICAL-2)

OBJECTIVES

1. To create awareness about the importance of food safety and related issues in the students by discussing the various food handling practices.
2. To discuss food adulteration and the common food adulterants used.

Distribution of marks for Continuous Comprehensive Assessment

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(1) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

(i) Ten MCQ's of ½ marks each = 5 marks.
(ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

Semester Term End Examination

Maximum marks: 40 **Minimum marks: 18** **Maximum time: 3 hrs.**

(4) **Instructions for Paper setters:**
The question paper will consist of 5 sections:

A Compulsory
B Unit I
C Unit II
D Unit III
E Unit IV

Section A : It will be compulsory consisting of 12 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 3 short answer type questions of 2 marks each covering the entire syllabus.

Section B: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section C: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section D: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section E: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Total marks: 12+7+7+7+7 = 40

5. **Instructions for the students**:
The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

THEORY **LECTURES: 60**

UNIT 1 Introduction to PHN **10**

- Definition of PHN
- Levels of healthcare services

UNIT II Food Safety and Storage **20**

- Concept of food safety, Key terms, factors affecting food safety, recent concerns
- Food safety measures: basic concept of HACCP
- Safe food handling practices and storing food safely
- Food additives

UNIT III Food Adulteration **20**

- 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 and nutritional labelling

UNIT IV Food Laws, Regulations & Standards **10**

- Codex Alimentarius
- Prevention of Food Adulteration (PFA) Act
- Agmark
- Fruit Products Order (FPO)
- Meat Products Order (MPO)
- Bureau of Indian Standards (BIS)
- MMPO
- FSSAI

BANHE303 (P) **PRACTICAL** **30 periods**

OBJECTIVES

1. To enable the students to see the preserved foods available in the market
2. To understand the importance of information displayed on the labels
3. To realize the role of adulterants in our food
   - Market survey of preserved fruit and vegetable products
   - Nutritional labeling, development and understanding
   - Simple tests for food adulteration
4. Case Study on food safety issues-ICDS/MDM/Diarrheal outbreak /any other

RECOMMENDEDREADINGS

- Mudambi, S. R and Rajagopal, M.V. Fundamentals of Foods, Nutrition and Diet Therapy; Fifth Ed; 2007; New Age International Publishers.
- Wardlaw, G. M, Hampl, J. S. Perspectives in Nutrition; Seventh Ed; 2007; McGrawHill..
- Sethi, P. and Lakra, P. Aahaar vigyaan, Poshan evam Suraksha, Elite Publishing House, 2015.
- Khanna, K. *et. al.* Textbook of Nutrition and Dietetics; 2013; Phoenix Publisher.
- Sharma, S, Wadhwa, A. Nutrition in the Community A textbook; 2003; Elite Publishing House Pvt. Ltd.
- Srilakshmi, B. Dietetics; Fourth Ed; 2002; New Age International (P) Ltd.
- Bamji, M.S, Rao, N. P, and Reddy, V. Text Book of Human Nutrition; 2009; Oxford & IBH Publishing Co. Pvt. Ltd.
- The Food Safety and Standards Act along with Rules and Regulations. Delhi: Commercial Law Publishers (India) Pvt. Ltd. 2011.

SEMESTER-IV

BANHE405: PUBLIC HEALTH NUTRITION (DSC)
(CREDITS: THEORY-4, PRACTICAL-2)

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.

Distribution of marks for Continuous Comprehensive Assessment

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(1) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

(i) Ten MCQ's of ½ marks each = 5 marks.
(ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

Semester Term End Examination

Maximum marks: 40 **Minimum marks: 18** **Maximum time: 3 hrs.**

(5) **Instructions for Paper setters:**
The question paper will consist of 5 sections:

A Compulsory
B Unit I
C Unit II
D Unit III
E Unit IV

Section A : It will be compulsory consisting of 12 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 3 short answer type questions of 2 marks each covering the entire syllabus.
Section B: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section C: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section D: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section E: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Total marks: 12+7+7+7+7 = 40

6. **Instructions for the students**:
The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

THEORY **LECTURES: 60**

UNIT I Introduction to Nutritional deficiency diseases **22**

Causes, symptoms, treatment, prevention of the following:

a. Protein Energy Malnutrition(PEM)
b. Vitamin A Deficiency (VAD)
c. Iron Deficiency Anaemia (IDA)
d. Iodine Deficiency Disorders (IDD)
e. Zinc Deficiency
f. Fluorosis

UNIT II Social Health problems **10**

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

UNIT III Nutrition for Special conditions **17**

g. Introduction to Nutrition for physical fitness and sport

h. Feeding problems in children with special needs

i. Considerations during natural and man-made disasters- basic guidelines in disaster management

UNIT IV Food Security **11**

- Key terms, factors affecting food security, recent concern
- Technologies for food and nutrition security

PRACTICAL **BANHE508 (P)** **30 periods**

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.

- Planning and preparation of snacks for PEM, VAD and IDA (one full day's diet for PEM and snacks for PEM, VAD and IDA
- Students to collect information about any National programme

RECOMMENDED READINGS

Mudambi, S. R and Rajagopal, M.V. Fundamentals of Foods, Nutrition and Diet Therapy; 2012; New Age International Publishers

Wardlaw, G. M, Hampl, J.S. Perspectives in Nutrition; Seventh Ed; 2007; McGrawHill..

Gibney *et. al*. Public Health Nutrition; 2004; Blackwell Publishing.

Khanna, K *et.al*. Textbook of Nutrition and Dietetics; 2013; Phoenix Publisher.

Sharma, S, Wadhwa, A. Nutrition in the Community- A text book; 2003; Elite Publishing House Pvt. Ltd.

Srilakshmi, B. Dietetics; 2012; New Age International (P) Ltd.

Bamji, M. S, Rao, N.P and Reddy, V. Text Book of Human Nutrition; 2009; Oxford & IBH Publishing Co. Pvt. Ltd.

Lakra, P, Singh, M. D. Textbook of Nutrition and Health; First Ed; 2008; Academic Excellence.

Jain, P.*et.al*. *Poshan vaswasthya ke mool siddhant* (*Hindi*); FirstEd; 2007; Acadamic Pratibha.

Malhan, Gupta, Jain.. *Aaharaayojan, khadya sangrakshan evam grihavyavastha* (Hindi); 1993; Sultan Chand & Sons Publishing.

SEMESTER – V

BANHE508: PUBLIC NUTRITION

(DSE)

(CREDITS: THEORY-4 PRACTICAL-2)

OBJECTIVES

1. To make students understand the meaning, importance and scope of Public nutrition.
2. To obtain knowledge about malnutrition, related deficiencies, methods of assessing nutritional status, nutritional policy and National programmes.

Distribution of marks for Continuous Comprehensive Assessment

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(2) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

(i) Ten MCQ's of ½ marks each = 5 marks.
(ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

Semester Term End Examination

Maximum marks: 40 **Minimum marks: 18** **Maximum time: 3 hrs.**

Instructions for Paper setters:
The question paper will consist of 5 sections:

A Compulsory
B Unit I
C Unit II
D Unit III
E Unit IV

Section A : It will be compulsory consisting of 12 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 3 short answer type questions of 2 marks each covering the entire syllabus.

Section B: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section C: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section D: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section E: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Total marks: 12+7+7+7+7 = 40

Instructions for the students:
The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

THEORY **LECTURES: 60**

UNIT I Concept and scope of Public Nutrition **5**

- Definition and multidisciplinary nature of Public Nutrition
- Concept and scope
- Role of Public Nutritionist

UNIT II Nutritional problems, their implication sand related nutrition programmes

- Etiology, prevalence, clinical feature sand preventive strategies of- **22**

➢ Undernutrition–

Protein energy malnutrition, Nutritional anaemias, Vitamin A deficiency,

Iodine deficiency disorders

➢ Over nutrition–Obesity, Coronary Heart disease, Diabetes

- National Nutrition Policy and Programmes - Integrated Child Development Services (ICDS) Scheme, Midday Meal Programme (MDMP), National

programmes for prevention of Anaemia, Vitamin A deficiency, Iodine Deficiency Disorders.

UNIT III Assessment of Nutritional Status **18**

- Objectives and importance
- Methods of assessment

a. Direct–clinical signs, nutritional anthropometry, biochemical tests, biophysical tests

b. Indirect–Diet surveys, vital statistics

UNIT IV Nutrition Education **15**

- Objectives, principles and scope of nutrition and health education and promotion
- Behaviour Change Communication

BANHE508 (P) **PRACTICAL** **30 periods**

OBJECTIVES

1. To enable the students to plan and prepare low cost, nutritious recipes for different age groups.
2. To be able to plan and calculate diets based of dietary recall and anthropometric measurements.

- Planning of low cost nutritious recipes for infants, preschoolers, pregnant/nursing mothers for nutrition education.
- Assessment of nutritional status:
  - Anthropometry–weight and height measurements
  - Identification of clinical signs of common nutritional disorders
  - Dietary assessment–FFQ and 24-hour dietary recall
- Planning and conducting a food demonstration.

RECOMMENDED READINGS

Wadhwa, A. and Sharma, S (2003). Nutrition in the Community - A Textbook. Elite Publishing House Pvt. Ltd. New Delhi.

Park, K (2011). Park's Textbook of Preventive and Social Medicine, 21st Edition. M/s Banarasidas Bhanot Publishers, Jabalpur, India.

Bamji, M. S, Krishnaswamy, K and Brahmam, GNV (Eds) (2009). Textbook of Human Nutrition, 3rd edition. Oxford and IBH Publishing Co. Pvt. Ltd. NewDelhi.

ICMR (1989). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.

ICMR (2011). Dietary Guidelines for Indians–Manual. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.

Jelliffe, D. B, Jelliffe, ERP, Zerfas, A. and Neumann, C.G (1989). Community Nutritional Assessment with special reference to less technically developed countries. Oxford University Press, Oxford.

World Health Organization (2006). WHO Child Growth Standards: Methods and Development: Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age.

SEMESTER – VI

BANHE611: THERAPEUTIC NUTRITION (DSE)

(CREDITS: THEORY-4, PRACTICAL-2)

OBJECTIVES

1. To help the students to understand about the adaptation of a normal diet to a modified diet**.**
2. To teach the students about the causes, clinical symptoms and planning of diets for various diseases.

Distribution of marks for Continuous Comprehensive Assessment

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(1) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

(i) Ten MCQ's of ½ marks each = 5 marks.
(ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

Semester Term End Examination

Maximum marks: 40 **Minimum marks: 18** **Maximum time: 3 hrs.**

Instructions for Paper setters:

The question paper will consist of 5 sections:

A Compulsory
B Unit I
C Unit II
D Unit III
E Unit IV

Section A : It will be compulsory consisting of 12 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 3 short answer type questions of 2 marks each covering the entire syllabus.

Section B: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section C: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section D: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section E: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Total marks: 12+7+7+7+7 = 40

Instructions for the students:
The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

THEORY **LECTURES: 60**

UNIT I Principles of Nutrition care **8**

• Nutrition Care Process

• Therapeutic adaptations of the normal diet

• Progressive diets – clear fluid, full fluid, soft and regular

Unit II Etiology, clinical features and nutritional management of Infections and Fever **10**

• Typhoid

• Tuberculosis

• HIV

Unit III Etiology, clinical features and nutritional management of the following: **18**

• GI Tract Disorders:

- Diarrhoea
- Constipation
- Lactose intolerance
- Celiac disease.

• Liver: Infective Hepatitis

Unit IV Etiology, clinical features and nutritional management of **24**

- Weight Imbalances-Overweight and obesity; Underweight
- Eating disorders- anorexia nervosa and bulimia
- Type 1 and Type 2 Diabetes Mellitus
- Metabolic Syndrome
- Hypertension and Coronary Heart Disease
- Food allergy and food intolerance

BANHE611 (P) PRACTICAL 30 periods

OBJECTIVES

1. To enable the students to modify the diet according to the diseases.
2. To calculate the diets with the help of Nutrition composition tables.

Planning, preparation and service of diets for the following:

Therapeutic Diets – Normal, Soft, Clear and full fluid

- Fevers: acute and chronic
- Obesity
- Type 2 Diabetes
- Hypertension and CHD
- Survey therapeutic foods in market

RECOMMENDED READINGS

- Khanna, K, Gupta, S, Seth, R, Passi, S. J, Mahna, R, Puri, S (2013). Textbook of Nutrition and Dietetics. Phoenix Publishing House Pvt. Ltd.
- Mahan, L. K and Escott, Stump, S (2013). Krause's Food & Nutrition Therapy, 13th ed. Saunders-Elsevier.
- Stacy, Nix (2009). William's Basic Nutrition and Diet Therapy, 13th Edition. Elsevier Mosby.
- ICMR (1999). Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.
- Seth, V and Singh, K (2007). Diet Planning through the Life Cycle Part II: Diet Therapy. A Practical Manual, 4th edition. Elite Publishing House Pvt. Ltd.

SEMESTER – III

BANHE304: HOME BASED CATERING

(SEC)

(CREDITS: THEORY 2)

OBJECTIVES

1. To apprise the students regarding Food service industry, food production as well as standardization of a recipe
2. To share with the students the various steps to set up one's own unit.

Distribution of marks for Continuous Comprehensive Assessment

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(1) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

(i) Ten MCQ's of ½ marks each = 5 marks.
(ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

Semester Term End Examination

Maximum marks: 30 **Minimum marks: 14** **Maximum time: 3 hrs.**

Instructions for Paper setters:
The question paper will consist of 5 sections:

A Compulsory
B Unit I
C Unit II
D Unit III

E Unit IV

Section A : It will be compulsory consisting of 10 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 2 short answer type questions of 2 marks each covering the entire syllabus.

Section B: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section C: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section D: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section E: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Total marks: 10+5+5+5+5 = 30

Instructions for the students:
The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

THEORY **LECTURES 30**

UNIT I Introduction to Food Service **3**

- Factors contributing to the growth of food service industry
- Kinds of food service establishments

UNIT II Food Production **12**

- Menu planning: Importance of menu, factors affecting menu planning, menu planning for different kinds of food service units
- Food Purchase and Storage
- Quantity Food production: Standardization of recipes, quantity food preparation techniques, recipe adjustments and portion control
- Hygiene and Sanitation

UNIT III Resources **4**

- Money
- Manpower
- Time

- Facilities and equipment
- Utilities

UNIT IV Planning of a Food Service Unit **11**

- Preliminary Planning Survey of types of units, identifying clientele, menu, operations and delivery
- Planning the setup:

a) Identifying resources
b) Developing Project plan
c) Determining investments
d) Project Proposal

RECOMMENDED READINGS

West, B. Bessie & Wood, Levelle (1988). Food Service in Institutions 6th Edition Revised by Hargar, F.V,Shuggart, S. G, & Palgne Palacio June, Macmillian Publishing Company, NewYork.

Sethi, Mohini (2005). Institution Food Management. New Age International Publishers.

Knight, J. B & Kotschevar, L. H (2000). Quantity Food Production Planning & Management. 3rdedition ,JohnWiley & Sons

Philip, E.Thangam (2008). Modern Cookery for teaching And TradePart I & II. OrientLongmam

Taneja, S and Gupta,S. L (2001). Enterpreneurship development ,Galgotia Publishing

SEMESTER – IV

BANHE406: NUTRITION AND FITNESS (SEC)

(CREDITS: THEORY-2)

OBJECTIVES

1. To help the students in understanding the importance of fitness and its relation to health and nutrition.
2. To enable the students to know about the guidelines about physical activities, weight reducing diets and nutritional supplements.

Distribution of marks for Continuous Comprehensive Assessment

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(1) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

(i) Ten MCQ's of ½ marks each = 5 marks.
(ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

Semester Term End Examination

Maximum marks: 30 **Minimum marks: 14** **Maximum time: 3 hrs.**

Instructions for Paper setters:
The question paper will consist of 5 sections:

A Compulsory
B Unit I
C Unit II
D Unit III
E Unit IV

Section A : It will be compulsory consisting of 10 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 2 short answer type questions of 2 marks each covering the entire syllabus.

Section B: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section C: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section D: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section E: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Total marks: 10+5+5+5+5 = 30

Instructions for the students:
The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

THEORY **LECTURES: 30**

UNIT I Understanding Fitness **7**

• Definition of fitness, health and related terms

• Assessment of fitness

• Approaches for keeping fit

UNIT II Importance of nutrition **8**

• Role of nutrition in fitness

• Nutritional guidelines for health and fitness

• Nutritional supplements

UNIT III Importance of Physical activity **7**

• Importance and benefits of physical activity

• Physical Activity – frequency, intensity, time and type with examples

• Physical Activity Guidelines

UNIT IV Weight Management **8**

• Assessment, etiology, health complications of overweight and obesity

• Diet and exercise for weight management

• Fad diets

• Principles of planning weight reducing diets

RECOMMENDED READINGS

Wardlaw, Smith. Contemporary Nutrition: A Functional Approach. 2nd ed: 2012. McGraw Hill.

Williams, Melvin. Nutrition for health, fitness and sports. 2004. McGraw Hill

Joshi, A.S. Nutrition and Dietetics. 2010. Tata McGraw Hill.

SEMESTER – V

BANHE507: MATERNAL AND CHILD NUTRITION (SEC)

(CREDITS: THEORY 2)

OBJECTIVES

1. To understand the role of nutrition for the pregnant woman, lactating mothers**,** breast feeding and complementary foods
2. To enable the students to know about child health, morbidity, maternal and child heath programmes.

Distribution of marks for Continuous Comprehensive Assessment

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(1) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

(i) Ten MCQ's of ½ marks each = 5 marks.
(ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

Semester Term End Examination

Maximum marks: 30 **Minimum marks: 14** **Maximum time: 3 hrs.**

Instructions for Paper setters:
The question paper will consist of 5 sections:

A Compulsory
B Unit I
C Unit II
D Unit III
E Unit IV

Section A : It will be compulsory consisting of 10 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 2 short answer type questions of 2 marks each covering the entire syllabus.

Section B: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section C: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section D: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section E: There will be two questions of 5 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Total marks: 10+5+5+5+5 = 30

Instructions for the students:
The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

THEORY **LECTURES: 30**

UNIT I

• Nutritional needs during pregnancy, common disorders of pregnancy (Anaemia, HIV infection, Pregnancy induced hypertension), relationship between maternal diet and birth outcome. **8**

• Maternal health and nutritional status, maternal mortality and issues relating to maternal health.

UNIT II **7**

• Nutritional needs of nursing mothers and infants, determinants of birth weight and consequences of low birth weight, Breastfeeding, support and counseling

UNIT III **8**

• Infant and young child feeding and care - Current feeding practices and nutritional concerns, guidelines for infant and young child feeding, Breast feeding, weaning and complementary feeding.

• Assessment and management of moderate and severe malnutrition among children,

micronutrient malnutrition among preschool children

• Child health and morbidity, neonatal, infant and child mortality, IMR and U5MR; link between mortality and malnutrition;

UNIT IV

Overview of maternal and child nutrition policies and programmes. **5**

RECOMMENDED READINGS

• Wadhwa, A and Sharma, S (2003). Nutrition in the Community - A Textbook. Elite Publishing House Pvt. Ltd. New Delhi.

• Park, K (2011). Park's Textbook of Preventive and Social Medicine, 21st Edition. M/s Banarasidas Bhanot Publishers, Jabalpur, India.

• Bamji, M.S, Krishnaswamy, K and Brahmam GNV (Eds) (2009). Textbook of Human Nutrition, 3rd edition. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.

SEMESTER – VI

BANHE610: FOOD AND NUTRITION (SEC)

(CREDITS: PRACTICAL-2)

OBJECTIVES

1. To introduce the students to cooking, preparation of simple recipes using different methods of cooking
2. To understand the parameters of Body Mass Index, meal planning for different activity levels

- Identification of food sources for various nutrients using food composition tables.
- Record diet of self-using 24 hour dietary recall and its nutritional analysis
- Introduction to meal planning, concept of food exchange system
- Planning of meals for adults of different activity levels for various income groups.
- Planning of nutritious snacks for different age and income groups.
- Preparation of nutritious snacks using various methods of cooking.
- Nutritional labeling of food products.
- Estimation of BMI and other nutritional status parameters.

RECOMMENDED READINGS

Bamji, M.S, Krishnaswamy, K, Brahmam, GNV (2009). Textbook of Human Nutrition, 3rd edition. Oxford and IBH Publishing Co. Pvt. Ltd.

Srilakshmi (2010). Food Science, 4th Edition. New Age International Ltd.

Wardlaw, M.G, Paul, M, Insel, Mosby (1996). Perspectives in Nutrition, Third Edition.

Gibney *et. al* (ed.) (2005). Introduction to Human Nutrition. Blackwell Publishers.

Khanna, K, Gupta, S, Seth, R, Mahna, R, Rekhi, T (2004). The Art and Science of Cooking: A Practical Manual, Revised Edition. Elite Publishing House Pvt Ltd.

Nutritive Value of Indian Foods (1990). NIN, ICMR.

Seth, V, Singh, K (2005). Diet planning through the Life Cycle: Part 1.Normal Nutrition. A Practical Manual, Fourth edition, Elite Publishing House Pvt. Ltd.

Indian Council of Medical Research (2010). Nutrient Requirements and Recommended Dietary Allowances for Indians.

SEMESTER – V

BANHE509: HUMAN NUTRITION (GE)

(CREDITS: THEORY 4)

OBJECTIVES

1. To enable the students to understand basic concepts in Nutrition, nutrients and their functions, sources and deficiency symptoms
2. To understand the nutritional requirements during different stages of life.

Distribution of marks for Continuous Comprehensive Assessment

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(1) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

(i) Ten MCQ's of ½ marks each = 5 marks.
(ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

Semester Term End Examination

Maximum marks: 40 **Minimum marks: 18** **Maximum time: 3 hrs.**

Instructions for Paper setters:
The question paper will consist of 5 sections:

A Compulsory
B Unit I
C Unit II
D Unit III
E Unit IV

Section A : It will be compulsory consisting of 12 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 3 short answer type questions of 2 marks each covering the entire syllabus.

Section B: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section C: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section D: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section E: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Total marks: 12+7+7+7+7 = 40

Instructions for the students: The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

THEORY **LECTURES: 60**

UNIT I: **Basic Concepts in Nutrition** **15**

• Basic terms used in nutrition

• Understanding relationship between food, nutrition and health

• Functions of food-Physiological, psychological and social

• Basic food groups and concept of balanced diet

UNIT II Macro-Nutrients **25**

Energy- Functions, sources and concept of energy balance.

Functions, Recommended Dietary Allowances, dietary sources, effects of deficiency and/ or excess consumption on health of the following nutrients:

• Carbohydrates and dietary fibre

• Lipids

• Proteins

UNIT III Micro-Nutrients **25**

Functions, Recommended Dietary Allowances, dietary sources, effects of deficiency and/ or excess consumption on health of the following nutrients:

- Fat soluble vitamins - A, D, E and K

• Water soluble vitamins – Thiamin, Riboflavin, Niacin, Pyridoxine, Folate, Vitamin B_{12} and Vitamin C

• Minerals – Calcium, Iron, Zinc and Iodine

UNIT IV Nutrition during Lifecycle **25**

Physiological considerations and nutritional concerns for the following life stages:

• Adult man / woman

• Preschool children

• Adolescent children

• Pregnant woman

• Nursing woman and infant

RECOMMENDED READINGS

Wardlaw and Insel M.G, Insel, P.M (2004). Perspectives in Nutrition. Sixth Edition, McGraw Hill.

Srilakshmi, B. (2012). Nutrition Science. 4th Revised Edition, New Age International Publishers.

Khanna, K, Gupta, S, Seth, R, Passi S.J, Mahna, R, Puri, S (2013). Textbook of Nutrition and Dietetics. Phoenix Publishing House Pvt. Ltd.

SEMESTER – VI

BANHE612 NUTRITION: A LIFESPAN APPROACH (GE)

(CREDITS: THEORY 4, PRACTICAL 2)

OBJECTIVES

1. To know about the principles, factors affecting meal planning, dietary guidelines and methods of assessment of nutrient requirement.
2. To inculcate interest in the students to know about the need for the nutrients in different stages of life span of human beings

Distribution of marks for Continuous Comprehensive Assessment

1. Minor Test : 15 Marks
2. Class Tests, Tutorials /Assignments : 10 Marks
3. Attendance : 5 Marks

Total Marks : 15+10+5 = 30 Marks

(1) Distribution of marks for conducting Minor Test

Note: Time permitted for conducting minor test shall be 1 hour

Two types of questions will be set in Minor Test

(i) Ten MCQ's of ½ marks each = 5 marks.
(ii) Two questions of 5 marks each (2X5=10) of short answer type.

Total marks of Minor Test = 5+10 = 15

Semester Term End Examination

Maximum marks: 40 **Minimum marks: 18** **Maximum time: 3 hrs.**

Instructions for Paper setters:
The question paper will consist of 5 sections:

A Compulsory
B Unit I
C Unit II
D Unit III
E Unit IV

Section A : It will be compulsory consisting of 12 marks with 12 objective type questions which could be multiple choice questions, true / false, fill in the blanks etc. of ½ marks each and 3 short answer type questions of 2 marks each covering the entire syllabus.

Section B: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section C: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section D: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Section E: There will be two questions of 7 marks each. These questions may contain sub parts and will be of long answer type. The student will attempt one out of the two questions.

Total marks: 12+7+7+7+7 = 40

Instructions for the students:

The students are required to attempt 5 questions in all. One compulsory question from section A and selecting one question from each of the sections B, C, D and E of the question paper.

THEORY **LECTURES: 60**

UNIT I Principles of meal planning **10**

- Balanced diet
- Food groups
- Food exchange list
- Factors effecting meal planning and food related behaviour.
- Dietary guidelines for Indians and food pyramid

UNIT II Nutrient requirements **8**

- Concept of Dietary Reference Intakes
- Overview of methods for assessment of nutrient needs

UNIT III (a) Nutrition for adulthood and old age **12**

- Adult: Nutrient requirements for adult man and woman, RDA, nutritional guidelines, nutritional concerns, diet and lifestyle related diseases and their prevention
- Elderly – Physiological changes in elderly, RDA, nutritional guidelines, nutritional and health concerns in old age and their management, factors contributing to longevity

UNIT III (b) Nutrition during pregnancy and lactation **12**

• Pregnancy – Physiological changes in pregnancy, RDA, nutritional guidelines, nutritional needs, effect of nutritional status on pregnancy outcome, optimal weight gain and its components, nutrition related problems in pregnancy and ways to control them.

• Lactation – Physiology of lactation, RDA and nutritional needs of a nursing mother, nutritional guidelines

Unit IV: **Nutrition during childhood** **18**

• Growth and development, growth reference/ standards, RDA, nutritional guidelines, nutritional concerns and healthy food choices:

- Infants
- Preschool children
- School children
- Adolescents

BANHE612 (P) **PRACTICAL** **30 periods**

OBJECTIVES

1. To encourage the students to use food exchange list and food composition tables in calculating diets.
2. To plan and cook dishes for different age groups.

Introduction to meal planning

-Use of food exchange list

Planning and preparation of diets and dishes for:

• Young adult

• Pregnant and Lactating woman

• Preschool child

• School age child and adolescents

• Elderly

Planning complementary foods for Infants

RECOMMENDED READINGS

Khanna, K, Gupta, S, Seth, R, Passi, S.J, Mahna, R, Puri, S (2013). Textbook of Nutrition and Dietetics. Phoenix Publishing House Pvt. Ltd.

Wardlaw, G.M, Hampi, J.S, DiSilvestro, R.A (2004). Perspectives in Nutrition, 6th edition.

McGraw Hill.
ICMR (2011). Dietary Guidelines for Indians. Published by National Institute of Nutrition, Hyderabad.
ICMR (2010). Recommended Dietary Allowances for Indians . Published by National Institute of Nutrition, Hyderabad.
Chadha, R and Mathur, P (eds.) (2015) Nutrition: A Lifecycle Approach. Orient Blackswan. New Delhi.
Seth, V and Singh, K (2006). Diet Planning through the Life Cycle: Part 1 Normal Nutrition. A Practical Manual. Elite Publishing House Pvt. Ltd. New Delhi.
Gopalan, C, Rama Sastri B.V, Balasubramanian, S.C (1989) Nutritive Value of Indian Foods. National Institute of Nutrition, ICMR, Hyderabad.