

**DEBRA THANA S.K.S. MAHAVIDYALAYA
(AUTONOMUS)**

Chakshyampur , Debra, Paschim Medinipur, West Bengal



PROPOSED CURRICULUM & SYLLABUS (DRAFT) OF

**BACHELOR OF SCIENCE (HONOURS)
MAJOR IN FOOD AND NUTRITION SCIENCE**

4-YEAR UNDERGRADUATE PROGRAMME

(w.e.f. Academic Year 2024-2025)

Based on

**Curriculum & Credit Framework for Undergraduate Programmes
(CCFUP), 2023 & NEP, 2020**

DEBRA THANA S.K.S. MAHAVIDYALAYA
BACHELOR OF SCIENCE (HONOURS) MAJOR IN FOOD AND
NUTRITION SCIENCE (under CCFUP, 2023)

Level	YR.	SEM	Course Type	Course Code	Course Title	Credit	L-T-P	Marks			
								CA	ESE	TOTAL	
B.Sc. (Hons.)	1 st	I	SEMESTER-I								
			Major-1	NUTHMJ101	T: Basic concept of Food and Nutrition P: Basic concept of Food and Nutrition (Practical)	4	3-0-1	15	60	75	
			SEC	NUTSEC01	P: Community Nutrition	3	0-0-3	10	40	50	
			AEC	AEC01	Communicative English -1 (<i>common for all programmes</i>)	2	2-0-0	10	40	50	
			MDC	MDC01	Multidisciplinary Course -1 (<i>to be chosen from the list</i>)	3	3-0-0	10	40	50	
			VAC	VAC01	ENVS (<i>common for all programmes</i>)	4	2-0-2	50	50	100	
			Minor (Disc.-I)	NUTMI01	T: Basic concept of Food and Nutrition; P: Practical (<i>To be taken by students of other Disciplines</i>)	4	3-0-1	15	60	75	
		Semester-I Total						20			400
		II	SEMESTER-II								
			Major-2	NUTHMJ102	T: Basic concept of Public Health and Nutrition P: Basic concept of Public Health and Nutrition (Practical)	4	3-0-1	15	60	75	
			SEC	NUTSEC02	P: Food Adulteration	3	0-0-3	10	40	50	
			AEC	AEC02	MIL-1 (<i>common for all programmes</i>)	2	2-0-0	10	40	50	
			MDC	MDC02	Multi Disciplinary Course-02 (<i>to be chosen from the list</i>)	3	3-0-0	10	40	50	
			VAC	VAC02	Value Added Course-02 (<i>to be chosen from the list</i>)	4	4-0-0	10	40	50	
			Minor (Disc.-II)	NUTMI01	T: Basic concept of Public Health and Nutrition; P: Practical (<i>To be taken by students of other Disciplines</i>)	4	3-0-1	15	60	75	
			Summer Intern.	CS	Community Service	4	0-0-4	-	-	50	
		Semester-II Total						24			400
		TOTAL of YEAR-1						44			800

MJ = Major, MI = Minor Course, SEC = Skill Enhancement Course, AEC = Ability Enhancement Course, MDC = Multidisciplinary Course, VAC = Value Added Course; CA= Continuous Assessment, ESE= End Semester Examination, T = Theory, P= Practical, L-T-P = Lecture-Tutorial-Practical, MIL = Modern Indian Language, ENVS = Environmental Studies

Programme Specific Objectives:

- i. Understand the role of nutrient for community welfare
- ii. Career opportunities in Public Health and Nutrition Community Nutrition Sectors.
- iii. Enable entrepreneurship development in the field of food science and nutrition.
- iv. Pursue higher education and research in the different domains of nutrition and public health
- v. Skill based knowledge up gradation.

Detailed Syllabus

MAJOR (MJ)

MJ-1: Basic concept of Food and Nutrition

Credits 04 (Full Marks: 75)

COURSE LEARNING OUTCOMES:

After the completion of the course, students will have ability to

1. Importance of nutrients for basic requirement of life.
2. Importance of nutrition awareness for prevention of diseases and early recovery.
3. Dietary management of under nutrition at different phases of human life cycle.
4. Understand the impact of digestive system in nutrition.

MJ-1T: Basic concept of Food and Nutrition

Credits 03

Course contents:

1. Food and Nutrition : Basic concepts

- Concept and definition of terms - Nutrition, Nutrients, Nutritional Status, Malnutrition, Different types of malnutrition and Health. Interrelationship between nutrition and health- Visible symptoms of good health.
- Food as source of nutrients, Function of food, Classification of food, Food groups. Food pyramid, Food exchange list, Concept of functional food, Free food, Fast food, Value addition in foods and recipes .
- Basic function of nutrients- Carbohydrate, dietary fibre, protein, fat, vitamins, minerals and water, concept of nutraceuticals.
- Energy in Human Nutrition: Idea of energy and its unit, Fuel values of nutrients - Physical value and Physiological value, energy balance, Assessment of energy requirements, Deficiency and Excess, B.M.I, B.M.R & influencing factors, S.D.A.
- Minimum Nutritional Requirements and RDA: Formulation of RDA and Dietary Guidelines: Reference Man and Reference Woman.

2. Digestion of Food

- Anatomical structure of human digestive system, digestive juices and their functions. Digestion and absorption of carbohydrates, protein and lipid, Nucleotide (General concepts)

3. Under nutrition management from intrauterine life to adulthood:

- Definition of Malnutrition. PEM in the context of under nutrition, underweight, stunting, wasting. Management of SAM children - role of Nutrition Rehabilitation Center (NRC) in this context.

4. Nutritional Anaemia with special reference to Iron Deficiency Anaemia; Vitamin A deficiency (Xerophthalmia); Iodine Deficiency Disorders; Zinc deficiency; Vitamin B complex deficiencies, vitamin C deficiency, Vitamin D deficiencies.

Prevalence, Causes, Consequences and its control, Difference between prevalence and incidence of disease.

MJ-1P: Basic concept of Food and Nutrition (Practical)

Credits 01

Course contents:

1. Identification of slides: Small Intestine, large intestine, stomach. Tongue, liver, Pancreas.
2. Energy and nutrients calculation of value added food items and other foods.
3. Assessment of energy requirements for different physical activities.
4. Computation of BMI ,BMR and BSA (Using Primary Data and Secondary Data)
5. Visit an anganwadi centre/ICDS centre. Prepare a report

MJ-2: Basic concept of Public Health and Nutrition **Credits 04 (Full Marks: 75)**

COURSE LEARNING OUTCOMES:

After the completion of the course, students will have ability to

1. Learn the importance of nutrient for the health care of mother and child.
2. Understand the way of food safety and quality control for improving public health.
3. Importance of Nutrition education communication and behavior alteration for health promotion, disease prevention and early recovery from diseases.
4. Know the different components of health care system & concept development about health care ecosystem.

MJ-2T: Basic concept of Public Health and Nutrition

Credits 03

Course contents:

1. Mother Child health care:

- Definition of health care, and types.
- Adolescent pregnancy and its complications.
- Non nutritional factors affecting pregnancy outcome.
- Antenatal care and its schedule and importance
- Child immunization, Types of vaccine, Booster dose and its importance.
- Weaning; Definition, process of weaning, hygiene and sanitation of weaning.
- Preparation for lactation, Galactagogue, Introduction of milk gland, Different phases of lactation, Role of Nutrients, Role of hormones on Lactation

2. Nutrition awareness and Public Health:

KAP and BAP model of nutritional awareness generation process.

Concept of Public health, determinants of public health. Various strategies for nutritional awareness generation on public health at rural sectors; child to child strategy, child to parent strategy, women to women strategy.

3. Food Safety and Quality Control:

- Types of Food Hazards. Food borne Diseases: Cholera, Typhoid, Diarrhoea and botulism (causes, mode of transmission, symptoms, prevention strategies)
- Personal Hygiene, Food Hygiene and Sanitation and Environmental Sanitation and Safety (Water supply, Waste Disposal) at home level.
- Food Adulteration: Concept/Definition as given by FSSAI, Common adulterants present in foods (cereals, pulses, milk and milk products, fats and oils, sugar, honey, spices and condiments),
- Effect of adulterants (metanil yellow, argemone, khesari dal) on human health common methods for detecting adulteration at home). Differences among food adulteration, contamination & additives.
- FSSAI Act 2006, HACCP.
- Consumer Protection Act

4. Nutrition Education, Communication and Behaviour Change:

- Concept generation on Information, Education & Communication - types, Barrier of communication.
- Behaviour Change: Definition and importance. Nutrition Education: Need, Scope and Importance.
- Relationship among knowledge, Attitude & Behaviour.
- Various Methods of imparting nutrition education (Individual, Group, and mass approach) Types (Interpersonal communication: Individual and group approach; Mass Media, Traditional Media), Difference between Mass and Public communication. Criteria of good communication.

5. Health Care System:

- Health care system: Definition, importance and functions. Types-Primary, secondary, tertiary health care system.
- Prevention of diseases; primordial, primary, secondary, and tertiary prevention
- Role of anganwadi workers, ASHA workers, multipurpose health workers, role of sub-centres, ICDS centres.

6. Anthropometric assessment for pre-school and school going children: MUAC, Waist-Hip ratio, Height for age, Weight for age, Stunting, Wasting, Underweight- Acute & Chronic, Growth charts & its importance.

MJ-2P: Basic Nutrition Part-II (Practical)

Credits 01

1. Identification of food adulterants
metanil yellow, argemone, kesari dal
2. Growth chart and its interpretations (CDC, ICMR & WHO)
3. Under nutrition and obesity risk assessment using BMI, weight for age, height for age, waist to hip ratio, MUAC.
4. Preparation of visual aids for nutrition awareness: (PPT, Poster, Model & Chart)
5. Questionnaire preparation (Model) for nutritional status assessment.

Prepare a best practice list for lactating mothers

MINOR (MI)

MI – 1: Basic concept of Food and Nutrition

Credits 04 (Full Marks: 75)

MI – 1T: Basic concept of Food and Nutrition

Credits 04

COURSE LEARNING OUTCOMES:

After the completion of the course, students will have ability to

1. Importance of nutrients for basic requirement of life.
2. Importance of nutrition awareness for prevention of diseases and early recovery.
3. Dietary management of under nutrition at different phases of human lifecycle.
4. Understand the impact of digestive system in nutrition.

Course contents:

1. Food and Nutrition : Basic concepts

- Concept and definition of terms Nutrition, Nutrients , Nutritional status ,Malnutrition and Health. Interrelationship in maintaining good health and well-being
- Food as source of nutrients, function of food, classification of food, Food groups. Food pyramid.
- Energy in Human Nutrition: Idea of energy and its unit, energy balance, Assessment of energy requirements, Deficiency and Excess, Determination of energy in food, BMI , BMR & influencing factors, S.D.A.
- Minimum Nutritional Requirements and RDA : Formulation of RDA and Dietary Guidelines: Reference Man and Reference Woman

2. Nutrition awareness and Public Health:

- Nutritional awareness generation process.
- Concept of Public health, determinants of public health.

3. Under nutrition management from intrauterine life to adulthood:

- PEM in the context of underweight, stunting, wasting,
- SAM; Nutritional Anaemia with special reference to Iron Deficiency Anaemia; Vitamin A deficiency (Xerophthalmia); Iodine Deficiency Disorders;

MI-1P Basic concept of Food and Nutrition (Practical)

Credits 01

Course Outline:

1. Undernutrition and obesity risk assessment using BMI, weight for age, height for age, waist to hip ratio, MUAC.
2. Preparation of visual aids for nutrition awareness (PPT, Poster, Model &Chart)
3. Computation of BMI and BMR from the provided data.

MI-2: Basic concept of Public Health and Nutrition

Credits 04 (Full Marks: 75)

MI-2T: Basic concept of Public Health and Nutrition

Credits 03

Course contents:

1. Nutrition Education, Communication and Behaviour Change:

- Behaviour Change: Definition and importance. Nutrition Education: Need, Scope and Importance.
- IEC: Definition, Importance and various concepts.
- Various Methods of imparting nutrition education (Individual, Group, and mass approach) Types (Interpersonal communication: Individual and group approach; Mass Media, Traditional Media)

2. Health Care System:

- Health care system: Definition, importance and functions. Types-Primary, secondary, tertiary health care system.
- Prevention of diseases; primordial, primary, secondary, and tertiary prevention
- Role of anganwadi workers, ASHA workers, multipurpose health workers, role of subcenters, ICDS centers.

3. Mother Child health care:

- Definition of health care, and types.
- Adolescent pregnancy and its complications.
- Antenatal care and its schedule and importance
- Child immunization

4. Food Safety and Quality Control:

- Types of Food Hazards. Food borne Diseases: Cholera, Typhoid, Diarrhoea and botulism (causes, mode of transmission, symptoms, prevention strategies)
- Personal Hygiene, Food Hygiene and Sanitation and Environmental Sanitation and Safety (Water supply, Waste Disposal) at home level.
- Food Adulteration: Concept/Definition as given by FSSAI, Common adulterants present in foods (cereals, pulses, milk and milk products, fats and oils, sugar, honey, spices and condiments), Ill effect of adulterants (metanil yellow, argemone, kesari dal) on human health common methods for detecting adulteration at home)

MI-2P: Basic concept of Public Health and Nutrition (Practical)

Credits 01

Course Outline:

1. Prepare a best practice list for lactating mothers.
2. Common food adulteration detection test.
3. Visit an anganwadi centre/ICDS centre. Prepare a report.

SKILL ENHANCEMENT COURSE (SEC)

SEC 1: Community Nutrition

Credits 03 (Full Marks: 50)

COURSE LEARNING OUTCOMES:

After the completion of the course, students will have ability to

1. To know programme formulation and its different components.
2. To understand the programme planning, designing and implementation.
3. To know the programme management and evaluation.

SEC1P: Community Nutrition (ICDS/MDMP /SNP)

(Practical) Course Outline:

Programme formulation-different components

- Pre-program survey
- Policy decision and plan of action
- Program designing
- Program implementation
- Program Management
- Program evaluation
- Program formulation to be done using secondary data set and primary data set.

SEC 2: Food Adulteration

Credits 03 (Full Marks: 50)

COURSE LEARNING OUTCOMES:

After the completion of the course, students will have ability to

1. To understand the detection of food additives and adulteratives in different food items.
2. To understand the impact of food adulteration on different health hazards.

SEC 2P: Food Adulteration (Practical) Course Outline:

1. Food adulterants : Definition, types, concepts of additives, adulteratives and contaminants with example
2. Basic concepts of determination of adulterants- cereal powder, jam, jelly, spices, butter and oil, dairy products, beverages., fast foods, junk foods, processed and preserved food.
3. Adulterants for using odour, colour, taste and palatability of food.

