## NISTARINI WOMEN'S COLLEGE

# PROGRAMME OUTCOME ( PO)

**NAME OF THE DEPARTMENT : DEPARTMENT OF NUTRITION**

**B.Sc . Three Years , Six Semesters Degree Programmes**

**Academic Year : 2017-2018**

## Under SIDHO-KANHO-BIRSHA UNIVERSITY , PURULIA ( WB)

From the Academic Session 2017-2018 , CBCS was introduced by the SIDHO-KANHO-UNIVERSITY, which is our affiliating University at present. The first batch of students under the newly introduced semester system is , therefore , supposed to complete graduation in the year 2020. It thus appears difficult to measure Programme Out comes on definite terms. Besides the University it self is yet to provide any concrete Programme Outcome to its affiliated Colleges. However , our esteemed teachers pondered over the current syllabi and tried to chalk out some general out comes for B.Sc Nutrition Degree Programme of their own. Such expected Programme Outcomes maybe listed as follows :

1) DIMINISGING DISCRIMINATION : The CBCS aims at diminishing the discrimination between HONOUS and GENERAL courses of study. Under the CBCS graduating batch of students , both HONOURS and PROGRAM would be eligible for pursuing Postgraduate Courses of studies.
2) **FREEDOM OF EXERCISING INTEREST** : Under the CBCS the undergraduate batch of students would be able to choose courses as per their interest in the last two semesters. This would definitely encourage academic flexibility and enable the students to look beyond the stereotypes of a particular academic Discipline.
3) **DISTRIBUTION OF ACADEMIC BURDEN** : Under the CBCS , the academic load will certainly get distributed . Besides , there will be provision for Supplementary Tests to clear up back – logs.This will definitely add momentum to the teaching , learning and evaluation process.
4) **ENCOURAGING RESEARCH APTITUTE** : Every Academic Programme under the CBCS will take care to make the students familiar with the existing trends in Research Methodology , and there will be a test in the form of preparation of Dissertation/Assignment/Term Paper to instill some primary concepts of academic research among the undergraduate students.
5) **UP TO DATE KNOWLEDGE** : The CBCS expected to cater contemporary and up to date knowledge to the students .
6) **ACCESS TO THE JOB MARKET** : The Interdisciplinary and contemporary approach of the CBCS will enhance the students' access to the current job market .
7) **ADVANCING TOWARDS A UNIFORM SYLLABUS** : If the UGC implements a uniform undergraduate syllabus for the Universities of India in future , the CBCS will be the great advantage as the only means to attain that end.
8) **STUDENTS MORE EQUIPPED TO APPEAR IN ALL-** INDIA COMPETITIVE EXAMINATIONS : The MCQ and Short Answer Type Question format and the contemporary approach of the syllabus under the CBCS will make the students more equipped to appear at All – India level Competitive Examinations for Registered Dietician , Banking , Food industry ,National – International health agencies and other services.

# PROGRAMME OUTCOME AND PROGRAMME SPECIFFIC OUTCOMES FOR B.Sc NUTRITION

| NAME OF THE PROGRAMME ( UG/PG/M.Phil /DIPLOMA etc ). | PROGRAMME OUTCOMES STUDENTS WILL BE ABLE TO. | PROGRAMMES SPECIFIC OUTCOMES STUDENT WILL BE ABLE TO. |
|---|---|---|
| **UG** | 1.The programme basic under standing of the correlation between food and health | 1.Role of nutrition at various stages of life. |
| | 2.Basically this is and interdisciplinary programme with knowledge of human anatomy , microbiology , biochemistry and their role in relation to food and health | 2.Nutrition and its implications under different diseased conditions . |
| | 3.The programme provides in-depth understanding of the role of food under specific diseased condition. | 3.Nutrition as an integral part in the development of a community. |
| | | 4.Nutrition and life style changes towards a better future society. |
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# PROGRAMME OUTCOME FOR NUTRITION

Nutrition and Dietetics provides concepts related to human nutrition and helps you become an effective learner and practitioner in all fields of dietetic practice. The course also gives you the opportunity to develop advanced skills in the design and implementation of research in the field of human nutrition and dietetics. It is designed to impart advanced knowledge and skills that is life oriented, career and community oriented. It has special relevance to industry and hospital application with the help of weekly field work, rural camp and hospital/industry internship programme.

# PROGRAMME SPECIFIC OUTCOMES

1. Understand the concepts of biochemistry, food chemistry and food microbiology
2. Comprehend methods of assessing human nutritional requirements, nutritional assessment and diet planning
3. Apply theoretical concepts in laboratory setting as per standard methods in the above mentioned areas
4. Understand the applications of nutritional sciences in clinical interventions, communication for health promotion, food service management, food science and processing
5. To equip students to plan diets for clinical and therapeutic conditions within a hospital, fitness center or gym setting.
6. To impart students a systematic approach to basic and applied aspects of food processing and technology.
7. To provide students with an opportunity to conduct independent research.

**COURSE OUTCOMES OF ALL PROGRAMMES OFFERED BY THE DEPARTMENT**

**Name of the Programme : B.Sc Nutrition**

# SEMESTER I

**BNUTCCHT101 -HUMAN PHYSIOLOGY**

- To enable students to understand the metabolic changes in health and different diseases
- Gain knowledge about the relationship between nutrition and human system
- Explain physiological processes of all body systems in detail and on an appropriate level (knowledge, comprehension, application and analysis)
- Explain the role of body systems and mechanisms in maintaining homeostasis
- Explain how the activities of organs are integrated for maximum efficiency
- Introduces basic anatomical and physiological terms, tissues, the integumentary, skeletal, muscular and nervous systems including nervous histology, physiology, spinal cord and nerves

## BNUT CCHT102-NUTRITION AND HUMAN LIFE CYCLE

- Understand the role of nutrition in different conditions
- Develop competency in planning diets to meet the nutritional requirements of different socioeconomic level
- Identify whether a group or an individual is suffering from malnutrition of any kind
- Assess nutritional status of individuals in various life-cycle stages and determine nutrition-related conditions and diseases by applying knowledge of metabolism and nutrient functions, food sources, and physiologic systems.

# SEMESTER II

***BNUTCCHT201-NUTRITUNAL BIOCHEMISTRY***

- Give the chemistry of carbohydrates, fat and protein and how macronutrients are absorbed, stored and metabolize
  - Explain the chemistry underlying the properties of various food components.
  - Discuss the major chemical reactions that occur during food preparation and storage.
  - Discuss the important pathogens and spoilage microorganisms in foods.
  - Explain the effects of common food preparation methods and food storage conditions on survival and growth of microbial contaminants.
  - Discuss basic principles of common food preservation methods.
  - To understand the nutritive value of foods
  - To understand the principles and chemistry of foods and apply the principles during preparation and cooking

**BNUTCCHS202 – NUTRITIONAL BIOCHEMESTRY AND PHYSIOLOGY**

- Identification with reasons of histological slide.
- Estimation of lactose in milk, sucrose-fructose in food extract.
- Colorimetric estimation of carbohydrate, Qualitative detection of glycerol, Sugar test.
- Blood analysis ,Estimation of blood pressure, Detection of blood group.

# SEMESTER III

**BNUTCCHT301 – FOOD GROUP AND COMMODITIS**

- Explain the chemistry underlying the properties of various food components.
- Discuss the major chemical reactions that occur during food preparation and storage.
- Discuss the important pathogens and spoilage microorganisms in foods. Explain the effects of common food preparation methods and food storage conditions on survival and growth of microbial contaminants.
- Discuss basic principles of common food preservation methods.
- To understand the nutritive value of foods
- To understand the principles and chemistry of foods and apply the principles during preparation and cooking

## BNUTCCHC302 COMMUNITY NUTRITION AND PROGRAMME

1)Concept of community,type of community factors affecting heath of community-environment,social,political ,cultural,economical and dietary organizational.
2)Community water and its management: Source of water,safe drinking water etiology and effects of toxic agents,water borne disease:(Cholera and Amoebiasis),sewage disposal and treatment.
3)Factors affecting the health of the community,sanitaryquality,microbiological criteria of foods,potability of water,testing of milk quality.
4)Importance of sanititation and hygiene in foods,kitchenhygiene,food plant hygiene,food laws.
5) Nutritional problems in community : Malnutrition,deficiency of Vit A,Vit D.

**Nutritional programme**
1)Basic concept of surveillance systems.
2) UNICEF,FAO,ICMR,SNP,ANP,CNP,ICDS,BFP,MDMP – Aims,Objectives,Targetgroup,Serviceprovided,Advantages,Limitation,Suggestion for improvement.
3) Nutritional intervention programme to combat malnutrition :PHC,PDS,Middaymeal.

## BNUTCCHC303-Nutritional Epidemiology

**1)Principles of Epidemiology :** Concept of disease (endemic,epidemic and pandemic,acute and chronic,communicable and non-communicable,zoonosis,epizootic,enzootic,vector-borne and nosocomial),rate of a disease in a population ( attack rate,morbidityrate,mortalityrate,incidence and prevalence),nature of infectious and communicable diseases, factors that influence the epidemiology of a disease.
**2) Epidemiological methods :**Descriptive studies,analytical,experimental ,serological,clinical studies.
**3) Immunization :** Immunization schedule for children,adults and foreign travelers.

## BNUTSEHT305- FOOD PRESERVATION AND FOOD PROCESSING

1)Principle of food preservation and food spoilage, importance of aw. Prossing of food.
2)Physical process of food preservation Dehydration, Refrigeration and Freezing, Radiation, High temperature.
3)Chemical process of food preservation – Salting, Sugar addition, Preservative chemicals.
4)Fermentation of food and its nutritional importance .

# SEMESTER IV

## BNUTCCHT401-BASIC DIET

1)General concept of diet, different types of diet-High energy and low energy diet, High fiber diet,High protein diet , High fat and High carbohydrate diet. Soft diet, fluid diet, liquid diet, SDA.,BMR.
2)Energy computation for diet formulation – Basic types.Carbohydrate, protein and fat supply for energy demand- General rules asper ICMR.Variation in Macro nutrients of different age group.Energy supply in Break fast, Lunch, Dinner asper WHO.Balance Sheet Preparation of energy and Macronutrients.
3)Principle of diet formulation of Pre-school and school going children,Pubertal male and female, Adult male and female, Diet for Pregnant and Lactating Mother.
4)Nutrients demands for geriatric persons.Diet of geriatric persons.
5)Nutrient demands for sports man and athlets.Pre-game and Post game meal.Diet of athlets.
6)General concept of diet / Energy supply for persons in space craft.

## BNUTCCHT402-PRINCIPLE OF THERAPEUTIC DIET

1)General concept of Therapeutic diet – Preventive, promotive and recoverable approach of Therapeutic diet.
2) General Principle for the conversion of Basic diet into therapeutic diet Approaches adopted.
3)Guide line of therapeutic diet formulation on the basis of patient need – Energy, Protein, Fat, Carbohydrate, Vitamins and Minerals, Nutraceuticals.
4)Therapeutic diet in fever, oxidative stress, excess dehydration.
5)Meal frequency in therapeutic diet in different condition.
6)General approach of parenteral and Enternalcare, features, advantages and disadvantages, monomeric and oligomeric diet.
7)Basic concept of RUTF for SAM. Basic Idea about formulated food.

## BNUTCCHS403-BSIC DIET

1)Energy calculation on the basis of given data – a) Work style.
b) Body parameters and PAL.
c) Injury factor.
2) Distribution of Energy from macro nutrients as per Standard rule.
3)Menu preparation and nutrient analysis and balance sheet preparation as per meal frequency.
4)Diet formulation of Pre – school and School going children.
5)Diet formulation of pubertal and adult individuals with menu planning and analysis.
6)Formulation of Diet of Pregnant and Lactating mother, Geriatric persons, Menu Panning and analysis

**BNUTSEHT405-NUTRITIONAL COUNSELLING AND EDUCATION**

- To understand the principles and methods of counselling
- To apply counselling methods to patients with different diseases
- To promote body's potential towards health, wellness and disease prevention
- To help individuals overcome their immediate problems and also to equip them to meet future problem
- Understand dietary counseling for prevention / treatment of various diseases / disorders.
- Acquire knowledge on special therapeutic / health foods.

# SEMESTER V

## BNUTCCHT501-THERAPEUTIC DIET

1) **Energy modifications and nutritional care for weight management :** Identifying the over weight and obese,etiological factors contributing to obesity prevention and treatment.Low energy diets,balanced energy reduction and behavioral modification. Under weight-etiology and assessment,high energy diets for weight gain,anorexia,nervosa,and bulimia.
2) Diets for febrile conditions,infections and surgical condition.
3) **Etiological factors,symptoms,diagnostic tests and management of upper GI tract disease :** Disease of esophagus and dietary management,diseases of stomach and dietary management.Gastric and duodenal ulcers and dietary management.
4) **Etiology,syptoms,diagnostic tests and managent of intestinal diseases :**Diarrhoea,Steatorrhoea,Diverticulardisease,Inflammatory bowel disease,Ulcerative,Colitis,Flatulance,Constipation,Irritable Bowel Syndrome,Haemorrhoids.
5) Etiology,symptoms,diagnostic tests and management of Malabsorptionsyndrome,Celiac sprue,Tropicalsprue,Intestinal brush borderdeficiencies (Acquired disaccharide intolerance),Protein losingenteropathy.
6) General aspect of diet in Burn and Sepsis condition.

## BNUTCCHS502-THERAPEUTIC DIET

1) Clinical assessment and sign of nutrient deficiency for the following :PEM,VitA,Anaemia,Rickett,Vit B-complex deficiencies.
2) Energy computation and Therapeutic diet formulation of obese and over weight persons.
3) Formulation of therapeutic diet for underweight.
4) Therapeutic diet formulation for recovery from diarrhea, dysentery, constipation, colitis, ulcer.
5) Therapeutic diet formulation for Burn and Spesis patient.
6) Therapeutic diet of Pre-surgical and Post-surgical condition.
7) Therapeutic diet formulation of diferent febrile condition.

## BNUTDSHC1-FOOD MICROBIOLOGY

1) Brief history of microbiology with reference to microorganism in food.
2) Primary sources of food contamination,physical and chemical methods used in sterilization and disinfection.
3) Cultural aspect of microorganisms : Types of culture media,methods of pure culture.
4) Role of microorganisms in the spoilage of different kinds of foods-cereal and cereal products,vegetables and fruits,fish and other sea foods,meat and meat products.
5) Bacterial food infections (Salmonellosis,Shigellosis and Listeriosis ) and food poisoning (Staphyloccal and Botulism) : Symptoms,mode of transmission and methods of prevention.
6) Control of microorganisms in foods-extrinsic and intrinsic parameters affecting growth and survival of microbes,use of high and low temperature,dehydration,freezing,freeze-drying,irradiation and preservatives in food preservati

## BNUTDSHC2-RESEARCH METHODOLOGY , COMPUTER SCIENCE, AND BIO-STATISTICS

1)General concept of Research, Basic Research, Applied Research and Action Research, Historical Research, Quantitive and Qualitative Research, Basic difference between Research Methods and Research Methodology.
2)Basic Idea about research hypothesis , Aims and objective , Importance of Literature preview in research.
3)Ethics of Research , Guideline of Research report Preparation.
4)Basic Idea about software and Hardware of computer, Input, Out put device of computer.Idea about computer virus.
5)Importance of Bio-statistics in Nutrition,Idea about central Tendency, Normal distribution of variable, Standard error and Standard deviation.
6)Parametic and Non Parametic statistics – t' test and chi Square test,Significance study.

# SEMESTER VI

## BNUTCCHT601-THERAPEUTIC DIET

1) **Diet in disease of the endocrine pancreas :** Diabetes Mellitus-Classification,symptoms,diagnosis,management-Insulin therapy,oral hypoglycemic agents,glucose monitoring at home,dietary care and nutritional therapy,meal plan (with and without insulin ),special diabetic foods,sweeteners and sugar,Substitute.Diabetesincepidus.
2) **Disease of the cardiovascular system :** Atherosclerosis etiology and risk factors.Hyperlipidemias- brief review of Lipoprotein and their metabolism,classification of hyper lipidemias,clinical and nutritional aspects of hyper lipidemias.Dietary care- Ischemic Heart Disease-nutritional management.Hyper tension-etiology,prevalence,nutritionalmanagement.Prevention of cardio vascular diseases and diet.
3) **Renal Diseases :**Classification,etiology,symptoms of Glomerulonephritis-dietary management.Acute and Chronic Nephritis-dietary management.Ureaemia-dietary management.Nephrolithiasis-dietary management.Use of sodium and potassium exchange list.
4) **Allergies :** Definition symptoms,diagnosis and dietary management- food selection.
5) **Inborn error of metabolism :** Lactose Intolerance,Galactosamia,Phenylketonuria.
6) **Diet for Anaemic patient.**

## BNUTCCHS602THERAPEUTIC DIET

1) Energy calculation puetrients requirement and diet formulation of insulin injected or without insulin injected diabetic patient with meal frequency, analysis and balance sheet preparation.
2) Therapeutic diet formulation with energy and nutrient supply through 5-6 meals of hyper tensive, hyper lipidemic, CHD patients.
3) Formulation of therapeutic Diet of Renal patient indifferent categories.
4) Therapeutic diet formulation of PKU and Lactose intolerance patients.
5) Menu planning and diet formulation of allergic patient with analysis and Balanced Sheet preparation.
6) Low Sodium diet formulation of hypertensive patient /CHD patients-menu planning, dietary analysiss and Balanced sheet preparation.

## BNUTDSHC3-NUTRIGENOMICS

1)Basic concept about nutrigenoomics and its development, importance .
2)General concept of Eukaryotic gene – Regulator part, Functional part.
3)Different approaches of Nutrient – Gene interactions , Possible models for such interaction .
4)Role of Macro, Micro nutrients and Nutraceuticals on gene expression.
5)Basic concept of Southern Blot and Northern Blot study in connection with nutrigenemics.

## BNUTDSHC3-NUTRITIONAL DISASTER MANAGEMENT

1)General concept of Disaster, Types of Disaster.
2)Disaster management cycle – different Phases.
3)Packed food Distribution at Disaster – Advantages – Dis advantages.
4)Supplemental Nutrition Programme in Disaster – Types, Guide line for implementation and formation of such Programme.
5)Vulnerable groups in Disaster.
6) Field work.,Project submission.

## BNUTDSHC5-BNINFORMATION EDUCATION AND COMMUNICATION (IEG)

1)General concept of Data, Information and Intelligence.
2)Role of Information gathering on education expression –horizontal and vertical expression,Formal and Informal education.
3)Types of Communication – Group discussion, Interactive discussion, Display techniques, Mass Media Communicates.
4)Child to child and Child to parent Communication, Women to Women Communication.Strategies – Advantages and Disadvantages.
5)Attitude – Types – Education and Attitude modifications.
6)Impact of Communication on disease , Prevention and Early recovery.

## COMPULSORY INTERNSHIP

- Acquire skills in diet therapy, food service management and nutrition/health education.
- .Apply principles of medical nutrition therapy and food service management in a hospital set up.

## VISIT TO ANY FOOD SEVICE INSTITUTION

- Develop a knowledge base about the physical facilities needed for different types of food service units.
- Acquire skills to manage the financial aspects in food service units.
- Understand the practical aspects in maintenance of sanitation and safety in units. `
- Acquire skills to develop marketing strategies.
- Acquire skills to start their own food service unit as entrepreneurs
- Understand the practical operations of some food service units.
- Acquire knowledge about handling operations in different catering units.
- Acquire skills to develop suitable products for different situations.
- Acquire knowledge about some regional and international cuisines.
- Understand the procedures involved in training and sales promotion.