

Approved syllabus- dated 16-06-2017

B.Sc. CLINICAL NUTRITION & DIETETICS [CHOICE BASED CREDIT SYSTEM (CBCS)]

FIRST YEAR – SEMESTER I				
Code	Course Title	Course Type	HPW	Credits
BS 101	Environmental Studies	AECC 1	2	2
BS 102	English	CC-1A	5	5
BS 103	Second Language	CC-2A	5	5
BS 104	Physiology & Biochemistry	DSC - 1A	4T+2P=6	4+1=5
BS 105	Optional II	DSC - 2A	4T+2P=6	4+1=5
BS 106	Optional III	DSC - 3A	4T+2P=6	4+1=5
	TOTAL			27
SEMESTER II				
BS 201	Gender Sensitization	AECC 2	2	2
BS 202	English	CC-1B	5	5
BS 203	Second Language	CC-2B	5	5
BS 204	Basic Nutrition	DSC -1B	4T+2P=6	4+1=5
BS 205	Optional II	DSC -2B	4T+2P=6	4+1=5
BS 206	Optional III	DSC -3B	4T+2P=6	4+1=5
	TOTAL			27
SECOND YEAR- SEMESTER III				
BS 301	Food Preservation	SEC -1	2	2
BS 302	English	CC-1C	5	5
BS 303	Second Language	CC-2C	5	5
BS 304	Basic Dietetics	DSC- 1C	4T+2P=6	4+1=5
BS 305	Optional II	DSC- 2C	4T+2P=6	4+1=5
BS 306	Optional III	DSC- 3C	4T+2P=6	4+1=5
	TOTAL			27
SEMESTER IV				
BS 401	Food Safety	SEC – 2	2	2
BS 402	English	CC-1D	5	5
BS 403	Second Language	CC-2D	5	5
BS 404	Food Science	DSC- 1D	4T+2P=6	4+1=5
BS 405	Optional II	DSC- 2D	4T+2P=6	4+1=5
BS 406	Optional III	DSC- 3D	4T+2P=6	4+1=5
	TOTAL			27
THIRD YEAR- SEMESTER V				
BS 501	Patient Counseling Skills	SEC-3	2	2
BS 502	Communication	AECC 3	2T	2
BS 503	Diet Therapy	DSC-1E	3T+2P=5	3+1=4
BS 504	Optional II	DSC-2E	3T+2P=5	3+1=4
BS 505	Optional III	DSC-3E	3T+2P=5	3+1=4
BS 506	A- Community Nutrition	DSE-1E	3T+2P=5	3+1=4
	B- Food Service Management			
BS 507	Optional II A/B/C	DSE-2E	3T+2P=5	3+1=4
BS 508	Optional III A/B/C	DSE-3E	3T+2P=5	3+1=4
	TOTAL			28

SEMESTER VI				
BS 601	Nutrition and Fitness	SEC- 4	2	2
BS 602	Fundamentals of Foods and Nutrition	GE-1	2	2
BS 603	Advanced Dietetics	DSC-1F	3T+2P=5	3+1=4
BS 604	Optional II	DSC-2F	3T+2P=5	3+1=4
BS 605	Optional III	DSC-3F	3T+2P=5	3+1=4
BS 606	A- Public Health	DSE-1F	3T+2P=5	3+1=4
	B- Maternal and Child Nutrition			
BS 607	Optional II A/B/C	DSE-2F	3T+2P=5	3+1=4
BS 608	Optional III A/B/C	DSE-3F	3T+2P=5	3+1=4
	TOTAL			28
	TOTAL CREDITS			164

Chairman Board of Studies, Nutrition, OU.

CC- Core Course

AECC- Ability Enhancement Compulsory Course

DSC- Discipline Specific Core

SEC- Skill Enhancement Course

DSE- Discipline Specific Elective

GE- Generic Elective

HPW – Hours per week

SUMMARY OF CREDITS FOR B. Sc. PROGRAM

S. No.	Course Category	No. of courses	Credits per course	Credits
1	AECC	3	2	6
2	SEC	4	2	8
4	CC	8	5	40
5	DSC	12	5	60
6	DSC	6	4	24
7	DSE	6	4	24
7	GE	1	2	2
	TOTAL	40		164
	Optionals (Total)	24		108

**B.Sc. CLINICAL NUTRITION & DIETETICS
OSMANIA UNIVERSITY**

REVISED SYLLABUS (CBCS) WITH EFFECT FROM 2016-17

B. Sc. I YEAR

SEMESTER I (Theory)

PHYSIOLOGY & BIOCHEMISTRY
4 Hours/Week; Credits 4

60 Hrs
CODE 104, DSC-1A

- Unit I 16 Hours
Molecular aspect of transport: Passive diffusion, facilitated diffusion, active transport, and passive transport.
Major metabolic pathways: Carbohydrate metabolism: Classification, digestion, absorption, glycolysis, citric acid cycle, glycogenesis and glycogenolysis, gluconeogenesis, pentose phosphate pathway. Lipid metabolism: Digestion, absorption, and beta-oxidation of fatty acids.
- Unit II 18 Hours
Protein metabolism: Classification, digestion and absorption, deamination and transamination, Urea cycle.
Hormones: Pituitary, adrenocortical, thyroid and reproductive hormones, hormones of the adrenal cortex- Mode of action and control of secretion.
- Unit III 14 Hours
Blood and blood circulation: Blood composition, functions, clotting, blood groups, blood vessels- artery, vein, capillary, structure of heart, cardiac cycle, Blood pressure – pulse, systolic, diastolic. Respiratory system: Structure and functions of respiratory organs (in brief), Mechanism of respiration.
- Unit IV 12 Hours
Digestive system: Organs, structure, functions of esophagus, stomach, small intestine, large intestine. Glands - Liver, gall bladder, pancreas.
Excretory system: Organs structure and functions of kidney, ureter, and urinary bladder. Formation of urine, Composition of normal urine, Abnormal constituents of urine.

Suggested Readings

Guyton A.C. and Hall J.E. Textbook of Medical Physiology, Saunders, Latest Edition.

Rama Rao A.V.S.S. and Surya Lakshmi A., A text book of Biochemistry for medical students, UBS Publishers Distributors Ltd.

Weil J.H. General Biochemistry, Wiley Eastern Limited, New Delhi.

Suresh R. Essentials of Human Physiology, Books and Allied (P) Ltd. Kolkata, 2013.

Chatterjee C.C. Human Physiology, Medical Allied Agency, Calcutta.

Chakrabarti, Ghosh and Sahana's Human Physiology, The New Book Stall, Calcutta.

Pavan Kumar B.S.P., Medical Transcription - The What, Why and How, Paras Publishing,

Hyderabad.

I SEMESTER SYLLABUS – Practical paper

PHYSIOLOGY & BIOCHEMISTRY

2 Hours/week Credits 1

Total No. of Practicals 8

1. Digestive system:

Observation and drawing liver, kidney, spleen, pancreas, stomach, gall bladder, large and small intestine.

2. Types of cells:

Microscopic examination of prepared slides.

- a) Epithelium- stratified, squamous, ciliated, columnar.
- b) Connective tissue - Adipose tissue, Bone, areolar, connective tissue.
- c) Muscle - Smooth, cardiac, stratified.
- d) Nerve - Medullated, Nerve cell. Examine and draw the tissues.

3. Blood:

- a) Microscopic examination of prepared slides.
 - i) fresh mount of blood
 - ii) Stained blood smear
- b) Testing of blood groups using typed sera.
- c) Measurement of Hemoglobin by Sahli's Method

4. Heart: Anatomy of heart. Circulation - drawing and labeling.

5. Histology of

- a) Lung section
- b) Trachea

Pulse and respiration rate- at rest and after exercise.

6. Arterial blood pressure: Determination using a Sphygmomanometer.

7. Excretion: drawing and labeling the excretory system.

8. Skin:

- a) Histology: Microscopic examination of prepared slides.
- b) Measurement of body temperature - Mouth and armpit.

B Sc I YEAR, SEMESTER II (Theory)

BASIC NUTRITION

Code BS 204, DSC 1-B

60 Hrs

4 Hours/Week, Credits 4

Unit I

16 Hours

Introduction to nutrition, food as a source of nutrients, functions of foods. Definition of nutrition, nutrients, adequate, optimum and good nutrition, malnutrition. Inter relationship between nutrition and health.

Water as a nutrient, function, sources, requirement, water balance, effect of deficiency.

Carbohydrates: composition, food sources, functions, storage in the body.

Fats and oils: Composition, classification, and food sources, Functions.

Unit II

18 Hours

Proteins: Composition, sources, essential and non-essential amino acids, functions, protein deficiency (very brief).

Energy: Units of energy, components of energy requirement, BMR, Measurement of energy, factors affecting BMR. Minerals: Function, sources and deficiency of Calcium, iron, iodine, fluorine, sodium and potassium (in very brief).

Vitamins: Classification, sources, functions and deficiency of

a) Fat soluble vitamins A, D, E, K.

b) Water soluble vitamins -Ascorbic acid, Thiamine, Riboflavin, Niacin, Vitamin B₆, Vitamin B₁₂, Folic acid.

Unit III

14 Hours

Introduction to meal management, Balanced diet, Food guide, Basic 5 food groups.

Basic principles and steps in meal planning. Nutrition in pregnancy: Physiological stages of pregnancy, nutritional requirements, complications of pregnancy.

Nutrition during infancy: Nutritional requirements, Nutritional contribution of Human milk vs. cow's milk/infant formula, Introduction of supplementary foods.

Nutritional requirements during Lactation.

Unit IV

12 Hours

Nutrition during Early childhood: Nutritional requirements of a toddler/ preschool child.

Nutrition of School children: Nutritional requirements of school children, Importance of snacks, School lunch.

Nutrition during Adolescence: Nutritional requirements of adolescents, Factors influencing eating habits.

Geriatric Nutrition: Factors influencing food intake, Nutritional requirements.

Suggested Readings

Agarwal, A. and Udipi S. A. Textbook of Human Nutrition, Jaypee Brothers Medical Publishers (P) Ltd. New Delhi, 2014.

Helen A. Guthrie, Introductory Nutrition, Times Mirror-Mosby.

Swaminathan M. Advanced Text book on Food and Nutrition, Vol-I, The Bangalore Printing & Publishing Co., Ltd.

Wardlaw G.M. & Insel P.M. Perspectives in Nutrition Mosby Publishing Co., St. Louis.

Mudambi, S.R. and Rajagopal M.V. Fundamentals of Foods and Nutrition, Wiley Eastern Limited.

Patricia A. Kreutler and Dorice Czajka Narins, Nutrition in perspective, Prentice Hall, New Jersey.

II SEMESTER SYLLABUS – Practical paper

BASIC NUTRITION

2 Hours/week Credits 1

Total Number of Practicals 7

1. Planning diets for Adult man and woman during different physical activities- sedentary, moderate and heavy worker.
2. Planning of a balanced diet for a pregnant woman.
3. Planning of a balanced diet for a Nursing mother.
4. Planning a diet for a pre-school child.
5. Planning a balanced diet for a school age child.
6. Planning a balanced diet for an Adolescent.
7. Planning a diet for a Senior Citizen.

B. Sc. II YEAR

B Sc II Year, SEMESTER III

SKILL ENHANCEMENT COURSE (SEC 1)

FOOD PRESERVATION

Code: BS 301, SEC-1

30 Hrs

2 Hours/Week, Credits 2

Unit I

7 hours

Food spoilage and nutrient losses during storage – physical, chemical and microbial spoilage of foods.

Unit II

8 hours

Food Preservation – the importance and general principles of food preservation. Home scale methods of food preservation like drying, refrigeration, pickling, use of sugars and chemical preservatives.

Unit III

8 hours

Commercial methods of food preservation, Preservation by high temperature, low temperature, dehydration, High concentration of salt.

Preservation by Osmotic Pressure, Food Irradiation, chemicals.

Unit IV

7 hours

Nutrition Labeling, Labeling Provisions in Existing Food Laws. Recent developments on the Food Labeling front in India.

Suggested Readings

Manoranjan Kalia and Sangita Sood, Food Preservation and Processing, Kalyani Publishers, New Delhi.

Sri Lakshmi B. Food Science, New Age International P. Ltd. Publishers.

Norman N. Potter, Joseph H. & Hotchleiss, Food Science, CBS Publishers and Distributors.

N. Shankuntala Manay and M. Shadaksharaswamy, Food Facts and Principles, New Age International Publishers.

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

SEMESTER III (Theory)

BASIC DIETETICS Code BS 304, DSC 1-C

**60 Hrs
4 Hours/Week, Credits 4**

Unit I

Role of a dietitian in a hospital.

14 Hours

Basic Concepts: Diet Therapy, Therapeutic diets, Therapeutic Adaptation- The Normal diet.

Routine Hospital diets: Regular diet, soft diet, full liquid diet. Special feeding methods, Enteral and Parenteral Nutrition, Types of enteral formulas, Total Parenteral Nutrition.

Unit II

14 Hours

Modifications of diet- Febrile conditions (Fever), infections and surgical conditions.

Obesity: Causes of obesity, types of obesity, Low calorie reducing diet. Liver diseases: Infectious hepatitis and Cirrhosis- Symptoms and clinical findings, etiology and dietary management.

Unit III

16 Hours

Diabetes mellitus: Types of diabetes, symptoms and tests for detection- Dietary management of Type 2 Diabetes.

Peptic Ulcer: Symptoms and clinical findings, current concepts in dietary management.

Unit IV

16 Hours

Cardiovascular diseases: Atherosclerosis - risk factors and dietary management.

Hypertension - Types and dietary management.

Renal diseases: Symptoms and clinical findings of glomerulonephritis and Nephrotic syndrome.

Nutrition and Diet Clinics: dietary counseling, steps in the counseling process.

Suggested Readings

Sri Lakshmi B., Dietetics, New Age International P. Ltd. Publishers.

Antia F.P. Clinical Dietetics and Nutrition, Oxford University Press, Delhi.

Robinson C.H., Lawler M.R., Chenoweth, W.L. and Garwick A. E., Normal and Therapeutic Nutrition, Mac Millan Publishing Co.

Burtis G, Davis J & Martin S., Applied Nutrition and Diet Therapy, W. B. Saunders Co.

Swaminathan M., Advanced text book in food and nutrition Vol - II, The Bangalore Printing and Publishing Co.

Kumud Khanna, Text book of Nutrition and Dietetics, Phoenix Publishing House, New Delhi.

III SEMESTER SYLLABUS – Practical paper

BASIC DIETETICS

2 Hours/week Credits 1

Total Number of Practicals 10

1. Standardization of common food preparations.
2. Planning and preparation of Normal diet.
3. Planning and preparation of liquid diet.
4. Planning and preparation of soft diet.
5. Planning and preparation of low calorie reducing diet.
6. Planning and preparation of Bland diet for Peptic Ulcer.
7. Planning and preparation of diets for Infectious Hepatitis and Cirrhosis of liver.
8. Planning and preparation of diet for Diabetes mellitus.
9. Planning and preparation of diets for Atherosclerosis and Hypertension.
10. Planning and preparation of diets for Nephritis and Nephrotic syndrome.

B Sc II Year, SEMESTER IV
SKILL ENHANCEMENT COURSE (SEC 2)

FOOD SAFETY

Code BS 401, SEC-2

30 Hrs

2 Hours/Week, Credits 2

Unit I

7 Hours

The relationship of micro organisms to sanitation, Environmental effects of microbial growth. Effects of micro organisms on food degradation and food-borne illnesses.

Unit II

7 Hours

Importance of personal hygiene of Food handler, Education of Food handler in handling and serving food, Hazard Analysis and Critical Control Points (HACCP).

Unit III

8 Hours

Food Safety, Factors affecting Food safety. Safety of left over foods. Control of Food spoilage. Food Contamination- Sources and Transmissions. Accidental contamination: botulism, staphylococcal intoxication.

Unit IV

8 Hours

Food Adulteration. Adulterants in commonly consumed food items.

Food laws, regulations and standards

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

Suggested Readings

Jacob M., Safe Food Handling - A training guide for the Manager, WHO, Geneva.

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

Patil, P.V. Food Contamination and Safety, Aavishkar Publishers, Distributors, Jaipur, India.

Nicholas Johns, Managing Food Hygiene, Mac Millan Publishing Co.

Hobbs, B.C. and Gilbert R.J. Food Poisoning and Food Hygiene, The English Language Book Society and Edward Arnold Publishers Ltd.

B Sc II Year, SEMESTER IV (Theory)

FOOD SCIENCE
Code BS 404, DSC-1D

60 Hours
Hours per week 4, Credits 4

Unit I

18 Hours

Cereals and Millets: Structure of a cereal grain, cereal products, processing, use in variety of preparations and nutritional aspects of rice and wheat. Maize, bajra, jowar and ragi, processing and nutritive value; Breakfast cereals.

Pulses and Legumes: Composition, processing, use in variety of preparations and nutritional aspects.

Unit II

18 Hours

Milk and milk products: Composition, classification, processing, Storage, uses and nutritional aspects of milk and milk products.

Eggs: Composition, nutritional aspects, structure, grading, quality, testing for quality, storage and uses.

Fish, Poultry and Meat: Composition, nutritional aspects, storage and uses.

Unit III

12 Hours

Vegetables and fruits: Variety, selection, composition and nutritional aspects, uses.

Sugar and sugar products: Types of sugar, sugar related products (jaggery, honey, corn syrup etc.) and uses. Fats and oils: Nutritional aspects, classification, sources and uses.

Unit IV

12 Hours

Spices: Spices, condiments and herbs used in cookery. Salt: Types, uses in the diet

Food Additives: definition of food additive, Food colors- natural and artificial. Essences and flavoring agents, flavor enhancers. Convenience foods: Role, types, advantages, uses.

Suggested Readings

Sri Lakshmi B. Food Science, New Age International P. Ltd. Publishers.

Norman N. Potter, Joseph H. & Hotchleiss, Food Science, CBS Publishers and Distributors.

N. Shankuntala Manay and M. Shadaksharaswamy, Food Facts and Principles, New Age International Publishers.

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

IV SEMESTER SYLLABUS – Practical paper

FOOD SCIENCE

Total Number of Practicals 10

2 Hours/week Credits 1

1. Cereal preparations: Chinese fried rice, Vegetable Pulao with Raita.
2. Pulse preparations: Alu Cholae, Masala Rajma.
3. Vegetable preparations: Palak paneer, Vegetable Khorma
4. Snacks: Pav bhaji, Chutney sandwiches.
5. Sweets: Carrot Halwa, Vermicelli Kheer.
6. Salads and Raitas: Mixed Vegetable salad, Cucumber Raita, Boondi Raita
7. Western dishes: Vegetable Noodles
8. Soups- Sweet corn soup, Tomato soup.
9. Cakes- Marble cake, Victoria sponge cake.
10. Biscuits- Salt biscuits, Chocolate Fancies and Jam Tarts.

B. Sc. III YEAR

B Sc III Year, SEMESTER V

SKILL ENHANCEMENT COURSE (SEC 3)

PATIENT COUNSELING SKILLS

30 Hours

Code BS 501, SEC-3

Hours/week 2 Credits 2

Unit I

9 Hours

Medical Terminology, the Medical Record, Medical History assessment and Patient profile, Dietary Intake Assessment and Nutrition History: 24 hour recall, diet history, Food Frequency Questionnaire.

Unit II

7 Hours

Tests for Nutritional Status. Nutrition Diagnosis, Intervention, Patient Education and Counseling tips.
Definition of Counseling, Nutrition counseling goals- the people involved Communication process in counseling.

Unit III

8 Hours

Counseling skills for behavior change, Developing behavior change strategies, Problems in Communication, Resources and Aids to Counseling.

Unit IV

6 Hours

Counseling for Weight Management- Clinical Assessment, Types of obesity, Health risks, Causes, Diets in obesity.

Suggested Readings

Kathy King and Bridget Klawitter, Nutrition Therapy: Advanced Counseling Skills, Third Edition, Lippincott Williams and Wilkins, 2007.

Sylvia Escott Stump, Nutrition and Diagnosis – Related Care, Sixth Edition, Lippincott Williams and Wilkins, 2008.

Krause M, Kathleen. L Mahan and Sylvia Escott Stump, Food Nutrition and Diet Therapy, 11th Edition, W.B Saunders Co, Philadelphia, 2004.

SEMESTER V

Theory Paper

DIET THERAPY

Code BS 503, DSC 1-E

45 Hours

3 Hours/week, Credits 3

Unit I

10 Hours

Assessment of Nutritional status, Functional assessment, Chronic disease risk assessment.

Burns: Degree of burns, Fluid and electrolyte replacement and dietary management of Burns patients.

Unit II

10 Hours

Cancer: Definition, Cancer Therapy, and Dietary management of cancer patients. Underweight: Causes of Underweight and dietary recommendations.

Diet in Gastritis. Symptoms of Gastritis.

Unit III

15 Hours

Diet in disturbances of the small intestine and colon: Diarrhea - Types of diarrhea, dietary management. Constipation - Types of constipation and dietary management.

Ulcerative colitis: Symptoms and dietary treatment.

Sprue, Celiac disease and Disaccharide intolerance- Symptoms and dietary treatment.

Unit IV

10 Hours

Diet in diseases of the Liver, Gall bladder and Pancreas: Etiology, symptoms and dietary management of Hepatic Coma, Cholecystitis, Cholelithiasis and Pancreatitis.

Suggested Readings

Antia F.P. Clinical Dietetics and Nutrition, Oxford University Press, New Delhi.

Robinson C.H., Lawler M.R., Chenoweth W.L. and Garwick A.E., Normal and Therapeutic Nutrition, Mac Millan Publishing Co.

Sri Lakshmi B. Dietetics, New Age International (P) Ltd., Publishers.

Burtis G., Davis J. and Martin S. Applied Nutrition and Diet Therapy, W.B. Saunders Co.

Kumud Khanna, Text book of Nutrition and Dietetics, Phoenix Publishing House P. Ltd. New Delhi.

Sue Rodwell Williams, Nutrition and Diet Therapy, Times, Mirror/Mosby, College publishing, St. Louis.

V SEMESTER SYLLABUS – Practical paper

DIET THERAPY

2 Hours/week Credits 1

Total Number of Practicals 8

1. Routine Hospital Diets
 2. Planning and preparation of diets with modified residue for Diarrhea and Constipation.
 3. Planning and preparation of diets for Hepatic Coma.
 4. Planning and preparation of diets for Influenza.
 5. Planning and preparation of diets for Hyperlipidemia.
 6. Planning and preparation of diets for Congestive Heart Failure.
 7. Planning and preparation of diets for Burns patients.
 8. Planning and preparation of diets for Cancer.
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B Sc III Year SEMESTER V

A) COMMUNITY NUTRITION

Code BS 506, DSE 1-E

45 Hours

Hours/week 3, Credits 3

Unit I

15 Hours

Public Health or Community Nutrition: Nutritional problems confronting India: Protein energy malnutrition- Prevalence, Classification, Causes or etiology of malnutrition, Prevention of malnutrition.

Unit II

10 Hours

Vitamin A deficiency- Prevalence, Etiology, Treatment, Prevention and Control.

Unit III

10 Hours

Iron deficiency Anemia- Prevalence, Etiology of iron deficiency, Clinical Manifestations, Prevention and control.

Unit IV

10 Hours

Iodine deficiency disorders- Prevalence, Causes and Measures for prevention and control.

Suggested Readings

Text book of Human Nutrition, 4th Edition, Ed. by Mahtab S. Bamji, Kamala Krishnaswamy and G.N.V. Brahmam. Oxford and IBH Publishing Co., P. Ltd. New Delhi.

Srilakshmi B, Nutrition Science, New Age International Publishers.

Ritchey S.J. and Taper L.J., Maternal and child nutrition, Harper and Row publishers N.Y.

Swaminathan M. Advanced Text book on Food and Nutrition, Vol-II, The Bangalore Printing and Publishing Co. Ltd.

Mc Laren D.S. Nutrition in the Community, John Wiley and Sons.

V SEMESTER SYLLABUS – Practical paper

COMMUNITY NUTRITION
2 Hours /Week Credits 1

Total Number of Practicals 8

1. Techniques of taking anthropometric measurements using standardized equipment.
2. Assessing nutritional status of school children using Anthropometric measurements.
3. Data Analysis and comparison with standards.
4. Methods of Extension used in the Community
5. Preparation of visual aids, charts, posters, models etc. for exhibition.
6. Lecture and Method demonstrations to Target groups.
7. Lectures and Interactive session with school children using visual aids
8. Nutrition education programme for adolescent girls using charts, models, flip charts, folders etc.

B Sc III Year, SEMESTER V

B) FOOD SERVICE MANAGEMENT
3 Hours/week

45 Hrs
Credits 3

Unit I

15 Hours

Aims and objectives of different food service outlets.

a) Industrial b) Institutional c) Hospitals

Different food and beverage outlets: Fast food restaurants, takeout food service, Hotel/Motel food services, Transport food service and Institutional food service.

Unit II

10 Hours

Menu Planning: Factors affecting menu planning, Sequence of courses, Types of menus, cycle menu, menu display, The cover, preparation for service.

Types of meals: Styles of service for breakfast, lunch, dinner, afternoon Tea, snacks (Table d'hôte and a' la Carte menu).

Unit III

10 Hours

Types of service. Five types of service of food and beverage outlets: Table service, Assisted service, Self service, Single point service, and Specialized service.

Unit IV

10 Hours

Staff Organization for a' la carte and Table d' hote, Manager, Hostess, Supervisor, Steward and Waiter.

Suggested Readings

Kinton and Cesarani, Theory of Catering, Butler and Tanner Ltd.

Mahmood A Khan, Food Service Operations, Avi Publishing Co.

Lillicarp D.R., Food and Beverage Service, B.L.B.S. Publishers.

Sudhir Andrews, Food and Beverage Service, Tata McGraw Hill Publishing Co Ltd.

Brian Verghese, Professional Food and Beverage Service Management, McMillan (I) Ltd.

Cracknell H., Kaufmann R.J. and Nobis G., Practical Professional Catering, Mac Millan Publishers.

Edith & Halweiss, Catering Hand book, Tarapore walla & Sons Co. P Ltd.

V SEMESTER SYLLABUS – Practical paper

FOOD SERVICE MANAGEMENT

Total no of practicals 8

Hours per week 2 Credits 1

1. Organizing, preparing and serving snacks for 50 members or more.
2. Setting up the restaurant- Laying the tablecloth, setting up of silver and other Table appointments.
3. Folding of serviettes.
4. Serving and clearing practice.
5. French and English service.
6. Service of beverages.
7. Laying of breakfast.
8. Tray service.

B Sc III Year, SEMESTER VI SKILL ENHANCEMENT COURSE (SEC 4)

NUTRITION AND FITNESS Code BS 601, SEC-4

**30 Hrs
2 Hours/week Credits 2**

Unit I 7 Hours
Understanding Fitness, Definition of fitness, health and related terms Assessment of fitness, Approaches for keeping fit.

Unit II 8 Hours
Importance of nutrition Role of nutrition in fitness, Nutritional guidelines for health and fitness
Nutritional supplements

Unit III 7 Hours
Importance and benefits of physical activity
Physical Activity – frequency, intensity, time and type with examples Physical Activity
Guidelines and physical activity pyramid

Unit IV 8 Hours
Weight Management
Assessment, etiology, health complications of overweight and obesity
Diet and exercise for weight management
Fad diets, Principles of planning weight reducing diets

Suggested Readings

Wardlaw, Smith. Contemporary Nutrition: A Functional Approach. Mc Graw Hill.

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

Joshi AS. Nutrition and Dietetics 2010. Tata Mc Graw Hill.

SEMESTER VI

FUNDAMENTALS OF FOODS AND NUTRITION

30 Hours

Course Description:

This course introduces the basic concepts of Food and Nutrition to highlight the ways that students can integrate good nutrition into their lifestyles. It includes a study of the nutrients and the components of adequate diets.

The student will become familiar with Dietary Guidelines and nutrient requirements.

Code BS 602, GE 1

Hours/week 2, Credits 2

Unit I

8 Hours

Concepts of Nutrition, Functions of Food, Concepts of Nutritionally adequate diets, Balanced diet- Definition and Importance, Recommended Dietary Allowances, RDI.

Unit II

7 Hours

Nutrient Requirements, Factors affecting RDA, Menu Planning, Food Pyramid, My Food Plate – concept, Food Exchange List (raw).

Principles of meal planning, objectives in meal planning, points to be kept in mind while planning a menu

Unit III

9 Hours

Nutrient components of Food; Classification of nutrients by - Origin (Animal and Vegetable)

Chemical Composition (Proteins, Carbohydrates, Fats, Vitamins and Minerals)

Classification by Predominant Function (Body Building, Energy Yielding and Protective Foods)

Unit IV

6 Hours

Basic Terminology used in Food Preparation.

Methods of Cooking- their advantages and disadvantages and Effect on the Nutritive Value.

Suggested Readings

Mudambi, S.R. and Rajagopal M.V. Fundamentals of Foods and Nutrition, Wiley Eastern Limited.

Swaminathan M. Advanced Text book on Food and Nutrition, Vol-I, The Bangalore Printing & Publishing Co., Ltd.

Sri Lakshmi B., Dietetics, New Age International P. Ltd. Publishers.

Kumud Khanna, Text book of Nutrition and Dietetics, Phoenix Publishing House, New Delhi.

SEMESTER VI

ADVANCED DIETETICS Code BS 603, DSC 1-F

**45 Hours
3 Hours /Week, Credits 3**

Unit I 15 Hours
Diabetes Mellitus: Incidence and Predisposing factors. Dietary management of Type I and Type II diabetes. Hypoglycemic agents, Insulin and its types, Complications of diabetes.

Unit II 10 Hours
Hyperlipidemia- Diagnosis. Risk factors and dietary management.
Congestive Heart Failure: Symptoms and dietary management.

Unit III 10 Hours
Diet in Renal diseases: Symptoms and dietary treatment in Renal Failure, Dialysis Renal calculi- Types of renal stones, Causes, symptoms and dietary management.

Unit IV 10 Hours
Sodium restricted diets: Levels of Sodium restriction, dangers of sodium restriction.
Gout: Causes and symptoms, Treatment and dietary recommendations.
Diet and drug interactions.

Suggested Readings

Antia F.P. Clinical Dietetics and Nutrition, Oxford University Press, New Delhi.

Robinson C.H., Lawler M.R., Chenoweth W.L. and Garwick A.E., Normal and Therapeutic Nutrition, Mac Millan Publishing Co.

Sri Lakshmi B. Dietetics, New Age International (P) Ltd., Publishers.

Burtis G., Davis J. and Martin S. Applied Nutrition and Diet Therapy, W.B. Saunders Co.

Kumud Khanna, Text book of Nutrition and Dietetics, Phoenix Publishing House P. Ltd. New Delhi.

Sue Rodwell Williams, Nutrition and Diet Therapy, Times, Mirror/Mosby, College publishing, St. Louis.

VI SEMESTER SYLLABUS – Practical paper

ADVANCED DIETETICS

Total Number of Practicals 8

2 Hours/week Credits 1

1. Planning and preparation of diets for Type 1 Diabetes Mellitus.
2. Planning and preparation of diets for Type 2 Diabetes Mellitus.
3. Planning and preparation of diets for Hyperlipidemia.
4. Planning and preparation of diets for Congestive Heart Failure.
5. Planning and preparation of diets for Acute Renal failure and Chronic Renal failure.
6. Planning and preparation of diets for patients with chronic renal failure undergoing Dialysis.
7. Planning and preparation of diets for Renal calculi.
8. Planning and preparation of diets for Surgery.

SEMESTER VI

A) PUBLIC HEALTH

45 Hours

Code BS 606, DSE 1-F

3 Hours/week, Credits 3

Unit I

10 Hours

Sampling Techniques; Methods of Assessment of Nutritional Status

Direct assessment- Anthropometry, Clinical assessment and Biochemical estimation and Diet surveys.

Unit II

15 hours

Indirect assessment- Food balance sheets and vital statistics.

Nutrition Education- Objectives, Channels of Nutrition education in the community.

Methods of educating the community, Lecture and method demonstrations, Nutrition exhibitions and visual aids.

Unit III

10 Hours

National and International agencies in community nutrition: FAO, WHO, UNICEF, CARE, ICMR, NIN, CFTRI, ICDS (Integrated Child Development Scheme) and Mid-day Meal Programs.

Unit IV

10 Hours

Fortification and enrichment of foods- Objectives of Fortification, Food fortification programmes in India.

Suggested Readings

Text book of Human Nutrition, 4th Edition, Ed. by Mahtab S. Bamji, Kamala Krishnaswamy and G.N.V. Brahmam. Oxford and IBH Publishing Co., P. Ltd. New Delhi.

Srilakshmi B, Nutrition Science, New Age International Publishers.

Ritchey S.J. and Taper L.J., Maternal and child nutrition, Harper and Row publishers N.Y.

Swaminathan M. Advanced Text book on Food and Nutrition, Vol-II, The Bangalore Printing and Publishing Co. Ltd.

Mc Laren D.S. Nutrition in the Community, John Wiley and Sons.

VI SEMESTER SYLLABUS – Practical paper

PUBLIC HEALTH
2 Hours/week, Credits 1

Total Number of Practicals 6

1. Diet and Nutrition Surveys
2. Identifying at risk and vulnerable groups.
3. Assessing the dietary intakes of Adolescent girls using a diet survey
4. Visits to observe the working of Nutrition and Health oriented Programmes- a govt. school to observe the mid day meal program
5. Visit to an ICDS (Integrated Child Development Scheme) Project Center
6. Visit to UNICEF to observe Child Nutrition Programs

SEMESTER VI

B) MATERNAL AND CHILD NUTRITION

45 Hours
Hours/week 3

Unit I

15 Hours

Nutritional needs during pregnancy, common disorders of pregnancy (Anemia, HIV infection, Pregnancy induced hypertension), relationship between maternal diet and birth outcome. Maternal health and nutritional status, maternal mortality and issues relating to maternal health.

Unit II

10 Hours

Nutritional needs of nursing mothers and infants, determinants of birth weight and consequences of low birth weight, Breastfeeding biology, Breastfeeding support and counselling.

Unit III

10 Hours

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.

Unit IV

10 Hours

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

Overview of maternal and child nutrition policies and programmes.

Suggested 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.

Text book of Human Nutrition, 4th Edition, Ed. by Mahtab S. Bamji, Kamala Krishnaswamy and G.N.V. Brahmam. Oxford and IBH Publishing Co., P. Ltd. New Delhi.

VI SEMESTER SYLLABUS – Practical paper

MATERNAL AND CHILD NUTRITION
2 Hours/week, Credits 1

Total Number of Practicals 8

1. Visit to a Govt. Hospital to observe a new born infant -Premature and full term baby.
 2. Preparing charts, models and posters for imparting Nutrition education.
 3. Nutrition education to mothers of infants (0-6 months) on importance of breastfeeding.
 4. Diet survey- 24 hour recalls for mothers of infants 0-12 months
 5. Assessing Nutritional status of mothers using diet survey and anthropometry.
 6. Product development- Developing a weaning food or supplementary food for infants (6-12 months of age)
 7. Conducting demonstration of a nutritious weaning food for mothers of infants (6 -12 months of age)
 8. Visit to UNICEF to observe child nutrition programs.
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