

**PROPOSED SCHEME FOR CHOICE BASED CREDIT SYSTEM IN
B.Sc.CLINICAL NUTRITION & DIETETICS**

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	Fundamentals of Foods and Nutrition	GE-1	2T	2
BS 503	Public Health	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	Nutrition and Health	GE-2	2	2
BS 603	Diet Therapy	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- Advanced Dietetics	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

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	2	2	4
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	2	2	4
	TOTAL	40		164
	Optionals (Total)	24		108

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

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

15 Hours

The Medical Record and Patient profile, Dietary Intake Assessment and Nutrition History: diet history, Food Frequency Questionnaire and 24 Hour recall.

Definition of Counseling, Nutrition counseling goals- the people involved, Communication process in counseling.

Unit II

15 Hours

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

Counseling for Weight Management- Assessment, Types of obesity, Causes, Counseling overweight and obese subjects.

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

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 502, GE 1

Hours/week 2, Credits 2

Unit I 15 Hours

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

Food groups, Food Guide for India, Factors affecting RDA,

Meal Planning: Principles of meal planning, objectives in meal planning, points to be kept in mind while planning a menu.

Unit II 15 Hours

Nutrient components of Food; Classification of nutrients by - Chemical Composition (Proteins, Carbohydrates, Fats, Vitamins and Minerals)

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

Nutrition during Adolescence: Nutritional requirements of adolescents, Iron deficiency Anemia- Causes and prevention.

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.

Srilakshmi B., Dietetics, New Age International P. Ltd. Publishers.

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

SEMESTER V
Theory Paper

PUBLIC HEALTH
Code BS 503, DSC 1-E

45 Hours
3 Hours/week, Credits 3

Unit I 10 Hours
Definition of Nutritional status, Methods of Assessment of Nutritional Status,
Direct assessment- Anthropometry, Anthropometric measurements, usefulness of
Anthropometric measurements. Clinical assessment- Usefulness and Limitations.

Unit II 15 hours
Direct Assessment: Biochemical assessment of Nutritional status, Types of Biochemical tests,
their usefulness and interpretation.
Dietary Assessment: Diet surveys, Methods of diet surveys, Analysis and interpretation.

Unit III 10 Hours
Indirect assessment- Food balance sheets and vital statistics.
National and International agencies involved in Public Health: FAO, WHO, UNICEF,
CARE, ICMR, NIN and CFTRI- Objectives and functioning.

Unit IV 10 Hours
National Programs: ICDS (Integrated Child Development Scheme), Mid-day Meal Program
and National Nutrition Mission- Objectives and functioning.
Fortification - Objectives of Food Fortification, Fortification of foods to improve their
nutritional quality or to restore nutrients, Food fortification programs in India- Iodization of
salt for controlling goiter, Iron fortification program.

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.

Ritchev 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

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
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B Sc III Year SEMESTER V

ELECTIVE A: COMMUNITY NUTRITION
Code BS 506, DSE 1-E

45 Hours
Hours/week 3, Credits 3

Unit I 15 Hours
Nutrition Education vs Nutrition Communication, Objectives of Nutrition Education, Channels of Nutrition education in the community.
Methods of educating the community, Use of resources and aids, Prerequisites of good communication in community settings.

Unit II 10 Hours
Nutritional problems confronting India: Protein energy malnutrition- Prevalence in India, Classification, Factors contributing to Protein energy malnutrition in India, Prevention of malnutrition.

Unit III 10 Hours
Vitamin A deficiency- Prevalence in India, Causes and etiology of Vitamin A deficiency in India, Treatment of vitamin A deficiency, Prevention and Control.
Iodine deficiency disorders- Prevalence in India, Etiology of goiter, Measures of control and prevention of Iodine deficiency disorders in India.

Unit IV 10 Hours
Iron deficiency Anemia- Prevalence in India, Etiology of iron deficiency, Clinical Manifestations, Treatment of Anemia, Prevention of Anemia, Govt. of India initiatives for control of Anemia.

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

ELECTIVE A: COMMUNITY NUTRITION

Total Number of Practicals 8

2 Hours /Week Credits 1

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 program for adolescent girls using charts, models, flip charts, folders etc.

B Sc III Year, SEMESTER V

ELECTIVE B: FOOD SERVICE MANAGEMENT

45 Hrs

3 Hours/week 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, Taraporewalla & Sons Co. P Ltd.

V SEMESTER SYLLABUS – Practical paper

ELECTIVE B: 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 15 Hours
Definition of Physical fitness, Nutrition and health related fitness, General guidelines for Exercise, Guidelines for Healthy eating.
Nutritional recommendations for better physical performance, Nutritional supplements.

Types of Exercise Programs
Physical Activity - frequency, intensity and types with examples.

Unit II 15 Hours
Weight Management: Regulation of Body weight, Causes of overweight and obesity, Assessment and dietary management of overweight and obesity, Physical Activity Guidelines and physical activity pyramid.
Popular diets and practices.

Suggested Readings

Wardlaw GM and Smith AM. Contemporary Nutrition: A Functional Approach. Mc Graw Hill.

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

Kathleen Mahan, Sylvia Escott-Stump and Raymond JL, Krause's Food & the Nutrition Care Process, 13th Edition, Elsevier, ISBN: 978-1-4377-2233-8

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

SEMESTER VI

NUTRITION AND HEALTH

30 Hours

Course Description:

This course is an introduction to the basic principles of nutrition and wellness. The focus of the course is centered on healthy food and lifestyle choices. This course will help to enhance student awareness with regard to personal food choices and physical activity. The goal of this course is to enhance student knowledge of food choices and to motivate students to improve their choices.

Code BS 602, GE 2

Hours/week 2, Credits 2

Unit I

15 Hours

Recommended Dietary Allowances for adults, Nutrients and Food groups.

Making Healthy dietary choices, The Food Pyramid;

Nutritional guidelines for Health and fitness, Role of nutrition in fitness.

Unit II

15 Hours

Assessment of Fitness- BMI and Waist circumference, Nutrition or diet History, Food frequency questionnaire and 24 Hour Recall.

Importance and benefits of physical activity.

Physical Activity - frequency, intensity and types with examples, Physical Activity Guidelines for adults.

Healthy weight Management, Diet and exercise for weight management.

Suggested Readings

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

Kathleen Mahan, Sylvia Escott-Stump and Raymond JL, Krause's Food & the Nutrition Care Process, 13th Edition, Elsevier, ISBN: 978-1-4377-2233-8

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

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

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

SEMESTER VI

DIET THERAPY

Code BS 603, DSC 1-F

45 Hours

3 Hours /Week, Credits 3

Unit I

10 Hours

Nutrition screening and assessment, Nutrition risk screening, Nutrition and diet history.
Burns: Classification of burns, Fluid and electrolyte replacement and dietary management of Burns patients.

Unit II

10 Hours

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

Unit III

15 Hours

Diet in disturbances of the small intestine and colon: Diarrhea - Types of diarrhea and dietary management. Constipation - Types of constipation and dietary management.
Ulcerative colitis: Symptoms and dietary management.
Celiac disease and Lactose intolerance- Symptoms and dietary treatment.

Unit IV

10 Hours

Hepatic Encephalopathy: Pathophysiology and Medical Nutrition Therapy.
Diet in diseases of the Gall bladder and Pancreas: Etiology, symptoms and dietary management of, 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.

Srilakshmi 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.

Kathleen Mahan, Sylvia Escott-Stump and Raymond JL, Krause's Food & the Nutrition Care Process, 13th Edition, Elsevier, ISBN: 978-1-4377-2233-8

VI SEMESTER SYLLABUS – Practical paper

DIET THERAPY

Total Number of Practicals 8

2 Hours/week Credits 1

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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SEMESTER VI

ELECTIVE A: ADVANCED DIETETICS 45 Hours

Code BS 606, DSE 1-F

3 Hours/week, Credits 3

Unit I

15 Hours

Diabetes Mellitus: Incidence and Predisposing factors, Screening and Diagnostic criteria, Dietary management of Type 1 and Type 2 Diabetes Mellitus. Types of Insulin, Complications of diabetes.

Unit II

10 Hours

Risk factors for Cardiovascular disease, Hyperlipidemia - Diagnosis and Medical Nutrition Therapy.
Congestive Heart Failure: Pathophysiology, Symptoms and dietary management.

Unit III

10 Hours

Diet in Renal diseases: Symptoms and dietary treatment in Renal Failure, Dialysis- Dietary management of patients undergoing 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.

Srilakshmi 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.

Kathleen Mahan, Sylvia Escott-Stump and Raymond JL, Krause's Food & the Nutrition Care Process, 13th Edition, Elsevier, ISBN: 978-1-4377-2233-8

VI SEMESTER SYLLABUS – Practical paper

ELECTIVE A: 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.
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SEMESTER VI

ELECTIVE B: MATERNAL AND CHILD NUTRITION

**45 Hours
Hours/week 3**

Unit I 15 Hours
Nutritional needs during pregnancy, common disorders of pregnancy (Anemia, HIVinfection, Pregnancy induced hypertension), relationship between maternal diet and birthoutcome. 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 andconsequences of low birth weight, Breastfeeding biology, Breastfeeding support andcounselling.

Unit III 10 Hours
Infant and young child feeding and care - Current feeding practices and nutritionalconcerns, guidelines for infant and young child feeding, Breast feeding, weaning andcomplementary 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; linkbetween 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. ElitePublishing House Pvt. Ltd. New Delhi.

Park K (2011). Park's Textbook of Preventive and Social Medicine, 21st Edition. M/sBanarasidas 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

ELECTIVE B: MATERNAL AND CHILD NUTRITION

Total Number of Practicals 8

2 Hours/week, Credits 1

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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