

**GOVERNMENT DEGREE COLLEGE FOR WOMEN (AUTONOMOUS)**

**BEGUMPET, HYDERABAD-16**

**Affiliated To Osmania University, Re-Accredited With 'B+' Grade by NAAC**



**DEPARTMENT OF APPLIED NUTRITION AND PUBLIC HEALTH**

**,SYLLABUS (2020-2021)**

GOVERNMENT DEGREE COLLEGE FOR WOMEN (A) BEGUMPET  
HYDERABAD.

**DEPARTMENT OF APPLIED NUTRITION**

| <b>FIRST YEAR</b>  |                                         |                    | <b>SEMESTER I</b>   |                |
|--------------------|-----------------------------------------|--------------------|---------------------|----------------|
| <b>CODE</b>        | <b>COURSE TITLE</b>                     | <b>COURSE TYPE</b> | <b>HPW</b>          | <b>CREDITS</b> |
| BS101              | ENVIRONMENTAL STUDIES                   | AECC I             | 2                   | 2              |
| BS102              | ENGLISH                                 | CC- I A            | 4                   | 4              |
| BS103              | SECOND LANGUAGE                         | CC -2 A            | 4                   | 4              |
| BS104              | <b>BASICS OF BIOCHEMISTRY</b>           | <b>DSC-IA</b>      | 4T+2P=6             | 4+1=5          |
| BS105              | <b>OPTIONAL II</b>                      | <b>DSC -2A</b>     | 4T+2P=6             | 4+1=5          |
| BS 106             | <b>OPTIONAL III</b>                     | <b>DSC- 3A</b>     | 4T+2P=6             | 4+1=5          |
|                    | <b>TOTAL</b>                            |                    |                     | <b>25</b>      |
| <b>FIRST YEAR</b>  |                                         |                    | <b>SEMESTER II</b>  |                |
| BS 201             | GENDER SENSITIZATION                    | AECC 2             | 2                   | 2              |
| BS 202             | ENGLISH                                 | CC- I B            | 4                   | 4              |
| BS 203             | SECOND LANGUAGE                         | CC -2 B            | 4                   | 4              |
| BS 204             | <b>NUTRITIONAL BIOCHEMISTRY</b>         | <b>DSC- IB</b>     | 4T+2P=6             | 4+1=5          |
| BS 205             | <b>OPTIONALII</b>                       | <b>DSC- 2B</b>     | 4T+2P=6             | 4+1=5          |
| BS 206             | <b>OPTIONALIII</b>                      | <b>DSC- 3B</b>     | 4T+2P=6             | 4+1=5          |
|                    | <b>TOTAL</b>                            |                    |                     | <b>25</b>      |
| <b>SECOND YEAR</b> |                                         |                    | <b>SEMESTER III</b> |                |
| <b>BS 301</b>      | <b>FOOD SERVICE MANAGEMENT SKILLS</b>   | <b>SEC - I</b>     | <b>2</b>            | <b>2</b>       |
| BS 302             | <b>PATIENT COUNSELING SKILLS</b>        | <b>SEC - II</b>    | 2                   | 2              |
| BS 303             | ENGLISH                                 | CC- IC             | 3                   | 3              |
| BS 304             | SECOND LANGUAGE                         | CC -2C             | 3                   | 3              |
| BS 305             | <b>FOOD SCIENCE &amp; TECHNOLOGY</b>    | <b>DSC - IC</b>    | 4T+2P=6             | 4+1=5          |
| BS 306             | <b>OPTIONAL- II</b>                     | <b>DSC- 2C</b>     | 4T+2P=6             | 4+1=5          |
| BS 307             | <b>OPTIONAL- III</b>                    | <b>DSC- 3C</b>     | 4T+2P=6             | 4+1=5          |
|                    | <b>TOTAL</b>                            |                    |                     | <b>25</b>      |
| <b>SECOND YEAR</b> |                                         |                    | <b>SEMESTER IV</b>  |                |
| BS 401             | <b>QUANTITY FOOD PRODUCTION</b>         | <b>SEC - 3</b>     | 2                   | 2              |
| BS402              | <b>NUTRITION AND FITNESS</b>            | <b>SEC - 4</b>     | 2                   | 2              |
| BS 403             | ENGLISH                                 | CC- I D            | 3                   | 3              |
| BS 404             | SECOND LANGUAGE                         | CC -2 D            | 3                   | 3              |
| BS 405             | <b>FAMILY &amp; COMMUNITY NUTRITION</b> | <b>DSC - 1D</b>    | 4T+2P=6             | 4+1=5          |
| BS 406             | OPTIONAL- II                            | DSC- 2D            | 4T+2P=6             | 4+1=5          |
| BS 407             | OPTIONAL- III                           | DSC- 3D            | 4T+2P=6             | 4+1=5          |
|                    | <b>TOTAL</b>                            |                    |                     | <b>25</b>      |
| <b>THIRD YEAR</b>  |                                         |                    | <b>SEMESTER V</b>   |                |
| BS 501             | ENGLISH                                 | CC - 1E            | 3                   | 3              |
| BS502              | SECOND LANGUAGE                         | CC - 2E            | 3                   | 3              |
| BS 503             | FUNDAMENTALS OF FOOD                    | GE                 | 4                   | 4              |

|                   |                                                    |                    |         |           |
|-------------------|----------------------------------------------------|--------------------|---------|-----------|
|                   | &NUTRITION                                         |                    |         |           |
| BS 504            | <b>FOOD SAFETY &amp; QUALITY CONTROL</b>           | <b>DSE-1E</b>      | 4T+2P=6 | 4+1=5     |
| BS 505            | OPTIONAL- II                                       | DSE-2E             | 4T+2P=6 | 4+1=5     |
| BS 506            | OPTIONAL- III                                      | DSE-3E             | 4T+2P=6 | 4+1=5     |
|                   | <b>TOTAL</b>                                       |                    |         | <b>25</b> |
| <b>THIRD YEAR</b> |                                                    | <b>SEMESTER VI</b> |         |           |
| BS 601            | ENGLISH                                            | CC – 1F            | 3       | 3         |
| BS 602            | SECOND LANGUAGE                                    | CC – 2F            | 3       | 3         |
| BS 603            | <b>PUBLIC HEALTH FOOD HYGIENE &amp; SANITATION</b> | <b>DSE-1F</b>      | 4T+2P=6 | 4+1=5     |
| BS 604            | OPTIONAL- II                                       | DSE-2F             | 4T+2P=6 | 4+1=5     |
| BS 605            | OPTIONAL- III                                      | DSE-3F             | 4T+2P=6 | 4+1=5     |
| BS 606            | PROJECT WORK                                       |                    | 4       | 4         |
|                   | <b>TOTAL</b>                                       |                    |         | <b>25</b> |
|                   |                                                    |                    |         |           |

CC-Core Course AECC- Ability Enhancement Compulsory Course GE- General Elective DSC- Discipline Specific Course SEC- Skill Enhancement Course DSE- Discipline Specific Elective HPW- Hours per Week P- Practical T- Theory

**GOVERNMENT DEGREE COLLEGE FOR WOMEN  
(AUTONOMOUS)  
BEGUMPET HYDERABAD.  
B.Sc. CBCS  
DEPARTMENT OF APPLIED NUTRITION**

| <b>S.NO</b> | <b>COURSE CATEGORY</b>                    | <b>NO.OF COURSES</b> | <b>CREDITS PER COURSE</b>             | <b>CREDITS</b> |
|-------------|-------------------------------------------|----------------------|---------------------------------------|----------------|
| 1.          | AECC                                      | 2                    | 2                                     | 4              |
| 2.          | SEC                                       | 4                    | 2                                     | 8              |
| 3.          | CC                                        | 2                    | 4 (I YEAR), 3 (II YEAR), 3 (III YEAR) | 40             |
| 4.          | DSC                                       | 20                   | 5                                     | 60             |
| 6.          | DSE                                       | 10                   | 5                                     | 30             |
| 7.          | GE                                        | 1                    | 4                                     | 4              |
| 8.          | PROJECT WORK                              | 1                    | 4                                     | 4              |
|             | <b>TOTAL</b>                              | <b>37</b>            |                                       | <b>150</b>     |
|             | CREDITS UNDER NON CGPA                    |                      |                                       |                |
|             | NSS / NCC/<br>SPORTS/ EXTRA<br>CURRICULAR |                      | UPTO 6 (2 IN EACH YEAR)               |                |
|             | SUMMER INTERNSHIP                         |                      | UPTO 4 (2 IN EACH YEAR)               |                |

## **SEMESTER 1 -BASICS OF BIOCHEMISTRY**

**Credits: Theory-4, Practicals-2 Theory: 60 Lectures**

### **COURSE OUTCOMES**

#### **Unit 1: Introduction to Nutrition & Carbohydrates -**

**CO1:** Understanding of nutrition basics - food groups, body needs for nutrients and carbohydrates – sources, process of digestion, metabolism and utilization.

**CO 2:** Gain knowledge about carbohydrates, their role and utilization in body processes and understand biological cycles involved in carbohydrate metabolism.

#### **Unit 2: Proteins & Nucleic Acids -**

**CO3:** Understand proteins and their role and utilization in body processes and learn about the metabolism of amino acids.

**CO 4:** Gain Knowledge on basic structure and functional significance of nucleic acids.

#### **Unit 3: Lipids**

**CO5:** Understand lipid metabolism and their role in human nutrition. Learn about the consequences of high fat consumption in the diet.

**CO 6:** Gain Knowledge about essential fatty acids and their deficiency.

#### **Unit 4: Energy Metabolism**

**CO7:** Gain knowledge about types of energy and principles of calorimetry. Understand the concept of Recommended Dietary Allowance.

**CO 8:** Determines energy value of various and understand the concept of Basal Metabolic Rate.

**YEAR I – SEMESTER-II**  
**BS104 DISCIPLINE SPECIFIC COURSE IA-**  
**(DSC IA) BASICS OF BIOCHEMISTRY**

**CREDITS-4**

**60 HOURS**

**UNIT 1- INTRODUCTION TO NUTRITION& CARBOHYDRATES**  
**16 HOURS**

- 1.1 Introductory Nutrition, Definition of Nutrition, Food, Nutrients, or Proximate Principles, Nutritional needs of body, specific role of nutrients, classification of foods, food groups.
- 1.2 **Carbohydrates** — Composition and chemistry, classification, sources, nutritional significance, digestion, absorption and metabolism - Glycolysis, TCA Cycle with bioenergetics.

**Unit II- PROTEINS & NUCLEIC ACIDS**

**18 HOURS**

- 2.1 **Proteins:** Composition and chemistry, classification sources, functions, digestion and absorption, denaturation. Nutritional significance of some amino acids. General properties of proteins, metabolism, deamination, transamination, decarboxylation. Outlines supplementary value of amino acids. Deficiency of Protein — PEM definition, classification, and age groups affected
- 2.2 **Nucleic acids:** Composition — purine and pyrimidine bases DNA, RNA — structure and biological functions

**Unit III- LIPIDS**

**14 HOURS**

- 3.1 Composition Chemistry classification- simple, compound & derived lipids with functions, cholesterol functions & ranges sources, chemical properties. Digestion and Absorption,
- 3.2 Essential fatty acids-omega3 & omega 6: functions and deficiency,  
Elements of fat analysis, Metabolism: Beta- oxidation of fatty acids. Types of Rancidity, Ketosis

**Unit IV-ENERGY METABOLISM**

**12 HOURS**

- 4.1 Types of energy, energy yielding food factors, RDA & factors affecting RDA, energy units.  
Principle of direct& indirect calorimetry
- 4.2 Determination of energy value of food using bomb calorimeter. PFV (Physiological Fuel Value) of foods, RQ, SDA of food.  
Determination of BMR and factors affecting BMR

**REFERENCE BOOKS**

- ✓ Nutrition science- B Srilakshmi, New age international publishers, 2<sup>nd</sup> edition.
- ✓ A textbook of biochemistry, Dr. AVSS Rama Rao, 10<sup>th</sup> edition, UBS publishers

Distribution pvt. Ltd.

- ✓ Biochemistry- U satyanaraya, U chakrapani, Books and Allied(P.Ltd)
- ✓ Helen A. Guthrie, Introductory Nutrition, Times MirrorMosby
- ✓ SwaminathanM, Advance Textboo on Food and Nutrition, Volume 1, The Bangalore printing and publishingco.,Ltd.
- ✓ Mudambi SR and Rajagopal M V, Fundamentals of food and Nutrition, Willey Eastern Ltd.
- ✓ Swaminathan M, Handbook of Food and Nutrition, The Bangalore Printing and Publishing Co. Ltd.

**I YEAR I -SEMESTER**  
**BS104 DISCIPLINE SPECIFIC COURSE IA-**  
**(DSC IA) BASICS OF BIOCHEMISTRY**  
(Practical)

**PERIODS: 15**

**NO. OF CREDIT-1**

**I. Introduction to Qualitative and Quantitative of Nutrients**

**II. Carbohydrates:**

1. Qualitative analysis of Glucose
2. Qualitative analysis of Fructose
3. Qualitative analysis of Maltose
4. Qualitative analysis of Sucrose
5. Qualitative analysis of Lactose
6. Qualitative analysis of Starch

**III. PROTEINS**

1. Qualitative analysis of Proteins

**IV. MINERALS**

1. Qualitative analysis of Minerals



## **SEMESTER 2 - NUTRITIONAL BIOCHEMISTRY**

**Credits: Theory-4, Practicals-2 Theory: 60 Lectures**

### **COURSE OUTCOMES**

#### **Unit 1: Vitamins-**

**CO1:** Understand the importance of Fat-soluble vitamins in human nutrition, including their classification, sources, and the effects of excess and deficiency.

**CO 2:** Understand the importance of water-soluble vitamins in human nutrition, including their classification, sources, and the effects of excess and deficiency.

#### **Unit 2:Minerals**

**CO3:** Understand the role of minerals in human nutrition, including their classification, sources, and comprehend the functions of minerals with health

**CO 4:** Understand the role of Zinc and Selenium as antioxidants.

#### **Unit 3:Water balance and Electrolyte balance**

**CO5:** Gain knowledge on Water metabolism:Distribution of water in body fluids, Regulation of water metabolism.

**CO 6:** Knowledge about acid base balance & imbalance in the body. Japanese Water Therapy.

#### **Unit 4:Enzymes and Harmons**

**CO7:** Understand Role of Enzymes human physiology

**CO 8:** Understand Role of Hormones in human physiology

**I YEAR II SEMESTER**  
**BS 204 DISCIPLINE SPECIFIC COURSE IB- (DSC IB)**

**NUTRITIONAL BIOCHEMISTRY**

**CREDITS 4**

**60 HOUR**  
**20 HOURS**

**Unit I- VITAMINS**

1.1 Fat soluble - A,D,E,K History, Chemistry, physiological functions, sources requirements, effects of deficiency.

1.2 Water soluble vitamins — B Complex — Thiamine, Riboflavin, Niacin, Pantothenic Acid, Folic Acid, Vitamin B 12, Biotin and Pyridoxine, Vitamin C- History, requirements, functions, sources, effect of deficiencies.

**Unit II-MINERALS**

**16 HOURS**

2.1 Calcium, Phosphorous, Iron, Fluorine, Iodine. History, Chemistry, physiological functions, sources, requirements, deficiency.

2.2 Role of Zinc and Selenium as antioxidants.

**Unit III-Water balance and electrolyte balance**

**12 HOURS**

3.1 Functions of water, water compartments in the body, distribution of water & electrolyte in the body. Regulation of water balance (over hydration & dehydration), regulation of electrolyte balance (hypo & hypernatremia, hypo & hyperkalemia), RAAS (Renin Angiotensin Aldosterone system), water intoxication

3.2 Acid base balance & imbalance, Japanese Water Therapy.

**Unit IV-ENZYMES & HORMONE**

**12 HOURS**

4.1 **Enzymes** — Definition, classification, properties, mechanism of enzyme action, factors affecting enzyme action, enzyme inhibitions.

4.2 **Hormones** — Major endocrine glands and their secretions, classification, general mode of action, functions hypo & hyper secretion of — Insulin, Thyroxin, growth hormone, sex hormones.

**REFERENCE BOOKS**

- ✓ Nutrition science- B srilkashmi, New age international publishers, 2<sup>nd</sup> edition.
- ✓ A textbook of biochemistry, Dr. AVSS Rama Rao, 10<sup>th</sup> edition, UBS publishers Distribution pvt. Ltd.
- ✓ Biochemistry- U satyanaraya, U chakrapani, Books and Allied(P.Ltd)
- ✓ Helen A. Guthrie, Introductory Nutrition, Times Mirror Mosby
- ✓ Swaminathan M, Advance Textbook on Food and Nutrition, Volume 1, The Bangalore printing and publishingco.,Ltd.
- ✓ Mudambi SR and Rajagopal M V, Fundamentals of food and Nutrition, Willey Eastern Ltd.
- ✓ Swaminathan M, Handbook of Food and Nutrition, The Bangalore Printing and Publishing Co. Ltd.

## I YEAR II SEMESTER

### **NUTRITIONAL BIOCHEMISTRY** (PRACTICAL)

**NO. OF HOURS 15**

**CREDITS-1**

#### **I. Quantitative analysis of carbohydrates**

- Estimation of reducing sugar by Benedict's method
- Estimation of Fructose by Roe's Resorcinol method

#### **II. Estimation of protein by Biuret method**

#### **III. Fats**

Determination of saponification number of oil.

#### **IV. Vitamins**

- Estimation of ascorbic acid by 2,6, dichlorophenol, indophenols method. Estimation of ascorbic acid in lemon / cabbage / green chillies.

#### **V. Minerals**

## **SEMESTER 3 -& PAPER 3**

### **FOOD SCIENCE & TECHNOLOGY**

**Credits: Theory-4, Practicals-2 Theory: 60 Lectures**

#### **COURSE OUTCOMES**

##### **Unit 1: Basics of Food Science, Cereals & Millets**

**CO1:** Understand the role of food in human nutrition and. Learn various cooking techniques and how to minimize nutritional loss while cooking.

**CO 2:** Learn the significance of functional foods like cereals and millets and their role in cookery.

##### **Unit 2:Pulses & Legumes, Milk & Milk Products**

**CO 3:** Understand the importance of pulses and legumes and their role in cookery.

**CO 4:** Understand the significance of milk and milk products in cookery and gain knowledge about different types of fermented & non-fermented milk product

##### **Unit 3:Fleshy Foods, Spices, Condiments & Beverages**

**CO5:** Acquire knowledge about different fleshy foods and their role in cookery.

**CO 6:** Understand the active compounds and medicinal properties of various spices and condiments used Indian cookery.

##### **Unit 4:Vegetables & Fruits, Sugar & Jaggery, Fats & Oils**

**CO7:** Understand the composition and nutritive value of fruits and vegetables.

**CO 8:** Understand Role Sugar & jaggery and fats & oils in cookery.

**B.SC. II YEAR & III-SEMESTER  
BS 305 DSC-1C**

**PAPER III-FOOD SCIENCE & TECHNOLOGY (THEORY)**

**NO.OF HOURS: 60**

**CREDITS:- 4**

**CREDIT I: BASICS OF FOOD SCIENCE, CEREALS & MILLETS 15 Hours**

- 1.1 Definition of food science and food technology. Brief objectives of cooking and cooking methods.
- 1.2 Cereals & millets: Cereal - (Rice and Wheat)-Structure, Nutritive value, Composition, role in cookery
- 1.3 Millets-Types of millets – Jowar & Maize
- 1.4 Milling of wheat and corn.
- 1.5 Role of gluten in dough formation, factors affecting gluten.

**CREDIT II: PULSES & LEGUMES, MILK & MILK PRODUCTS 15 Hours**

- 2.1 Pulses & legumes: Nutritive value, germination, Anti-nutritional factors, elimination, the role of pulses in cookery
- 2.2 Processing- Milling of pulses, legume protein concentrate, quick-cooking legumes.
- 2.3 Milk & milk products: types, nutritive value, composition, processing of milk, role in cookery.
- 2.4 Different types of Fermented & non-fermented milk product.
- 2.5 Processing of Cheese & Curd.
- 2.6 Processing of Paneer & Khoa.

**CREDIT III: FLESHY FOODS, SPICES, CONDIMENTS & BEVERAGES 15 Hours**

- 3.1 Fleshy foods (a) Meat: sources & types, nutrient composition, post mortem changes & processing of Meat-Ageing, tenderization and curing.  
(b) Fish: Classification & types of fish, selection of fish.  
(c) Eggs: Structure, composition, nutritive value, the role of egg in cookery
- 3.2 Spices and condiments: List of various spices and condiments in Indian Cookery  
Cinnamon, Clove, Fenugreek Seed, Ginger, Garlic, Onion, Turmeric, Fennel Seeds active compounds and medicinal values
- 3.3 Beverages – Definition, Classification, Processing- black tea, green tea and wine.

**CREDIT IV: VEGETABLES & FRUITS, SUGAR & JAGGERY, FATS & OILS  
15 HOURS**

- 4.1 Vegetable: Classification, composition- pigments, organic acids, enzymes, flavor, compounds, Nutrition value.
- 4.2 Fruits: Definition, classification, composition- pigments, water content, cellulose & pectic substance, flavor constituents, polyphenols, nutritive value, changes during ripening, enzymatic browning
- 4.3 Sugar & jaggery: sources, types, roles in cookery
- 4.4 Fats & oils: Sources, types, spoilage - rancidity, refining of oils, role in cookery

### **RECOMMENDED BOOKS:**

1. Textbook of Sri Lakshmi B - food science 5<sup>th</sup> edition, New age international publishers, New Delhi – 110002, 2011
2. Norman Potter N - food science, CBS publishers & distributors, New Delhi – 110002, 2007
3. Food processing and preservation, G.Subbalakshmi and shobha A.Udipi, New age international publishers, 2010.
4. Food processing and preservation, G.Subbulakshmi and Shoba A. Udipi, New age international publishers, 2010
4. Food preservation and processing, Monoranjan Kalia, Sangita Sood, Kalyani publishers, New Delhi, 2018.

### **SUGGESTED READING:**

1. Shankuntala Manays N - Foods Facts & Principles, New Age International Publishers, New Delhi - 110002, 2005

**B.SC. II YEAR & III - SEMESTER**  
**BS305, DSC-1C**  
**PAPER III- FOOD SCIENCE & TECHNOLOGY (PRACTICALS)**

Total No. of Practical's: 7

1. Demonstration of Standard Weights & Measures, Types of cut: Julienne, Chiffonade, Diagonal, Roll cut, Cubes and flower cut
2. Cookery Practical's in:
  - i. Cereals & Pulses.
  - ii. Milk & Its product, Fleshy Foods- Meat, Fish & Eggs
  - iii. Vegetables & Fruits.
4. Estimation of Gluten
5. Evaluation of Egg quality – candle test & floating test
6. Stage of sugar cookery:
  - i. Thread – Gulabjamun
  - ii. Softball – Barfi
  - iii. Hard crack - Chikki

### **III-SEMESTER**

#### **PAPER- BS301, SEC-1**

#### **FOOD SERVICE MANAGEMENT**

**NO. OF HOURS 30**

**CREDITS 2**

#### **CREDITS I : MANAGEMENT OF FOOD & FOOD SERVICE ESTABLISHMENTS**

**15 Hours**

1.1 Principles of management, types of food services institution - commercial & Non-commercial

1.2 Food management: Construction of the menu, Importance of menu planning, types of menu - A 'la carte ' table d'hôte, combination & food service style

#### **CREDIT II: SETTING UP A FOOD SERVICE CREDIT & FINANCIAL MANAGEMENT**

**11 Hours**

2.1 Setting up food service; layout & design, planning team, architectural features, process flow, time managements.

2.2 Financial management: Component of Cost control, factors affecting losses

#### **RECOMMENDED BOOKS:**

1. Catering Management – An integrated approach – Mohini Sethi, Surjeet Malhan, 3<sup>rd</sup> edition , New Age International Publisher.

2. Institutional Food Management – Mohini Sheti, New Age International Publisher



**III-SEMESTER**  
**PAPER- BS302, SEC-2**

**Patient Counselling Skills**

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

**Credit I : Diet and Nutrition History**

15 Hours

- 1.1 The Medical Record and Patient profile, Dietary Intake Assessment and Nutrition History: diet history, Food Frequency Questionnaire and 24 Hour recall.
- 1.2 Definition of Counseling, Nutrition counseling goals- the people involved, Communication process in counseling.

**Credit II : Counseling skills, Weight Management**

15 Hours

- 2.1 Counseling skills for behavior change, Developing behavior change strategies, Problems in Communication, Resources and Aids in Counseling.
- 2.2 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, 11<sup>th</sup> Edition, W.B Saunders Co, Philadelphia, 2004.

## **SEMESTER 4 -PAPER 4**

### **FAMILY & COMMUNITY NUTRITION**

**Credits: Theory-4, Practicals-2 Theory: 60 Lectures**

#### **COURSE OUTCOMES**

##### **Unit 1: Basics of Meal Planning**

**CO 1:** Understand the concept of a balanced diet and RDA concept.

**CO 2:** Understand menu planning principles, and the needs of different physiological age groups.

##### **Unit 2: Nutritional Requirement During Pregnancy, Lactation & Infancy**

**CO 3:** Understand the changes and complications during pregnancy and nutrient requirements of pregnant and lactating women.

**CO 4:** Identify the many stages of infant development and growth. Acquire knowledge on factors to be considered while preparing & introducing supplementary foods.

##### **Unit 3: Nutrient Requirement for Pre-Schoolers, School Going Child & Adolescent**

**CO 5:** Identify feeding issues and factors affecting nutritional status in Preschoolers.

**CO 6:** Understand the nutritional concerns during pre-school, school going and adolescent ages, planning of packed lunches.

##### **Unit 4: Nutrition Requirement for Geriatric Group & Nutritional Assessment**

**CO 7:** Understand the nutritional needs of the elderly, basics and importance of Nutritional Assessment in clinical practice.

**CO 8:** Understand the method of Assessment of Nutritional status.

**B.SC. II YEAR & IV-SEMESTER  
BS 405, DSC-ID**

**PAPER – IV: FAMILY & COMMUNITY NUTRITION (THEORY)**

**NO. OF HOURS – 60 HOURS**

**CREDITS 4**

**Credit I: Basics Of Meal Planning**

**(14 Hours)**

- 1.1 Definition of Balanced diets. RDA. Factors affecting RDA, ICMR recommendations.
- 1.2 Food pyramid, my food plate.
- 1.3 Food Exchange List (raw), food composition tables.
- 1.4 Principles & Objective of meal planning.
- 1.5 Nutrient requirement & meal planning for adults, changes in nutrient requirement according to sex, age & activity.

**Credit II: Nutritional Requirement During Pregnancy, Lactation & Infancy** (16 Hours)

- Nutrient requirement & RDA for
- 2.1 Expectant mother- physiological changes, dietary modification & complications.
  - 2.2 Lactation- general dietary guidelines & role of special foods.
  - 2.3 Infancy- growth & development, breast feeding v/s artificial feeding. Factors to be considered while preparing & introducing supplementary foods.

**Credit III : Nutrient Requirement For Pre Schoolers, School Going Child & Adolescent**  
**(15 Hours)**

- 3.1 Preschoolers – problems in feeding. Factors affecting nutritional status.
- 3.2 School going child- the importance of breakfast, packed lunch & mid-day meal programs- ICDS, SNP.
- 3.3 Adolescence - eating disorder, anemia, anemia prophylaxis program.

**Credit IV: Nutrition Requirement For Geriatric Group & Nutritional Assessment** (15 Hours)

- 4.1 Geriatrics- RDA & Nutritional requirement during old age, physiological changes & dietary modification.
- 4.2 Nutritional Assessment – Method of Assessment of Nutritional status, Anthropometric, Biochemical, Clinical methods & Diet surveys.

**REFERENCE BOOKS**

1. Sri Lakshmi B -Dietetics New Age International Publisher, New Delhi - 110002, 2011.
2. Sri Lakshmi B -Nutrition science, 5<sup>th</sup> Edition, New Age International Publisher, New Delhi -110002, 2011

**SUGGESTED BOOKS:**

1. Mahtab.S.Bamji, Kamala Krishnaswamy, G.N.V Brahman - A text on human Nutrition, 3<sup>rd</sup> edition, Oxford & IBH publishing, Co. PVT. LTD. New Delhi.

**B.SC. II YEAR & IV-SEMESTER**

**BS 405, DSC-ID**

**PAPER – IV FAMILY & COMMUNITY NUTRITION (PRACTICAL)**

**CREDIT 2**

**TOTAL NO. OF PRACTICAL: 10**

1. Planning of diets
  - a. Adult-according to sex & activity
  - b. Pregnant & lactating women
  - c. School going child.
  - d. Adolescents.
  - e. Old age group
2. Preparation of diets – 4 practical sessions
3. Formulation & Preparation of weaning mix

**B.SC. II YEAR & IV - SEMESTER**

**BS 401, SEC-3**

**QUANTITY FOOD PRODUCTION**

**NO.OF HOURS – 30 HOURS**

**CREDITS: 2**

**CREDIT I: QUANTITY FOOD PRODUCTION, PLANNING AND CONTROL**

**15 HOURS**

1.1 Principles of food production-menu, ingredient control etc. production control - use of standardized recipes

1.2 Safeguarding Food Production - Quality control in food preparation, control of the microbial quality of food

**CREDIT II: FOOD MANAGEMENT**

**15 HOURS**

2.1 Purchasing – market and the buyer, mode of purchasing, methods of purchase, Storage, Cooking equipment. Records necessary for catering

2.2 Methods of delivery- centralized. Types of service-table / counter, self, tray

**BOOKS RECOMMENDED**

I. Catering Management – An Integrated Approach – MOHINI SHETI, SURJEET MALHAN, 3<sup>rd</sup> edition, New Age International Publishers

2. Institutional Food Management – Mohini Sethi, New Age International Publishers.

3. Food Service Management, principal and practices, 13<sup>th</sup> edition - June Pyne Palacio, Monica thiece, person publishers

## **B.SC. II YEAR& IV -SEMESTER**

### **SKILL ENHANCEMENT COURSE 4**

#### **NUTRITION AND FITNESS**

**30 Hrs**

**Code BS 401, SEC- 4**

**2 Hours/week Credits 2**

**Credit I : Introduction, Types of exercise, physical activity** 15 Hours

1.1 Definition of Physical fitness, Nutrition and health related fitness. General guidelines for Exercise, Guidelines for Healthy eating.

1.2 Nutritional recommendations for better physical performance, Nutritional supplements, Types of Exercise Programs

1.3 Physical Activity - frequency, intensity and types with examples.

**Credit II : Management, Guidelines, Physical activity pyramid** 15 Hours

2.1 Weight Management: Regulation of Body weight, Causes of overweight and obesity.

2.2 Assessment and dietary management of overweight and obesity, Physical Activity Guidelines and physical activity pyramid.

2.3 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, 13<sup>th</sup> Edition, Elsevier, ISBN: 978-1-4377-2233-8

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