

B.Sc.
NUTRITION
&
DIETETICS

(WITH EFFECT FROM ACADEMIC
YEAR 2019-2020)

B.Sc. NUTRITION & DIETETICS

PROPOSED SCHEME FOR CHOICE BASED CREDIT SYSTEM IN B.Sc. NUTRITION & DIETETICS EFFECTIVE FROM 2019-20

FIRST YEAR – SEMESTER I				
Code	Course Title	Course Type	HPW	Credits
BS 101		AECC 1	2	2
BS 102		CC-1A	4	4
BS 103		CC-2A	4	4
BS 104	Introduction to Foods & Nutrition	DSC - 1A	4T+2P=6	4+1=5
BS 105		DSC - 2A	4T+2P=6	4+1=5
BS 106		DSC - 3A	4T+2P=6	4+1=5
	TOTAL			25
SEMESTER II				
BS 201		AECC 2	2	2
BS 202		CC-1B	4	4
BS 203		CC-2B	4	4
BS 204	Nutritional Biochemistry and Human Physiology	DSC -1B	4T+2P=6	4+1=5
BS 205		DSC -2B	4T+2P=6	4+1=5
BS 206		DSC -3B	4T+2P=6	4+1=5
	TOTAL			25
SECOND YEAR- SEMESTER III				
BS 301	Institutional Food service management	SEC -1	2	2
BS 302	Nutrition and Fitness	SEC -2	2	2
BS 303		CC-1C	3	3
BS 304		CC-2C	3	3
BS 305	Normal and Therapeutic Nutrition	DSC- 1C	4T+2P=6	4+1=5
BS 306		DSC- 2C	4T+2P=6	4+1=5
BS 307		DSC- 3C	4T+2P=6	4+1=5
	TOTAL			25
SEMESTER IV				
BS 401	Patient Counseling Skills	SEC – 3	2	2
BS 402	Nutrition program Management	SEC – 4	2	2
BS 403		CC-1D	3	3
BS 404		CC-2D	3	3
BS 405	Diet in Disease	DSC- 1D	4T+2P=6	4+1=5
BS 406		DSC- 2D	4T+2P=6	4+1=5
BS 407		DSC- 3D	4T+2P=6	4+1=5
	TOTAL			25
THIRD YEAR- SEMESTER V				
BS 501	Nutrition and Health	GE	4T	4
BS 502		CC-1E	3	3

BS 503		CC-2E	3	3
BS 504	A- Clinical Dietetics	DSE-1E	4T+2P=6	4+1=5
	B- Diet Therapy			
BS 505		DSE-2E	4T+2P=6	4+1=5
BS 506		DSE-3E	4T+2P=6	4+1=5
	TOTAL			25
SEMESTER VI				
BS 601		CC-1F	3	3
BS 602		CC-2F	3	3
BS 603	A-Public Health Nutrition	DSE-1F	4T+2P=6	4+1=5
	B-Community Nutrition			
BS 604		DSE-2F	4T+2P=6	4+1=5
BS 605		DSE-3F	4T+2P=6	4+1=5
BS 606	Project Work/Optional		4	4
	TOTAL			25
	TOTAL CREDITS			150
Credits under Non-CGPA	NSS /NCC /sports / Extra curricular	6	Up to 6 (2 in each year)	

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
3	CC	12	4 (year1) 3 (year 2) 3 (year 3)	40
4	DSC	12	5	60
5	DSE	6	5	30
6	GE	1	4	4
7	Project work			4
	TOTAL	37		150

B.Sc. NUTRITION & DIETETICS

OSMANIA UNIVERSITY

REVISED SYLLABUS (GBCS) WITH EFFECT FROM 2019-20

B. Sc. I YEAR SEMESTER I PAPER I

DSC - 1A

Code BS 104 INTRODUCTION TO FOODS AND NUTRITION (Theory)

CREDITS -4; 60 HOURS

Objective:

To familiarize students with various food groups, their nutritive value and effect of processing on nutritive value of foods

UNIT- I: INTRODUCTION TO FOOD GROUPS, CEREALS & MILLETS & PURE CARBOHYDRATES (15 HOURS)

- 1.1 Definition- Food, nutrition, nutrients; food groups based on functions, origin and nutritive value. Food guide pyramid, balanced diet
- 1.2 Cereals and Millets - Composition, nutritive value and nutrient losses during processing; breakfast cereals
- 1.3 Sugars - Types of sugars and stages of sugar cookery
- 1.4 Jaggery - Manufacture and stages of jaggery cookery

UNIT-II : PULSES & LEGUMES, NUTS & OIL SEEDS AND FATS & OILS (15 HOURS)

- 2.1 Pulses & Legumes - Composition, nutritive value, nutrient losses during processing, importance of germination and malting; anti nutritional factors
- 2.2 Nuts & Oilseeds – Nutritive value, toxins and role in cookery
- 2.3 Fats & Oils – Composition, nutritive value, properties- physical and chemical, functions of oils and fat in foods
- 2.4 Rancidity of Oils- Types and prevention

UNIT-III: VEGETABLES , FRUITS & FOOD PRESERVATION (15 HOURS)

- 3.1 Vegetables - Classification, composition and nutritive value, changes during cooking, loss of nutrients during cooking, storage, factors affecting storage
- 3.2 Fruits - Classification, composition, nutritive value, storage and ripening
- 3.3 Enzymatic browning and its prevention
- 3.4 Food preservation – principles, methods- dehydration, low temperature, high temperature and preservatives.

UNIT- IV: ANIMAL FOODS AND FOOD ADULTERATION (15 HOURS)

- 4.1 Milk- Composition, nutritive value, fermented and non fermented milk products
- 4.2 Egg - Composition, nutritive value and quality ; poultry- Classification, composition and nutritive value
- 4.3 Meat -Nutritive Value and changes during cooking; fish - classification, composition and nutritive value
- 4.4 Food Adulteration- intentional and incidental

Books Recommended:

Text Books

- ❖ Srilakshmi B- Food Science, 5th Edition, New Age International Publishers, New Delhi – 110002, 2011.

Reference Books

- ❖ Shakuntala Manay N - Food Facts and Principles, New Age International Publishers, New Delhi – 110002, 2005.
- ❖ Norman Potter N -Food Science, CBS Publishers and Distributors, New Delhi – 110002, 2007.

I -SEMESTER
BS104 DISCIPLINE SPECIFIC COURSE IA- (DSC IA)
Introduction to Foods and Nutrition (Practical)

CREDIT 5

NO. OF CREDITS-1

I. Standardization, Preparation and Nutritive value calculation of the recipes based on the following food group and combination

- 1. Cereal, millet and malting of grains**
- 2. Pulse, germination of grains**
- 3. Cereal-pulse combination**
- 4. Stages of sugar cookery, preparation with jiggery**

II. Methods of Preservation of

- 5. Fruits- Squashes and jams**
- 6. Vegetables by Pickling**

III.7. Determination of quality of an egg

IV. Detection of Adulterants

- 8. Water, urea and starch in milk**
- 9. Hydrogenated fat in ghee and butter**
- 10. Identification of food colours and textile colours**

Reference Books:

- ❖ Srilakshmi B- Food Science, 5th Edition, New Age International Publishers, New Delhi – 110002, 2011.**
- ❖ Longvah T. , Ananthan R. , Bhaskarachary K. and Venkaiah K. Indian Food Composition Table, National Institute of Nutrition, Tarnaka, 2017.**

B. Sc. I YEAR II SEMESTER **DSC – 1B**
Code BS 204 NUTRITIONAL BIOCHEMISTRY AND HUMAN PHYSIOLOGY
(Theory)

CREDITS -4; 60 HOURS

Objectives:

- ❖ To enable students to understand the biochemistry and physiology of Human body

UNIT -I: MACRO NUTRIENTS

(15 HOURS)

- 1.1 Carbohydrates - Composition, classification, sources, functions, deficiency and excess, glycolysis, citric acid cycle, glycogenesis, glycogenolysis and gluconeogenesis
- 1.2 Lipids - Composition, classification, sources and functions; deficiency and excess of fats; essential fatty acids, beta-oxidation and synthesis of fatty acids.
- 1.3 Proteins- Composition, classification, sources, functions, deficiency and excess, basic steps in protein synthesis
- 1.4 Amino acids- Classification - chemical and nutritional; deamination, transamination and urea cycle

UNIT- II: MICRONUTRIENTS, WATER, ELECTROLYTES AND ENZYMES

(15 HOURS)

- 2.1 Vitamins- Classification, sources, functions and deficiency symptoms of fat soluble and water soluble vitamins
- 2.2 Minerals- Classification, sources, functions and deficiency symptoms of macro and micro minerals
- 2.3 Water - Functions, distribution, intake and elimination, water balance
Electrolytes - Concentrations in intracellular and extra cellular fluids and osmotic pressure; acid base balance
- 2.4 Enzymes – Definition, classification (IUBMB), properties, mechanism of enzyme action

UNIT-III: CELL, CIRCULATORY SYSTEM, NERVOUS SYSTEM AND ENDOCRINE SYSTEM

(15 HOURS)

- 3.1 Cell- Structure & functions
- 3.2 Circulatory system- Parts & functions of heart, heart rate, cardiac cycle, cardiac output; blood pressure, Blood- Composition, coagulation and blood groups
- 3.3 Nervous system – Classification and functions
- 3.4 Hormones- Endocrine glands their secretion and functions

UNIT-IV: RESPIRATORY , DIGESTIVE AND EXCRETORY SYSTEM

(15 HOURS)

- 4.1 Respiratory system- Parts and functions, mechanism of respiration; oxygen and carbon- di-oxide transport
- 4.2 Digestive system- Parts and functions of GI tract, digestive glands, digestion, absorption and transport
- 4.3 Excretory system - Urinary system – parts and functions, structure of nephron, formation of urine
- 4.4 Skin: functions and its role in regulation of body temperature

BOOKS RECOMMENDED

Text Books:

- Chatterjee C.C. , Human Physiology, Vol. I & II, Medical Allied Agency, Calcutta (1987).
- AVSS Rama Rao - A Text Book of Bio Chemistry, 9th edition, UBS Publishers distribution Pvt.Ltd, 2002.

Reference Books:

- Swaminathan N - A Handbook of Food and Nutrition, 5th edition volume 1, Bangalore printing and publishing Co.Ltd, 1986.
- Mahtab S. Bamji, N Prahlad Rao, Vinodini Reddy -Text book of Human Nutrition, 2nd edition, Oxford and IBH publishing Co. Pvt. Ltd 2004.
- Swaminathan M, Advanced Textbook on Food and Nutrition, Vol. I, Bappco.

II -SEMESTER
BS 204 DISCIPLINE SPECIFIC COURSE IB- (DSC IB)
Nutritional Biochemistry and Human Physiology (Practical)
CREDIT 5 **NO. OF CREDITS-1**

Objectives:

- ❖ **To acquaint the students with analysis of various nutrients and components in blood and urine**

- 1. Qualitative tests of carbohydrates**
- 2. Qualitative tests of amino acids and proteins**
- 3. Quantitative analysis of calcium by titrimetry**
- 4. Quantitative analysis of vitamin C 2,6 dichloro indophenol dye method**
- 5. Determination of rancidity parameters: acid value, peroxide value**
- 6. Estimation of hemoglobin**
- 7. Estimation of blood glucose**
- 8. Identification of blood group**
- 9. Estimation of urinary glucose**
- 10. Estimation of urinary albumin**

REFERENCE BOOKS

- **Raghuramulu, Madhavan nair, Kalyansundram, A manual of laboratory techniques, NIN. Hyderabad (2003).**
- **Sawhney SK, Randhir Singh, Introductory practical biochemistry, Nasora Publishers, New Delhi (2000).**