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 (CBCS) 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: CREDITS - 4

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

CREDIT 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

CREDIT 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

CREDIT 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.

CREDIT 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 SEMESTER II PAPER II 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**

CREDIT-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

CREDIT 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

CREDIT 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

CREDIT-1V: 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).**