(Applicable to the batch of students admitted in the academic year 2025-26 onwards)

B.Sc., Applied Nutrition & Public Health (CBCS) FACULTY OF SCIENCE, SU

B.Sc. (APPLIED NUTRITION & PUBLIC HEALTH)
Syllabus (CBCS)
(w.e.f. 2025-2026)

FACULTY OF SCIENCE
SATAVAHANA UNIVERSITY
KARIMNAGAR – 505002

2025

Proposed CBCS Structure from 2025-26 for UG Courses as per TGCHE guidelines

B.Sc Applied Nutrition and Public Health-Template

Courses		Papers	Total Credits	Credits for each paper / semester					
				I	II	III	IV	V	VI
Core Courses DSC	Major - 1	6	30	5	5	5	5	5	5
	Major -2	6	30	5	5	5	5	5	5
	Minor- 1	4	20	5	5	5	5	*	*
MIL / AEC (First Language)	English	5	20	5	5	5	5	-	-
Second Language (Telugu, Hindi, Urdu etc)		5	20	5	5	5	5	-	-
Multi-Disciplinary Course	MDC 1			-	-	-	-	4	-
SEC 1,2		2	4	-	-	-	-	2	2
SEC 3,4		2	4	-	-	-	-	2	2
Value Added Course (VAC)	VAC 1,2	2	6	-	-	-	-	3	3
Internships	Internships / Project	1	4	-	-	-	-	-	4
Total credits in each semester			142	25	25	25	25	21	21
Total credits in UG				142					
Credits under Non-CGPA (Community engagement and service)		NSS / NCC / sports / Extra curricular		Upto 6 (2 in each year)					
		IKS	4	Upto 4 (2 in each, after I & II years)					

** In Semester V and VI, 3 optional papers will be proposed. Students can choose any only.

B.Sc. Applied Nutrition and Public Health

I Year: Semester I and II

SEMESTER I		
Course Type	**Course Title**	**Credits**
Core Courses DSC	**Basics Of Human Nutrition And Nutritional Biochemistry (Optional I)**	**4+1=5**
	Optional II	4+1=5
	Optional III	4+1=5
MIL/AEC (First Language)	English	5
Second Language (Telugu, Hindi, Urdu etc)	Second Language	5
	TOTAL	**25**
SEMESTER II		
Core Courses DSC	**Metabolism, Enzymes And Hormones (Optional I)**	**4+1=5**
	Optional II	4+1=5
	Optional III	4+1=5
MIL/AEC (First Language)	English	5
Second Language (Telugu, Hindi, Urdu etc)	Second Language	5
	TOTAL	**25**

****Among Optional I, II and III any two will be Major and one will be Minor on choice of the students**

DSC – Discipline Specific Course
DSE – Discipline Specific Elective
MIL / AEC – English (First Language)
Second language
MDC – Multi Disciplinary Course
SEC – Skill Enhancement Course
VAC – Value Added Course
HPW – Hours per Week
P – Practical
T - Theory

I SEMESTER

BS103 DISCIPLINE SPECIFIC COURSE IA- (DSC IA)-THEORY
BASICS OF HUMAN NUTRITION AND NUTRITIONAL BIOCHEMISTRY

CREDITS 4 **60 HOURS**

CREDIT I - BASICS OF HUMAN NUTRITION, ENERGY METABOLISM & CARBOHYDRATES **15 HOURS**

- **Human Nutrition**: Definition of nutrition and nutrients, proximate principles, classification of nutrients, classification of foods and food groups. Nutritional needs of the body, specific role of nutrients
- **Energy Metabolism:** Physiological fuels- energy yielding food factors, units of energy, Direct and indirect calorimetry, RQ. Components of Total Energy Expenditure (TEE) – BMR, PA, TEF, REE. Definition of BMR, factors affecting BMR, calculation of BMR, determination of BMR using Bomb Calorimeter, Benedicts Oxy-Calorimeter
- **Carbohydrates:** Structure, composition and chemistry, classification, sources and functions. dietary fiber – types, sources, functions, nutritional significance of carbohydrates

CREDIT II - PROTEINS & NUCLEIC ACIDS , LIPIDS **15 HOURS**

- **Proteins** - Composition and chemistry of proteins, classification, sources and general properties, denaturation, functions and nutritional significance, supplementary value of amino acids.
- **Nucleic acids** – composition and types, DNA, RNA — structure and biological functions
- **Lipids** - composition and chemistry, classification – simple, compound, derived, functions, sources and chemical properties. Elements of fat analysis – saponification number, iodine number, acid number, rancidity. Essential fatty acids – nutritional significance. Cholesterol – functions, types – HDL, LDL

CREDIT III- VITAMINS **15 HOURS**

- **Fat soluble vitamins** - Nutritional significance, sources, functions and deficiency of – A, D, E, K
- **Water-soluble vitamins** - Nutritional significance, sources, functions and deficiency of B-complex vitamins – Thiamine, Riboflavin, Niacin, Pantothenic Acid, Pyridoxine, Folic Acid, Cyanocobalamin and Vitamin C

CREDIT IV-MINERALS, WATER AND ELECTROLYTES 15 HOURS

- **Minerals** - Nutritional significance, sources, functions, deficiency of Calcium, Iron, Iodine, Zinc and Selenium
- **Water** – Significance, functions, distribution of body water, regulation of water balance – overhydration, dehydration,
- **Electrolytes** – significance, functions, distribution of electrolytes in the body, regulation of electrolyte balance – hypo, hypernatremia, hypo, hyperkalemia, RAAS

REFERENCE BOOKS

- ✓ Nutrition science- B Srilakshmi, New age international publishers, 2nd edition.
- ✓ A textbook of biochemistry, Dr AVSS Rama Rao, 10th edition, UBS publishers Distribution Pvt. Ltd.
- ✓ Biochemistry- U Satyanarayana, U chakrapani, Books and Allied Pvt Ltd
- ✓ Helen A. Guthrie, Introductory Nutrition, Times Mirror Mosby
- ✓ Swaminathan M, Advance Textbook on Food and Nutrition, Volume 1, The Bangalore printing and publishing co.,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.

BS103 DISCIPLINE SPECIFIC COURSE IA- (DSC IA)

(PRACTICAL)

BASICS OF HUMAN NUTRITION AND NUTRITIONAL BIOCHEMISTRY

PERIODS: 15 **NO. OF CREDITS-1**

I. Introduction to Qualitative and Quantitative Analysis of Nutrients

IL. 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

I. Qualitative analysis of Proteins

IV. Minerals

1. Qualitative analysis of Minerals

FINAL PRACTICAL EXAMINATION

SEMESTER I

PAPER-I

BASICS OF HUMAN NUTRITION AND NUTRITIONAL BIOCHEMISTRY

BATCH: _____ **DATE:** _____

TIME: 3 HOURS **MARKS: 50 MARKS**

MAJOR EXPERIMENT:

I. Analyse the given sample present in the test tube for the presence of Carbohydrates.

a) Identify – mono, di and polysaccharides (5M)
b) Aim and Principal (5M)
c) Detailed procedure (5M)
d) Reporting (5M)
e) Osazone Crystals (slide preparation) (5M)

MINOR EXPERIMENT:

II. Analyse the given sample for the presence of any two of the following sample (15 M)

a) Iron
b) calcium
c) phosphorus

(OR)

Analyse the given sample for the presence of protein (15M)

III. **Write principle of any one of the following** **(5M)**

a) Molisch's test
b) Benedict's Test
c) Barfoed's Test
d) Iodine test
e) Seliwanoff's test

II SEMESTER

BS203 DISCIPLINE SPECIFIC COURSE IB- (DSC IB)-THEORY

METABOLISM, ENZYMES AND HORMONES

CREDITS 4 **60 HOURS**

CREDIT I CARBOHYDRATES 15 HOURS

- Digestion, absorption and utilization of carbohydrates
- Glycolysis with energetics
- TCA with energetics
- Gluconeogenesis
- HMP shunt
- Glycogenesis

CREDIT II PROTEINS AND FAT 15 HOURS

- Digestion, absorption and utilization of proteins
- Deamination, transamination and decarboxylation
- Digestion, absorption and utilization of lipids
- Beta-oxidation of fatty acids

CREDIT III ENZYMES 15 HOURS

- Enzymes nomenclature and classification, chemical nature and properties
- Mechanism of enzyme action, factors affecting enzyme activity and enzyme inhibition
- Co-enzymes role in metabolism- NAD^+, FMN, FAD, TPP, CoA, ATP
- Diagnostic importance of enzymes – Amylase, alkaline phosphatase, SGPT, SGOT, LDH, CPK

CREDIT IV HORMONES 15 HOURS

- Hormones – classification – chemical nature, mechanism of action
- Endocrine glands and their secretions – Hypothalamus, pituitary, thyroid, adrenal, gonads
- Hypo and hyper secretion of insulin, thyroxin, growth hormone, sex hormones
- Biological significance of PTH, ACTH

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- ✓ Nutrition science- B Srilakshmi, New age international publishers, 2nd edition.
- ✓ A textbook of biochemistry, Dr AVSS Rama Rao, 10th edition, UBS publishers Distribution Pvt. Ltd.
- ✓ Biochemistry- U Satyanarayana, U chakrapani, Books and Allied (Pvt.Ltd)
- ✓ Helen A. Guthrie, Introductory Nutrition, Times Mirror Mosby
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- ✓ 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.

BS203 DISCIPLINE SPECIFIC COURSE IB- (DSC IB)

METABOLISM, ENZYMES AND HORMONES

(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 in lemon/cabbage / green chillies.

V. Minerals.

Estimation of Calcium in the Ash solution of Green leafy vegetable by complex metric titration

FINAL PRACTICAL EXAMINATION
SEMESTER II
PAPER (2): METABOLISM, ENZYMES AND HORMONES

TIME: 3 HOURS **MAX MARKS: 50 MARKS**

DATE: _____ **BATCH:** _____

MAJOR:

1. Estimate the amount of any one of the following present in the given sample solution. (25 MARKS)

a) Reducing sugar by Benedict's Method.

b) Proteins by Biuret Method.

c) Ascorbic acid by Dye Method.

GIVE THE

- Principle. **(6 MARKS)**
- Procedure. **(7 MARKS)**
- Observation and Calculation. **(12 MARKS)**

MINOR:

2. Estimate the amount of calcium in the give sample. **(15 MARKS)**

3. Write the detailed procedure for the determination of saponification of oil. **(5 MARKS)**

4. Record. **(5 MARKS)**