



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Home Science

Choice Based Credit System (CBCS) in Light of NEP-2020

B. Sc. Food and Nutrition Sem I (2023 - 2026)

Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								
			Theory			Practical		L	T	P	CREDITS
			End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)				
FSN 101	Major	Introduction to Human Nutrition	60	20	20	0	0	4	0	0	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will

CEO1: develop understanding about human nutrition components and their requirements.

CEO2: gain knowledge about the role of various nutrients, sources, and storage.

CEO3: orient about the effect of excess and deficiency of nutrient in the body.

Course Outcomes (COs): Student should be able to

CO1: understand the role of various nutrients, their digestion and absorption in the body.

CO2: comprehend about energy metabolism and concept of balanced diet.

CO3: recognize functions, sources, requirement, storage, effect of deficiency and excess of macro nutrients.

CO4: recognize functions, sources, requirement, storage, effect of deficiency and excess of micronutrients.

Syllabus

UNIT I

- Basic terms used in study of Human Nutrition
- Understanding the relationship between food, nutrition and health.
- Functions of food-Physiological, psychological, and social.

UNIT II

- Energy- components of energy expenditure, Basal Metabolic Rate, thermogenic effect of food, and physical activities.
- Recommended Dietary Allowances,
- Concept of a balanced diet and methods of evaluation of nutritive value of foods.

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UNIT III

- Carbohydrates- Types, Functions, dietary sources, and clinical manifestations of deficiency/ excess of the nutrient.
- Proteins- Types, Functions, dietary sources, and clinical manifestations of deficiency/ excess of the nutrient.

UNIT IV

- Fat- Types, Functions, dietary sources, and clinical manifestations of deficiency/ excess of the nutrient.
- Vitamin- Types, Functions, dietary sources and clinical manifestations of deficiency/ excess of the nutrient.

UNIT V

- Minerals- Types, Functions, dietary sources and clinical manifestations of deficiency/ excess of the nutrient.
- Fibre- Types, Functions, dietary sources and clinical manifestations of deficiency/excess of the nutrients

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Suggested reading:

- Shubhangini, A. Joshi. (2022). *Nutrition and Dietetics with Indian Case Studies*. McGraw Hill. 5th Edition.
- Srilakshmi, B. (2017). *Nutrition Science*. Delhi: New Age International Publishers.
- Bamji, M. S. Krishnaswamy, K. & Brahmam, G. N. V. (2013). *Textbook Of Human Nutrition*. Oxford & IBH.
- Chadha R and Mathur P (eds) (2015). *Nutrition: A Lifecycle Approach*. Orient Blackswan, Hyderabad.
- Rekhi T and Yadav H. (2014). *Fundamentals of Food and Nutrition*. Elite Publishing House Pvt Ltd.
- Potter, N. N. and Hotchkiss, J. H. (2012). *Food Science*. Germany: Springer Science & Business Media.
- Swaminathan, M. (2005). *Handbook of Foods and Nutrition*. Madras: Ganesh and Co. Pvt. Ltd

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FSN 102 (P)	Major	Nutrition Lab	0	0	0	30	20	0	0	4	2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based on the following components: Quiz/Assignment/Project/Participation inClass, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will

CEO1: learn about products available in the market.

CEO2: gain knowledge about various nutritive value enhancer.

CEO3: gain knowledge about skeleton system and organ systems of human.

CEO4: learn various blood estimations with the help of kit and comprehend about bloodgroups and coagulation of blood.

Course Outcomes (COs): Student should be able to

CO1: distinguish different food groups and their products with emphasis on nutritive values.

CO2: learn nutritive value enhancement of food with the help of processes like germination and fermentation.

CO3: recall the basic structure and functions of Human Skeleton and Human organs.

CO4: acquainted with blood estimations – hemoglobin and blood pressure.

CO5: understand about blood groups and coagulation of blood.

List of Practical's.

1. Market survey of locally available food items viz. cereals, pulses, fruits, vegetables, milk and milk products, fats and oils, nuts and oilseeds, sugar and jaggery, meat, fish, and poultry and miscellaneous food items like biscuits, jams, jellies, ketchup etc.
2. Introduction to different culinary terms
3. To study germination and fermentation of pulses and legumes.
4. To study enzymatic and non-enzymatic browning such as caramelization in various sugars.
5. To study human systems and human Skelton through charts & models.
6. Blood Cells: Fresh mount and stained. Determination of blood group.

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FSN 102	Major	Nutrition Lab	0	0	0	30	20	0	0	4	2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C – Credit

***Teacher Assessment** shall be based following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks

7. Measurement of blood pressure using a sphygmomanometer.

Suggested readings:

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- Sharma, Avantina, (2018). *Textbook of Food Science and Technology*. Tamil Nadu: CBS publication and Distributors Pvt. Ltd.
- Srilakshmi, B. (2017), *Nutrition Science*. Delhi: New Age International Publishers.
- Potter, N. N., & Hotchkiss, J. H. (2012). *Food science*. Germany: Springer Science & Business Media.
- Raina U, Kashyap S, Narula V, Thomas S, Suvira, Vir S, Chopra S (2010). *Basic Food Preparation: A Complete Manual*. Fourth Edition. Orient Black Swan Ltd.
- Many, N. S. O. (2001). *Food: facts and principles*. Delhi: New Age International.

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FSN 103	Minor I	Human Physiology I	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will-

CEO1: understand basic unit of life and the physiology of various organ systems in human body.

CEO2: develop profound knowledge regarding regulation and function of various organs in the body.

Course Outcomes (COs): Student should be able to -

CO1: recall the basic structure and functions of cell and cell organelles.

CO2: acquainted with the regulation and function of blood and circulatory system.

CO3: understand the regulation and function of digestive system.

CO4: memorize the regulation and function of respiratory and musculoskeletal system.

Syllabus

UNIT I

- Cell: Structure and functions of cell with special reference to Plasma membrane, (Fluid Mosaic Model), Mitochondria, Ribosome, Endoplasmic reticulum, Nucleus (nuclear membrane, nuclear chromatin and nucleolus).
- Body Composition, Homeostasis, Positive and Negative feedback.

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UNIT II

- Musculoskeletal System: Formation and functions of muscles, bones. Mechanism of muscle contraction, isometric and isotonic muscle contraction.
- Respiratory System: Structure of Lungs and gaseous exchange (oxygen and carbon dioxide transport).

UNIT III

- Digestive System: Structure and functions of Gastrointestinal Tract (Liver, Gallbladder and Pancreas). Process of digestion and absorption of food.

UNIT IV

- Circulatory and Cardiovascular system: Blood and its composition, formed elements, Blood groups, blood coagulation, Erythropoiesis, and anemia.
- Structure and functions of heart, cardiac cycle, cardiac output, blood pressure and its regulation.

UNIT V

- Water and electrolytes- Concept, importance, and functions.
- Integumentary System - general features of the integument, functions of Integument.

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1. G.K. Pal (2021). *Textbook of Medical Physiology, 4th edition*. Elsevier.
2. Gyton A.C., Hall , J.E. (2020). *Textbook of medical physiology*, Bangalore: Prism Books (Pvt) ltd.
3. Pears, E.C. (2017) *Anatomy and Physiology for nurses*, Delhi: Oxford University.
4. Chaterzee (2018). *Human Physiology*, Calcutta: Medical agency.

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FSN 104	Minor II	Food Science I	60	20	20	0	0	3	0	0	3

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Course Educational Objectives (CEOs): The students will

CEO1: know the classification of foods into different groups.

CEO2: gain knowledge about the composition and nutritive value of different foods.

CEO3: understand the different methods of cooking food.

Course Outcomes (COs): Student should be able to

CO1: understand the differentiation between food groups, their composition and role in the diet.

CO2: familiarize about the nutritional importance of cereals, pulses and legumes.

CO3: conversant about the nutritional importance of milk and milk products.

CO4: demonstrates the various stages of sugar.

CO5: recognize role of water and water activity in foods.

Syllabus

UNIT I

- Concept of Food science and its application. Definitions of Food, Nutrition, Nutrients, Macronutrients, Micronutrients, Food Groups.
- Classification of food and food group,
- Food technology and Future foods- Biofortification, Nutraceuticals, Organic foods.

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UNIT II

- Cereals - composition and nutritive value of wheat, rice, their milling and processing, storage, use in various preparations, breakfast cereals, millets like jowar, ragi, bajra, cereal cookery.
- Pulses and legumes- nutritive value, processing, storage, toxic constituents, pulse cookery, variety.

UNIT III

- Milk - composition, nutritive value, effect of heat, acid and enzymes, processing, storage.
- Milk products - cheese, paneer, ice cream, ghee, butter, flavored milk, imitation milk.

UNIT IV

- Sugar and related products- properties, sugar related products – Natural Sweeteners artificial sweeteners
- Stages in sugar cookery

UNIT V

- Water in foods - Introduction, physical properties of water, structure of water molecule, Types of water and water activity.
- Food technology and Future foods- Biofortification, Nutraceuticals, Organic foods.

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