



SNDT Women's University, Mumbai

**Bachelor of Science
(Home Science- Food Science & Nutrition)**

B.Sc. (H. SC. FSN)

As Per NEP - 2020

Syllabus

(2024-2025)

Credit structure For Under Graduate Programmes in Humanities, Science and Technology and Interdisciplinary Studies Faculties

(2024 May as per GR dated 13/03/2024)

[illegible]

Terminologies

Abbreviation	Full-form	Remarks	Related to Major and Minor Courses
Major (Core)	Main Discipline		
Major (Elective)	Elective Options		related to the Major Discipline
Minor Stream	Other Disciplines (Inter/ Multidisciplinary) not related to the Major	either from the same Faculty or any other faculty	
OEC	Open Elective Courses/ Generic		Not Related to the Major and Minor
VSC	Vocational Skill Courses		Related to the Major and Minor
SEC	Skill Enhancement Courses		Not Related to the Major and Minor
AEC	Ability Enhancement Courses	Communication skills, critical reading, academic writing, etc.	Not Related to the Major and Minor
VEC	Value Education Courses	Understanding India, Environmental science/education, Digital and technological solutions, Health & Wellness, Yoga education, sports, and fitness	Not Related to the Major and Minor
IKS	Indian Knowledge System	I. Generic IKS Course: basic knowledge of the IKS II. II. Subject-Specific IKS Courses: advanced information about the subject: part of the major credit	Subject Specific IKS related to Major
OJT	On-Job Training (Internship/Apprenticeship)	corresponding to the Major Subject	Related to the Major
FP	Field projects	corresponding to the Major Subject	Related to the Major
CC	Co-curricular Courses	Health and Wellness, Yoga education sports, and fitness, Cultural Activities, NSS/NCC and Fine/ Applied/Visual/ Performing Arts	Not Related to the Major and Minor
CE	Community Engagement and service		Not Related to the Major and Minor
RP	Research Project	corresponding to the Major Subject	Related to the Major

Programme Template

Programme Degree		B.Sc.
Specialization Major		Food Science & Nutrition
Faculty		Science & Technology
Parenthesis if any minor / Specialization		Food Science & Nutrition
Preamble		This academic programme will enable the students to understand human physiology and human health, basics of nutrition and its relation to health. The learner is empowered to manage food related activities in terms of processing, preservation and product development keeping nutrients and nutritional requirement related aspects.
Programme Specific Outcomes (PSOs)		After completing this programme, Learner will -
	1.	Enlist nutrients and their functions.
	2.	Assess nutritional requirements for different age groups.
	3.	Undertake food processing, preservation and food product development.
	4.	Employ techniques of nutritional assessment.
	5.	Apply skills of food entrepreneurship and food sanitation and hygiene.
Eligibility Criteria for Programme		Any woman who has successfully cleared 10+2 in Home Science/Science subject from the recognized Boards by the Government of India/respective state with required credits as per the government norms to be able to join undergraduate programme.
Intake for Affiliated Colleges		60 (Batch size for Practical = 15 students)

Structure with title**B.Sc. (Home Science- Food Science & Nutrition)**

SN	Courses	Type of Course	Credits	Marks	Int	Ext
	Semester I					
10030101	Fundamentals of Food Science & Nutrition- I (Theory)	Major (Core)	2	50	50	0
		Major (Core)	2	50	0	50
		Major (Core)	2	50	50	0
10430111	Cuisines of India I (2+2)	OEC	4	100	50	50
10630101	Fundamentals of Food Science & Nutrition II (Pr.)	VSC	2	50	50	0
10730101	Basic Analytical Skills in Science (Practical)	SEC	2	50	50	0
	English - I	AEC (English)	2	50	0	50
	Inception of India Knowledge System	IKS (Generic)	2	50	0	50
		VEC	2	50	0	50
	Health and Wellness, Yoga education sports, and fitness, Cultural Activities, NSS/NCC and Fine/ Applied/Visual/ Performing Arts	CC	2	50	50	0
			22	550	300	250
	Semester II					
20030111	Fundamentals of Food Science & Nutrition- II (Theory)	Major (Core)	2	50	0	50
		Major (Core)	2	50	50	0
		Major (Core)	2	50	0	50
		VSC S2	2	50	0	50
		VSC S3	2	50	0	50
20430111	Cuisines of India – II (2+2)	OEC	4	100	50	50
20730101	Basic Techniques in Health Assessment (Pr.)	SEC	2	50	50	0
	English -II	AEC (English)	2	50	50	0
		VEC	2	50	0	50
	Health and Wellness, Yoga education sports, and fitness, Cultural Activities, NSS/NCC and Fine/ Applied/Visual/ Performing Arts	CC	2	50	50	0
			22	550	250	300

Exit with UG Certificate with 4 extra credits (44 + 4 credits)

Course Syllabus

Semester I

1.1 Major (Core)

Course Title	Fundamentals of Food Science & Nutrition- I (Theory)
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	1. Describe the composition of foods and the changes occurring in them during food preparation and storage
	2. Examine the reasons for positive and not so positive changes in foods
	3. Plan recipes of high-quality products acceptable to consumers
Module 1 (Credit 1) -	
Learning Outcomes	After learning the module, learners will be able to,
	1. Describe the composition of Cereals, Pulses & Legumes Vegetables and Fruits
	2.Explain the changes occurring in the food components and justify their application in food preparation
	3.Describe role of water in food preparation, forms of water in food and types of water
Content Outline	<ul style="list-style-type: none">• Cereals: Structure and composition of a cereal grain, Properties of starch – Thickening and Gelatinization, Gel Formation, syneresis, Retrogradation and Lump formation, Dextrinization, Identity of grains, Gluten formation – Factors affecting Gluten formation.• Leavening agents: Natural and Chemical and their action.• Pulses and legumes: Composition, anti-nutritional factors, effects, and elimination, soaking, fermentation and germination,• Vegetable and Fruits: Composition, color pigments and effect of cooking on them. Pectic substances: forms – Pectin, Protopectin, Pectic acid, Pectinic acid. Theory of gel formation, Vegetables gums and their commercial uses.• Water: Role of water in cookery, Forms of water – Bound and free water. Types: Hard and Soft

Module 2 (Credit 1) -

Learning Outcomes	After learning the module, learners will be able to
	1. Describe the composition of Milk, Egg, Meat, Fish, Poul
	2. Explain the changes occurring in the food components and justify their application in food preparation
Content Outline	<ul style="list-style-type: none">● Milk: Composition, effect of heat, acid, alkali and enzymes on milk, scum formation, maillard reaction● Egg: Structure and composition of egg, protein in egg White and Egg Yolk, Methods to judge Egg quality (grading) Physical and chemical changes during egg storage, foams, role of egg in Cookery, methods of cooking egg.● Meat, Fish and Poultry: Composition, Structure, post mortem changes, ripening or ageing of meat, tenderization of meat, changes during meat cooking.● Fish: Classification, quality indicators of fish, types of fish spoilage, gelatin, and Fish Protein Concentrate (FPC).
	<ul style="list-style-type: none">● Fats and Oils :Physical properties – plasticity, smoke point, flash point,Functional role of fats. Fat Spoilage – rancidity, its types and its prevention. Antioxidants flavor reversion. Fat absorption and factors affecting it.● Sugars- Types of Sugars, Stages of Sugar cookery and Physical Properties-crystalline, amorphous

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Market Survey and discussion on Types of Minimally processed cereal, Pulses/Legumes and Vegetable.
2. Market Survey and discussion on Types of Milk, Milk products, types of fats and sugar.

References:

1. Agrawal A, Udipi S, (2022): Textbook of Human Nutrition (2nd Edition), Jaypee Publishers
2. Bennion, M. Scheule, B.: (2009): Introductory Foods,13th Edition, Prentice Hall Publications
3. Freeland-Graves, J., Peckham, G. C, (1995): Foundations of Food Preparation (6th Edition), Prentice Hall Publishers
4. Manay, S. (2009) Foods Facts, New Age International Pvt Ltd Publishers
5. Potter, N. N., Hotchkiss J. H: (1999), Food Science, 5th Edition, Springer Publications
6. Shadaksharaswamy, M, Manay, S, (2010): Food facts and Principles, 3rd Edition, New Age International Publishers

7. Srilakshmi, B: (2010) Food Science, 5th Edition, New Age International Pvt Ltd Publishers
8. Subbulakshmi, G, Udipi, S. A, Padmini Ghugre (2021): Food processing and Preservation, New Age International Pvt Ltd Publishers, New Delhi.

1.4 Open Elective Courses/ Generic (OEC)

Course Title	Cuisines Of India
Course Credits	4
Course Outcomes	After going through the course, learners will be able to -
	1. Explore different cuisines of India.
	2. Examine preparations made in different regions, different seasons and festivals.
	3. Compare differences in use of various spices and ingredients and prepare various recipes of each type of cuisine.
Module 1 (Credit 1) - Western Indian Cuisine	
Learning Outcomes	1. Examine use of various spices and ingredients in making cuisines of Western India.
	2. Explore preparations made in different regions, different seasons and festivals in Western India.
Content Outline	<ul style="list-style-type: none">● Maharashtrian cuisine● Gujarati Cuisine:● Rajastani Cuisine● Parsi Cuisine
Module 2 (Credit 1) - North Indian Cuisine	
Learning Outcomes	1. Examine use of various spices and ingredients in making North Indian cuisines.
	2. Explore preparations made in different regions, different seasons and festivals in Northern India.
Content Outline	<ul style="list-style-type: none">● Punjabi● Uttar Pradesh cuisine● Jammu and Kashmir. Impact of cold climate.● Madhya Pradesh
Module 3 (Credit 1) - Western Indian Cuisine	
Learning	1. Apply basic culinary skills in making specific dishes.

Outcomes	2. Describe and demonstrate cuisines of Western India.
Content Outline	<ul style="list-style-type: none"> ● Punjabi, Uttar Pradesh, Jammu and Kashmir, Madhya Pradesh dishes. ● List popular dishes of different meals and preserves etc. ● Cook less common 2 recipes each and enable to develop culinary skills.
Module 4 (Credit 1) - North Indian Cuisine	
Learning Outcomes	1. Demonstrate various traditional cooking methods and recipes.
	2. Develop a better understanding of the various Indian cooking methods.
	<ul style="list-style-type: none"> ● Maharashtrian, Gujarati, Rajasthani, Goan and Parsi dishes. ● List popular dishes of different meals and preserves etc. ● Cook less common 2 recipes each and enable to develop culinary skills.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Continuous assessment of practical performed by the student.
2. Review of recipes and project on food ingredients and preparation.

References:

1. Banerji C (2008), 'Eating India: Exploring the Food and Culture of the Land of Spices' Bloomsbury Publications
2. Chitra P, 'Foods of Earth Tastes of Heaven'
3. Cookery Books of Nita Mehta.
4. Cookery Books of Tarla Dalal.
5. Dalal T, 'The complete Gujarati Cook Book'
6. Dubey K, (2022), 'The Indian Cuisine' Published by PHI Learning Pvt.
7. Food Magazines
8. Nambiar, V (2021) 'Indian Food Anthropology and the Eat Right Movement' - Volume 2.
9. Patil V (1992), 'Food Heritage of India: A collection of Unusual Recipes from every corner of India, pp:123-147, Vakil & sons Ltd Bombay Print.
10. Philip T (1978), 'Indian Cuisine', published by Ministry of Information and Broadcasting Government of India: 14-15.

11. Shenoy, Jaya, 'Dakshin Bharat'.

1.5 Vocational Skill Courses (VSC)

Course Title	Fundamentals of Food Science & Nutrition (Practical)
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	1. Observe the nature, composition of food ingredients and the interplay of ingredients during food preparation
	2. Relate weight and measures of raw foods with cooked amounts; and understand the concept of standardization of basic recipes (serving size and portion size)
	3. Identify food sources of various nutrients; plan and prepare recipes using rich sources on nutrients to improve dietary nutrient adequacy.
Module 1 (Credit 1) -	
Learning Outcomes	After learning the module, learners will be able to
	1. Observe the changes in sugar and starch in cereals/pulses and vegetables during food Preparation
	2. Prepare recipes demonstrating the shortening effect and factors affecting fat absorption
	3. Prepare milk products and recipes demonstrating the functional properties of eggs
Content Outline	<ul style="list-style-type: none"> ● Sugar and Starch Cookery: Preparation of sugar syrups for example: one thread, two thread soft ball and crack stage. Stiffness of starch gel and factors affecting it Factors affecting gluten formation i.e. kneading time, types of cereal and flours, effect of amount of fat etc. ● Vegetable Cookery: Changes in colour pigments due to heat, acid and alkali ● Fat Cookery: Shortening effect and factors affecting fat absorption. ● Milk Cookery: Paneer, Maillard Reaction ● Egg Cookery: Role of Egg – Boiled, omelette, French toast, mayonnaise etc.
Module 2 (Credit 1) -	
Learning	After learning the module, learners will be able to

Outcomes	1. Know weights and measures of raw and cooked food items. Understand the concept of standardization of recipes (serving size, portion size)
	2. Identify and select recipes and calculate nutrients in single serving, Apply the principles of nutrition to the optimize nutrient content in the recipe.
Content Outline	<ul style="list-style-type: none"> ● Weights and measures of cereals, millets, pulses, milk, milk products, eggs, fruits and vegetables. ● Standardization of basic recipes. ● Identification, selection and preparation of Recipes for One Serving: <ul style="list-style-type: none"> - Energy: high and low calorie - Proteins - Vitamin A - Vitamin C - B- complex vitamins - Calcium - Iron

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Project on home production of Curds, Cream, Butter and Ghee
2. Individual assignments on collating pictures of rich sources of various nutrients and planning multi-nutrient recipes to improve nutrient density of commonly consumed recipes.

References:

1. Agarwal, A. and Udipi, S. A. (2022), *Textbook of Human Nutrition* (2nd Edition), Jaypee Brothers Medical Publishers (P).
2. Bamji, M.S. (2019), *Textbook of Human Nutrition* (4th Edition), Oxford
3. Bennion, M. Scheule, B.: (2009): *Introductory Foods*, 13th Edition, Prentice Hall Publications
4. Freeland-Graves, J., Peckham, G. C, (1995): *Foundations of Food Preparation* (6th Edition), Prentice Hall Publishers
5. Joshi, S (2021), *Nutrition and Dietetics* (5th Edition), McGraw Hill.
6. Manay, S. (2009) *Foods Facts*, New Age International Pvt Ltd Publishers
7. Mudambi, S.R. and Rajgopal, M.V. (2020), *Fundamentals of Foods, Nutrition and Diet Therapy*, New Age International Pvt. Ltd.
8. Potter, N. N., Hotchkiss J. H: (1999), *Food Science*, 5th Edition, Springer Publications
9. Shadaksharaswamy, M, Manay, S, (2010): *Food facts and Principles*, 3rd Edition, New Age International Publishers

10. Srilakshmi, B: (2010) Food Science, 5th Edition, New Age International Pvt Ltd Publishers
11. Subbulakshmi, G, Udipi, S. A, Padmini Ghugre (2021): Food processing and Preservation, New Age International Pvt Ltd Publishers, New Delhi.

1.6 Skill Enhancement Courses (SEC)

Course Title	Basic Analytical Skills in Applied Science (Pr.)
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	1. Perform qualitative test for components of food
	2. Perform quantitative test for components of food and plant pigments
Module 1 (Credit 1) -	
Learning Outcomes	After learning the module, learners will be able to
	1. Explore use of basic glass wares and apparatus for Science practical.
	2. Apply principles of surface chemistry..
	3. Differentiate between various functional groups in a given organic compound
	4. Qualitatively estimate the food sample for carbohydrate and protein.
	5. Quantitatively estimate reducing sugar.
Content Outline	<p>Identification/Familiarity of the apparatus for assessment in practical (All experiments) Beaker, glass rod, tripod stand, wire gauze, Bunsen burner, Whatman filter paper, gas jar, capillary tube, pestle and mortar, test tubes, tongs, test tube holder, test tube stand, burette, pipette, conical flask, standard flask, clamp stand, funnel, filter paper.</p> <p>Surface Chemistry:</p> <p>1 Preparation of one lyophilic and one lyophobic sol - starch, egg albumin and gum 2 Preparation of one lyophobic sol- Ferric hydroxide</p> <p>Tests for the functional groups present in organic compounds: (1) Alcoholic and Carboxylic groups. (2) Aldehydic and Ketonic</p> <p>Qualitative tests of carbohydrates and proteins in the given foodstuffs.</p> <p>Estimation of reducing sugars by Willstatter's Iodometric method</p>
Module 2 (Credit 1) -	
Learning Outcomes	After learning the module, learners will be able to
	1. Employ use of the calorimeter and principle on which it works.
	2. Use pH meter and its understand principles.
	3. Examine the two phases on which chromatography principle works and separation of various pigments from plant material.

Content Outline	<p>Estimation of vitamin C by colorimetry</p> <p>Estimation of protein using biuret method</p> <p>pH determination of various organic compounds and foods</p> <p>Chromatography Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of R_f values (distance values may be provided).</p>
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Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Identification/familiarity with the apparatus in the Laboratory.
2. Continuous Internal Evaluation about activities taken up in the Laboratory.

References:

1. AOAC International (2023). *Official Methods of Analysis of AOAC INTERNATIONAL*. 22nd Ed. Oxford University Press Inc.
2. Aparnathi, K. D., Shaikh, A. I., & Patel, S. I. (2020). Qualitative tests for detection of common adulterants in milk. *Director of Research, Anand Agricultural University, Anand-388110*.
3. Nijhawan. R. (2024). *Food Safety and Standards Act, 2006, Rules and Regulations*. 25th Ed. ILBCO.
4. Pearson, D. (1991). Composition and Analysis of Foods. Dairy Products II. In 'Pearson's Composition and Analysis of Foods'. 9th edn.(Ed. RS Kirk, R Sawyer) pp. 530–680.
5. Sharma, B.K. (1999). 8th Ed. Instrumental Methods of Chemical Analysis. Gel Publishing House.
6. Srivastava, A.K and Jain, P.C. (1986). 2nd Ed. Chemical Analysis: An Instrumental Approach. S Chand and Company Ltd.

Semester-II

2.1 Major (Core)

Course Title	Fundamentals of Food Science & Nutrition- II (Theory)
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	1. Explore basic nutrition concepts and terminology.
	2. Explain six types of nutrients available from food.
	3. Apply the concept of serving size and balanced diet.
	4. Comprehend the contribution of macronutrients and micronutrients to health.
	5. 5 Apply basic nutrition knowledge while making food choices to plan a balanced diet.
Module 1 (Credit 1) -	
Learning Outcomes	After learning the module, learners will be able to
	1. Describe basic concepts in nutrition and six types of nutrients present in food.
	2. Examine the sources and functions, deficiencies and excess consumption of water, and the Macronutrients available from food
Content Outline	<ul style="list-style-type: none">● Definition of Health, Nutrition, Nutrients, Food, Estimated Average Requirements (EAR), Balanced Diet, Recommended Dietary Allowances (RDA), Tolerable Upper Limit (TUL), Malnutrition (Undernutrition, Overnutrition, Optimum nutrition).● Introduction to the nutrients present in food, namely, Carbohydrates, Proteins, Fats, Vitamins, Minerals & Water.● Sources, Functions, Effects of Deficiencies and Excessive Consumption of -<ul style="list-style-type: none">◆ Carbohydrates◆ Proteins◆ Fats◆ Water

Module 2 (Credit 1) -

Learning Outcomes	After learning the module, learners will be able to
	1. Describe sources and functions of the Vitamins (Fat-soluble & Water-soluble).
	2. Examine the conditions resulting from deficiencies and excess consumption of Vitamins.
	3. Describe the sources and functions of the Minerals (Macrominerals and Microminerals).
Content Outline	4. Examine the conditions resulting from deficiencies and excess consumption of Macrominerals and Microminerals.
	● Sources, Functions, Effects of Deficiencies and Excessive Consumption of
	◆ Fat-Soluble Vitamins (Vitamins A, D, E & K)
	◆ Water-Soluble Vitamins (Vitamins B1, B2, B3, B6, B9, B12)
	● Sources, Functions, Effects of Deficiencies and Excessive Consumption of
	◆ Macrominerals (Calcium & Phosphorus)
	◆ Microminerals (Iron, Iodine, Selenium, Zinc)

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Individual or group projects on classifying food items based on their main nutrients
2. Individual or group projects on clinical signs of nutrients deficiencies and toxicities

References:

1. Agarwal, A and Udipi, S. A. (2022). *Textbook of Human Nutrition* (2nd Edition), Jaypee Brothers Medical Publishers (P).
2. Bamji, M.S. (2019), *Textbook of Human Nutrition* (4th Edition), Oxford.
3. Indian Council of Medical Research, Dietary guidelines for Indians (2024), Published by ICMR- National Institute of Nutrition- Hyderabad.
4. Joshi, S (2021), *Nutrition and Dietetics* (5th Edition), McGraw Hill.
5. Mudambi, S.R. and Rajgopal, M.V. (2020), *Fundamentals of Foods, Nutrition and Diet Therapy*, New Age International Pvt. Ltd.

2.6 Open Elective Courses/ Generic (OEC)

Course Title	Cuisines Of India II
Course Credits	4
Course Outcomes	After going through the course, learners will be able to -
	1. Explore different cuisines of India.
	2. with preparations made in different regions, different seasons and festivals.
	3. aware of differences in use of various spices and ingredients.
	4. Analyze different cuisines of India.
	5. Create preparations made in different regions, different seasons and festivals.
	6. Apply differences in use of various spices and ingredients and prepare various recipes of each type of cuisine.
Module 1 (Credit 1) - South Indian Cuisine	
Learning Outcomes	1. Examine use of various spices and ingredients in making cuisines of South Indian cuisines.
	2. Explore preparations made in different regions, different seasons and festivals in South India.
Content Outline	<ul style="list-style-type: none">● Kerala● Tamil Nadu● Andhra Pradesh● Karnataka.
Module 2 (Credit 1) - East Indian Cuisine	
Learning Outcomes	1. Examine use of various spices and ingredients in making cuisines of East Indian cuisines.
	2. Explore preparations made in different regions, different seasons and festivals in East India.

Content Outline	<ul style="list-style-type: none"> ● Bengal ● Assam ● Orissa
Module 3 (Credit 1) - South Indian Cuisine	
Learning Outcomes	1. Apply basic culinary skills in making specific dishes.
	2. Describe and demonstrate cuisines of South India.
Content Outline	<ul style="list-style-type: none"> ● Kerala, Tamil Nadu, Andhra and Karnataka dishes. ● List popular dishes of different meals and preserves etc. ● Cook less common 2 recipes each and enable to develop culinary skills.
Module 4 (Credit 1) - East Indian Cuisine	
Learning Outcomes	1. Demonstrate various traditional cooking methods and recipes.
	2. Develop a better understanding of the various Indian cooking methods.
	<ul style="list-style-type: none"> ● West Bengal, Assam, Orissa dishes. ● List popular dishes of different meals and preserves etc. ● Cook less common 2 recipes each and enable to develop culinary skills.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Continuous assessment of practical performed by the student.
2. Review of recipes and project on food ingredients and preparation.

References:

1. Banerji C (2008), 'Eating India: Exploring the Food and Culture of the Land of Spices' Bloomsbury Publications
2. Chitra P, 'Foods of Earth Tastes of Heaven'
3. Cookery Books of Nita Mehta.
4. Cookery Books of Tarla Dalal.

5. Dalal T, 'The complete Gujarati Cook Book'
6. Dubey K, (2022), 'The Indian Cuisine' Published by PHI Learning Pvt.
7. Food Magazines
8. Nambiar, V (2021) 'Indian Food Anthropology and the Eat Right Movement' - Volume 2.
9. Patil V (1992), 'Food Heritage of India: A collection of Unusual Recipes from every corner of India, pp:123-147, Vakil & sons ltd Bombay Print.
10. Philip T (1978), 'Indian Cuisine', published by Ministry of Information and Broadcasting Government of India: 14-15.
11. Shenoy, Jaya, 'Dakshin Bharat'.

2.7 Skill Enhancement Courses (SEC)

Course Title	Basic Techniques in Health Assessment (Pr.)
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	1. Describe basic terminologies in human anatomy & physiology.
	2. Explain the structure & functions of select organ systems of the human body.
	3. Apply this knowledge to understand the relationship between anatomical and physiological systems and human health.
Module 1 (Credit 1) -	
Learning Outcomes	After learning the module, learners will be able to
	1. Develop an understanding of the morphology and structure of specific tissues of the human body
	2. Describe the anatomical features of specific human tissues
	3. Interpret vital physiological parameters of human subjects.
Content Outline	<ul style="list-style-type: none">• Study of axial and appendicle skeleton and skeletal muscle system using models• Permanent slides of epithelial, muscular, and connective tissues.• Measuring body temperature, implications and Interpretation.• Measuring blood pressure, pulse rate, and SPO2 using digital sphygmomanometer and pulse oximeter implications and interpretation
Module 2 (Credit 1) -	
Learning Outcomes	After learning the module, learners will be able to
	1. Determine various blood related parameters.
	2. Perform specific hematological tests and interpret the results.

Content Outline	<p>Determination, Implications, and interpretation of:</p> <ul style="list-style-type: none"> • Hemoglobin content of blood • Blood Group • Erythrocyte Sedimentation Rate • Bleeding and Clotting time <p>Interpretation of Complete Blood Count Report</p> <p>Demonstration of First-Aid & CPR</p>
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Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

1. Identification/familiarity with the apparatus in the Laboratory.
2. Continuous Internal Evaluation about activities taken up in the Laboratory.

References:

1. Hall, J. E. (2022). *Guyton and hall textbook of medical physiology* (14th ed.). Elsevier
2. Chaudhuri, S. K. (2011). *Concise Medical Physiology*. 6th Revised Ed. New Central Book Agency
3. Sudhakar, H. (2023). *Basics of Medical Physiology*. 5th Edition. Wolters Kluwer
4. Kamath, S. (2023). *API Text Book of Medicine*. 12th Edition. Prithvi Books
5. Chatterjee, C. (2024). *Human Physiology*. 14th Ed. CBS Publishers and Distributors Pvt. Ltd.
6. Waugh, A. (2014). *Ross and Wilson Anatomy and Physiology in Health and Illness*, 12th Ed. Churchill Livingstone

