

Institute for Excellence in Higher Education (IEHE), Bhopal

(Synopsis Template: Theory Paper with Practical)

No. of Credits : 4 + 2 = 6

PART-A:INTRODUCTION

Program: UG	Class: B.Sc.	Semester: I	Session: ref 2021-22
Subject: FOOD SCIENCE & QUALITY CONTROL			
1.	Course Code	(To be filled by Exam Cell)	
2.	Course Title	Food Chemistry, Basic and Applied Nutrition	
3.	Course Type (Core Course/ Discipline Specific Elective/Generic Elective)	Minor	
4.	Pre-Requisite (if any)	Student studied PCM, PCB and Agriculture in 10+2	
5.	Course Learning Outcomes(CLO)	After completing this course student will be able to: • Basic Concepts in Nutrition • Nutrients • Physicochemical nature of nutrition • Food borne illness, toxicants in food	
6.	Credit Value	4(L)	

PART-B:CONTENT OF THE COURSE

Total No. of Lectures + Practical (in hours per week): **L – 40hrs**

Total No. of Lectures: **L – 60**

Module	Topics	No. of Lectures
I	1. Introduction to Nutrition (a) Food as a source of nutrients, Definition, Functions of food, Nutrients, Health, Nutrition, Type of Nutrition, Malnutrition. <i>Keywords: Nutritional, Biological Psychological Functions, Food Groups, Balanced Diet</i>	10
II	2. Carbohydrates – Composition, Classification, Properties. I. Monosaccharide- Glucose, Fructose, Galactose. II. Disaccharides- Sucrose, Maltose, Lactose. III. Polysaccharides and complex polysaccharides. (a) Starch, amylose, amylopectin, dextrin, pectin, cellulose,	15

Date of BOS: 24/09/2021

Subject: Food Science & Quality Control- Minor/ GE

Signature of the Chairman (BOS):

Name: Dr. Pankaja Shukla

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	glycogen, (b) Gelatinization and Dextrinization of Starch and their applications in food preparations. (c) Non enzymatic Browning reaction (Millard reaction). (d) Recrystallization of sugar. <i>Keywords: Starch, dextrin, Gelatinization and Dextrinization, Browning</i>	
III	3. Proteins – Classification, physicochemical properties and sources of proteins and amino acid. Amino acids – Essential, non essential and limiting. (a) Function of protein in human body. (b) Deficiency, RDA and biological value. (c) Denaturation, coagulation, <i>Keywords: Essential, non essential amino acid, sources, Deficiency</i>	10
IV	Lipids- (i) Composition, classification, functions, Properties, sources, calorific value. (ii) Physicochemical properties- melting point, Rancidity <i>Keywords:, Lipids , functions, Physicochemical properties .</i>	25
V	Energy – Unit and definition of energy, Total energy Requirement, BMR and Factors affecting BMR. <i>Keywords: energy Requirement, Factors affecting BMR.</i>	
VI	Vitamins: Classification, sources, functions, Deficiency and excess of vitamins. <i>Keywords: Vitamins, functions, sources.</i>	
VII	Minerals: Classification, functions, sources, daily requirement and deficiency Of - Ca, P, Fe, Na, K and I. <i>Keywords: Minerals, functions, sources</i>	
VIII	Water – a. Properties of water b. Distribution and Functions of Water in human body. Water and electrolyte balance. Water deficiency, prevention and cure for dehydration. <i>Keywords : Water, function, dehydration</i>	



Basic food groups-

Cereals (Wheat and Rice), Pulses, Vegetables and fruits, Milk, Egg.

Keywords: Food groups, wheat, rice.

X

Common food borne illnesses (In brief)

Keywords: Food borne illnesses

XI

Naturally occurring toxins in food (In brief)

Keywords: Food toxins

XII

Pigments: Chlorophyll, Anthocyanine, Carotinoids, Flavinoids -, physicochemical properties, Effect of change in PH on pigments and texture.

Keywords: Natural food pigments, Effect of change in PH.

PART-C:LEARNING RESOURCES**Textbooks, Reference Books, Other Resources****Suggested Readings:****Textbooks:**

1. Srilakshmi B (2011). Nutrition Science. 4th Revised Edition. New Age International Publishers.
2. Khanna K, Gupta S, Seth R, Passi SJ, Mahna R, Puri S (2013). Textbook of Nutrition and Dietetics. Phoenix Publishing House Pvt. Ltd.

Reference Book:

1. Wardlaw and Insel MG, Insel PM (2004). Perspectives in Nutrition Sixth Edition, McGraw Hill.
2. ICMR (2010) Recommended Dietary Allowances for Indians. Published by National Institute of Nutrition, Hyderabad.
3. Institute of Nutrition, Hyderabad.
4. Chadha R and Mathur P eds. (2015). Nutrition: A Lifecycle Approach. Orient Blackswan, New Delhi.
5. Seth V and Singh K (2006). Diet Planning through the Life Cycle: Part I Normal Nutrition. A Practical Manual. Elite Publishing House Pvt. Ltd. New Delhi.
6. Gopalan C, Rama Sastri BV, Balasubramanian SC (1989) Nutritive Value of Indian Foods. National Institute of Nutrition, ICMR, Hyderabad.

Suggestive digital platform web links

<https://www.aesedl.co.uk/Info/Natural-Health/Physical/Human-Nutrition.aspx>

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Suggested equivalent online courses

NPTEL Course: <https://nptel.ac.in/courses/126/104/126104004/>
<https://www.google.com/search?q=nptel+courses+in+human+nutrition&oeq=N&aqs=chrome..69i57j69i59j35i39j0l13i143j369i60j369i61i1866lj1j7&sourceid=chrome&ie=UTF-8>

UNIT-D: ASSESSMENT AND EVALUATION (For theory of 4 credits)

Assessment (1 Credit):				External Evaluation (3 Credits):	
Continuous Comprehensive Evaluation (CCE): 100 Marks				Term-end Examination(EE): 100Marks	
Shall be based on allotted assignment & class-tests. The distribution of marks shall be as follows:				Time: 3 hours	
(A) Attendance in the class		10 Marks		Section (A): 20 MCQ	20×01 = 20 Marks
(B) Submission of assignment followed by presentation		20 Marks			
(C) Quiz/Seminar/Group-Talk/etc		20 Marks		Section (B): Four short questions with internal choice (200 Words Each)	04 × 05 = 20 Marks
(D) Class Test (Descriptive and/or Objective)		Marks of best TWO tests:			
Class Test-1:		25 Marks		Section (C): Four long questions with internal choice (500 Words Each)	04 × 15 = 60 Marks
Class Test-2:		25 Marks			
Class Test-3:		25 Marks			
Total (A+B+C+D):		100 Marks		Total (A+B+C):	100 Marks

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(Syllabus Template: For Practical)

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Signature of the Chairman (BOS):

Name: Dr. Pankaja Shukla

(Signature)

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4.	Pre-Requisite (if any)	Student studied PCM, PCB, Home Science and Agriculture in 10+2	
5.	Course Learning Outcomes (CLO)	After completing this course student will be able to: - Identifying Rich Sources of Nutrients - Introduction to Meal Planning	
6.	Credit Value	2 (P)	

PART-B: CONTENT OF THE COURSE

Total No. of Practical (in hours per week): **P – 2 Hr**

PRACTICAL

1. Estimation of moisture content
2. To find out alkalinity of water.
3. To find out Acidity of milk and butter milk.
4. To find out casein content in milk.
5. Recrystallization on sugar.
6. Effect of pH on Pigments.

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12. Gopalan C, Rama Sastri BV, Balasubramanian SC (1989) Nutritive Value of Indian Foods.
1. National Institute of Nutrition, ICMR, Hyderabad.

Suggestive digital platform web links <https://www.acsedu.co.uk/Info/Natural-Health/Physical/Human-Nutrition.aspxh>

SWAYAM Course: <https://nptel.ac.in/courses/126/104/126104004/>
<https://www.google.com/search?q=nptel+courses+in+human+nutrition&oeq=N&aqs=chrome.1.69i57j69i59j35i39j0i131i433j69i60l3j69i61.18661j1j7&sourceid=chrome&ie=UTF-8>

PART-D: ASSESSMENT AND EVALUATION (For Practical)

Internal Assessment (0.5 Credit):		External Examination (1.5 Credits):	
Continuous Comprehensive Evaluation (CCE):100 Marks		Term-end Practical Examination:100Marks	
<i>The distribution of marks shall be as follows:</i>		Time:3 hours	
(A) Attendance in the Laboratory	10 Marks	(A) Experiment-1:	40 Marks
(B) Practical Record File	20 Marks	(B) Experiment-2:	40 Marks
(C) Demonstration by Student	20 Marks		
(D) Preparation of Chart/Model/Lab-Manual/etc.	30 Marks		
(E) Quiz based upon the lab-course	20 Marks	(C) Viva-Voce:	20 Marks
Total (A+B+C+D+E):	100 Marks	Total (A+B+C):	100 Marks

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