

SDNB VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)
CHENNAI-600044.

**DEPARTMENT OF HOME SCIENCE- NUTRITION, FOOD SERVICE MANAGEMENT
AND DIETETICS**

COURSE FRAMEWORK

TOTAL CREDITS: 140

BATCH: 2020

	Part	Subject	Title of the Paper	Code	L	T	H	Cre dits	CIA	ESE	Total
I SEM	I	Language (Tamil/Hindi/Sanskrit/French)	Tamil – I Hindi-I Sanskrit-I French -I	20ULTFC1001 20ULHFC1001 20ULSFC1001 19ULFFC1001	4	2	6	3	40	60	100
	II	English	Foundation English-I	20UGEFC1001	4	2	6	3	40	60	100
	III	Core Major- Paper I	Food Science	20UFMCT1001	4	2	6	4	40	60	100
		Core Major- Paper II	Human physiology	20UFMCT1002	4	2	6	4	40	60	100
		Allied I- Paper I	Allied Chemistry – I	20UFMAT1001	2	2	4	4	40	60	100
	IV	Soft Skill	Essentials of Language and Communication Skills	20USSLC1001				3	50	-	50
		Value Education	Environmental studies	20UESVE1001				-	-	-	-
								21			
II SEM	I	Language (Tamil/Hindi/Sanskrit/French)	Tamil -II/ Hindi-II/ Sanskrit-II/ French II	20ULTFC2002 20ULHFC2002 20ULSFC2002 19ULFFC1002	4	2	6	3	40	60	100
	II	English	Foundation English-II	20UGEFC2002	4	2	6	3	40	60	100
	III	Core Major- Paper III	Nutrition I	20UFMCT2003	4	2	6	4	40	60	100
		Core Major- Practical I	Physiology & Nutrition	20UFMCP2001	4	2	6	4	40	60	100

			Practical								
		Allied I- Paper II	Allied Chemistry – II	20UFMAT2002	2	2	4	4	40	60	100
		Allied I- Practical I	Allied Chemistry - Practical I	20UFMAP2002	1	1	2	2	40	60	100
	IV	Soft Skill	Essentials of Spoken and Presentation Skills	20USSSP2002				3	50		50
		Value Education	Environmental studies	20UESVE2001				2	50		50
		Value Education	Yoga and Wellness	20UYGVE2002				2	50		50
								27			
III SEM	I	Language (Tamil/Hindi/Sanskrit/French)	Tamil-III/ Hindi-III/ Sanskrit-III/ French III	20ULTFC3003 20ULHFC3003 20ULSFC3003 19ULFFC3003	4	2	6	3	40	60	100
	II	English	Foundation English-III	20UGEFC2002	4	2	6	3	40	60	100
	III	Core Major-Paper IV	Nutrition through life cycle	20UFMCT3004	4	2	6	4	40	60	100
		Core Major-Paper V	Medical nutrition therapy I	20UFMCT3005	4	2	6	4	40	60	100
		Allied II-Paper III	Nutritional Biochemistry	20UFMAT3003				5	40	60	100
	IV	Non-Major Elective	Women and Health	20UFMNE3001				2	50		50
								21			
IV SEM	I	Language (Tamil/Hindi/Sanskrit/French)	Tamil- IV/ Hindi-IV/ Sanskrit-IV/ French IV	20ULTFC4004 20ULHFC4004 20ULSFC4004 19ULFFC4004	4	2	6	3	40	60	100
	II	English	Foundation English-IV	20UGEFC4004	4	2	6	3	40	60	100
	III	Core Major-Paper VI	Medical nutrition therapy II	20UFMCT4006	4	2	6	4	40	60	100

		Core Major- Practical II	Medical nutrition therapy practical	20UFMCP4002	4	2	6	4	40	60	100
		Allied III- Paper IV	Food Microbiology	20UFMAT4004				5	40	60	100
	IV	Non-Major Elective	Women and Health	20UFMNE4002				2	50		50
								21			
V SEM	III	Core Major - Paper VII	Human Development	20UFMCT5007	4	2	6	4	40	60	100
		Core Major - Paper VIII	Food Service Management I	20UFMCT5008	4	2	6	4	40	60	100
		Core Major - Paper IX	Nutrition II	20UFMCT5009	4	2	6	4	40	60	100
		Core Major - Paper X	Community Nutrition	20UFMCT5010	4	2	6	4	40	60	100
		Core Elective- I	Fundamentals of Textiles & Clothing	20UFMET5001	4	2	6	5	40	60	100
	IV	Skill Enhancement Course		20USSSE5003				3	-		-
								24			
VI SEM	III	Core Major - Paper XI	Sports Nutrition	20UFMCT6011	4	2	6	4	40	60	100
		Core Major - Paper XII	Food Service Management II	20UFMCT6012	4	2	6	4	40	60	100
		Core Major - Paper XIII	Clinical Nutrition	20UFMCT6013	4	2	6	4	40	60	100
		Core Elective- II	Interior Decoration	20UFMET6002	4	2	6	5	40	60	100
		Core Elective- III	Diet Counselling and Patient Care	20UFMET6003	4	2	6	3	40	60	100
		Internship	Internship	20UFMIP6001	-	-	-	2	-	-	-
	IV	Skill Based Elective	Computing Skills – Swayam-MOOC courses	20USSCS6FM4				3	50		50
	V	Extension Activities						1			

					26			
Total – 140								

L=Lecture Hrs.; T=Tutorial Hrs. ;H= Hrs. per week; C =Credits

TOTAL NUMBER OF CREDITS AND MARKS

	Credits	Marks
Language	12	400
English	12	400
Major	60	1300
Elective	13	300
Allied	20	400
Soft Skills / NME / Value Education	20	400
Internship	02	-
Extension Activities	1	-
Total	140	3200

DEPARTMENT OF HOME SCIENCE
SDNB VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)
CHENNAI-600044.
(Department of Nutrition, Food Service Management and Dietetics)

COURSE FRAMEWORK
SEMESTER I

	Part	Subject	Title of the Paper	Code	L	T	H	Credits	CIA	ESE	Total
I SEM	I	Language (Tamil/Hindi/Sanskrit/French)	Tamil – I Hindi-I Sanskrit-I French -I	20ULTFC1001 20ULHFC1001 20ULSFC1001 19ULFFC1001	4	2	6	3	40	60	100
	II	English	Foundation English-I	20UGEFC1001	4	2	6	3	40	60	100
	III	Core Major-Paper I	Food Science	20UFMCT1001	4	2	6	4	40	60	100
		Core Major-Paper II	Human physiology	20UFMCT1002	4	2	6	4	40	60	100
		Allied I- Paper I	Allied Chemistry – I	20UFMAT1001	2	2	4	4	40	60	100
	IV	Soft Skill	Essentials of Language and Communication Skills	20USSLC1001				3	50	-	50
		Value Education	Environmental studies	20UESVE1001				-	-	-	-
								21			

**CORE PAPER-I
FOOD SCIENCE**

**TOTAL HOURS: 75
CREDIT: 4**

**SUB CODE: 20UFMCT1001
L-T-P: 4 2 0**

COURSE OBJECTIVES

1. To enable students to obtain knowledge of different food groups and their contribution to nutrition.
2. To help them study the different methods of cooking and their advantages and disadvantages.
3. To enable them to gain experience in the preparation of foods with attention to the preservation of their nutritive value - oriented to Indian cooking.
4. To help them understand the scientific principles governing the acceptability of food preparations.

COURSE OUTCOMES: On successful completion of the course the students will be able to

CO No.	CO Statement
CO 1	Understand the food groups, cereals and their functions, applying the principles of methods of cooking.
CO 2	Acquire knowledge on the various components of pulses, vegetables and fruits
CO 3	Learn the different aspects of meat, milk and their products.
CO 4	Knowledge on classification and nutritive value of nuts, fats and sugars.
CO 5	Describe the beverages, spices and condiments, food additives and adulterants.

SYLLABUS

UNIT -1

15 Hrs.

NUTRIENT CONTENT OF FOODS - Classification of foods according to nutrient content.
Food groups for balanced diets - Food in relation to health.

COOKING METHODS – Objectives, preliminary preparation and Study of the different cooking methods, merits and demerits, Solar cooking and Microwave cooking.

CEREALS AND MILLETS -Source of manufacture, structure, composition, processing of rice, wheat and millets (Maize, Jowar, Ragi). Fermented Cereal Products.

Cereal cookery- Effect of moist and dry heat on grains

- a) Cereal protein – gluten and factors affecting gluten formation
- b) Cereal starch- Gelatinization and factors affecting gelatinization.

UNIT-2

15 Hrs.

PULSES- Source of manufacture, nutritive value, Toxic constituents – lathyrism, removal of toxins. Judicious combination of cereals and pulses. Effect of cooking and factors affecting quality.

VEGETABLES- Classification, Composition and Nutritive value, Effect of cooking on colour, texture, flavour, appearance and nutritive value. Vegetable cookery- Changes during cooking and Conservation of nutrients during cooking.

FRUITS –Classification, Nutritive value, conservation of nutrients during cooking, Enzymatic Browning.

UNIT-3

15 Hrs.

FLESH FOODS- Meats - Classification, Composition and Nutritive value, Changes during cooking and Post mortem changes

FISH - Classification, Nutritive value and Selection

EGGS- Structure, Composition and Nutritive value, Quality Evaluation, Egg white foams - factors affecting foam formation. Egg Cookery- Effect of heat.

MILK AND MILK PRODUCTS- Composition and Nutritive value, types of milk, Coagulation of milk, Milk products – Fermented products and Non-Fermented products; Milk cookery- Effect of heat and enzymes; Milk processing- Pasteurization and Homogenization. Non-Enzymatic Browning- Millard reaction.

UNIT-4

15 Hrs.

NUTS AND OIL SEEDS: Types, Nutritive value, Health benefits, Uses & toxins.

FATS AND OILS: Source, Processing and refining of fats-Hydrogenation.

Emulsification, Rancidity, Smoking point.

SUGAR COOKERY- Types of sugars available, Stages in sugar cookery, Crystallization.

Artificial sweeteners

UNIT-5

15 Hrs.

BEVERAGES- Sources, Classification/types, Nutritive value, Processing, Methods of preparation and Uses - Coffee, Tea and Cocoa.

SPICES AND CONDIMENTS-Origin and use in food preparation.

FOOD ADDITIVES: Preservation, colorants, leavening agents, shortenings and stabilizers.

FOOD ADULTERATION: Types and methods of detection

ACTIVITY

1. Measuring Techniques of edible and non-edible portion
2. Cereal Cookery – Structure of Starch and Gelatinization, Gluten formation, Methods of cooking rice.
3. Pulse Cookery – Factors affecting quality of pulses.
4. Vegetable and fruit Cookery – Effect of cooking on pigments and Enzymatic Browning.

5. Milk cookery – Effect of heat, acid, enzyme and tannins.
6. Sugar cookery – Crystallization, Stages of sugar cookery,
7. Fats and oils- Smoking point.

TEXTBOOKS

1. Srilakshmi, B.C. (2011). *Food Science* (7th ed.). New Delhi, ND: New Age International Publications.
2. Potter, N. N. (2013). *Food Science*. Netherlands: Springer Netherlands.
3. Manay, S., & Swamy, S. (2001). *Food Facts and Principles*. New Delhi, ND: New Age International Publications.
4. Rajagopal, M. V., Mudambi, S. R., Rao, S. M. (2015). *Food Science*. India: New Age International (P) Limited, Publishers.
5. Roday, (2007). *Food science and Nutrition*. New Delhi, ND: Oxford university press.

BOOKS FOR REFERENCE

1. Parker, R. (2000). *Introduction to Food Science*, Delma: Thomson Learning Co.
2. Paul, P. C. and Palmer, H. H. (2000). *Food Theory and Applications*. (ed.). New York: John Wiley and Sons.
3. Brow, A. (2000). *Understanding Food*. Wadsworth: Thomson Learning Publications.
4. Reddy, S. M. (2015). *Basic Food Science and Technology*. New Delhi, ND: New Age Publishers.
5. Mc Cance & Widdowson. (2004). *Composition Microwave of Food* (6th ed.). Food Standards Agency.

E-LEARNING RESOURCES

1. <https://www.journals.elsevier.com/trends-in-food-science-and-technology>
2. <https://onlinelibrary.wiley.com/journal/20487177>
3. <https://www.annualreviews.org/journal/food>
4. <http://www.fao.org/home/en/>
5. <https://www.wfp.org/>

Mapping of CO with PSO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	2	3	3	3	3
CO 2	3	2	2	2	3	2
CO 3	3	2	2	2	3	2
CO 4	3	2	2	2	3	2
CO 5	3	2	2	2	3	2
Average	3	2	2.2	2.2	3	2.2

KEY:

PEDAGOGY (TEACHING METHODOLOGY): Journal Article Review, Poster Presentation, Quizzes/Objective tests, Field Assessments, Open Book Tests.

END SEMESTER EXAMINATION**QUESTION PAPER PATTERN FOR OBE (2020-21 ONWARDS)****THEORY UG –QUESTION PAPER PATTERN- CONVENTIONAL ON-PAPER MODE**

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if any
K1, K2	Section A (Multiple choice question - Answer all the questions)	Correct choice	15X2= 30	75	
K2, K3, K4	Section B (Answer any five questions out of 7 questions – 5 Marks)	Short answers {approx. 500 Words)	5X5 = 25		
K3,K4, K5,K6	Section C 2 out of 5 Questions - 10 Marks	Elaborate answers (approx. 1000 Words)	2X10 = 20		

*** 75 marks to be converted as 60 marks.**

**UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT
(2020 – 2021)**

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if any
INTERNAL SETTING					
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	Choose the correct option	25X1=25	50	
EXTERNAL SETTING					
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	Short answers/500 Words	5x5 = 25		
	Section C				

***50 marks to be converted as 60 marks**

**CORE PAPER-II
HUMAN PHYSIOLOGY**

TOTAL HOURS: 75
CREDIT: 4

SUB CODE: 20UFMCT1002
L-T-P: 4 2 0

COURSE OBJECTIVES

1. Understand the structure and physiology of various organs in the human body.
2. Gain knowledge on the principles of nutrition and dietetics through the study of physiology.
3. Comprehend the functions of the system in the body.

COURSE OUTCOMES: On successful completion of the course the students will be able to

CO No.	CO Statement
CO1	Understand the core concept of physiology and its application in the field of nutrition.
CO2	Comprehend and distinguish in the various functions of cell and tissues in the body.
CO3	Acquire the knowledge of basic concept of human circulatory system.
CO4	Illustrate the process and function of respiratory and digestive system.
CO5	Get sensitized about the functions of reproductive and excretory system.

SYLLABUS

UNIT -1

15 Hrs.

CELL-Introduction - structure, functions and cell division- mitosis & meiosis
TISSUES-Classification, structure and function.

UNIT -2

15 Hrs.

NERVOUS SYSTEM-Neuron - structure, function, Central and peripheral nervous system, conduction of nerve impulses and synapse. Autonomic nervous system – functions

UNIT -3

15 Hrs.

BLOOD-Composition, Constituents- RBC, WBC, Platelets- structure & functions.
Blood grouping, Coagulation of Blood. Body defense against diseases- Immunity - innate and acquired immunity.
HEART AND CIRCULATION-Structure of the heart, properties of cardiac muscle, origin and conduction of heart beat, cardiac cycle, cardiac output, and heart sounds, Blood pressure - definition and factors affecting blood pressure and ECG.

UNIT -4

15 Hrs.

RESPIRATORY SYSTEM-Anatomy and physiology of respiratory organs, mechanism of respiration. Gaseous exchange in the lungs and tissues. Mechanism of respiration.

DIGESTIVE SYSTEM-Anatomy of gastro-intestinal tract. Digestion and absorption of carbohydrates, proteins and fats.

UNIT -5

15 Hrs.

EXCRETORY SYSTEM-Structure of kidney, formation of urine, acid-base balance, skin-structure and functions; Body temperature regulation,

ENDOCRINOLOGY-Pituitary, thyroid, parathyroid, adrenal and pancreas - list of hormones and their functions and their disorders.

REPRODUCTIVE SYSTEM-Anatomy of male and female reproductive organs, menstrual cycle and ovarian cycle, Hormonal influence of fertilization, conception and lactation.

TEXT BOOKS

1. Raj, T., Kurpad, A., Vaz, M. (2016). *Guyton & Hall Textbook of Medical Physiology - E-Book: A South Asian Edition*. India: Elsevier Health Sciences.
2. Waugh, A., Grant, A. (2014). *Ross & Wilson Anatomy and Physiology in Health and Illness E-Book*. United Kingdom: Elsevier Health Sciences.
3. Subrahmanyam, S. (1987). *Textbook of Human Physiology*. India: S. Chand Limited.
4. Strang, K. T., Widmaier, E. P., Raff, H. (2011). *Vander's Human Physiology: The Mechanisms of Body Function*. United Kingdom: McGraw-Hill.
5. Muruges, N. (2018). *Anatomy physiology and health education*. (6th ed.). India: Sathya publishers.

BOOKS FOR REFERENCE

1. Sembulingam, K. (2008). *Essentials of Medical Physiology*. India: Juta, Limited.
2. John, N. A. (2019). *CC Chatterjee's Human Physiology*, Volume 2. India: CBS PUB & DIST PVT Limited INDIA.
3. Biederman-Thorson, M., Thews, G. (2013). *Human Physiology*. Germany: Springer Berlin Heidelberg.
4. Ganong, W. F. (2005). *Review of Medical Physiology*. United Kingdom: McGraw-Hill Education.
5. Sanders, T., Scanlon, V. C. (2007). *Essentials of anatomy and physiology*. Philadelphia: F.A. Davis Company.

E-LEARNING RESOURCES

1. <http://www.anatomyatlases.org/MicroscopicAnatomy/MicroscopicAnatomy.shtml>
2. <http://www.ncbi.nlm.nih.gov/books?term=physiology%5BSubject%5D>
3. <https://www.ncbi.nlm.nih.gov/books/NBK21475/>
4. <https://www.the-scientist.com/tag/physiology>
5. <https://rmlh.nic.in/index1.aspx?langid=1&lev=4&lsid=6255&pid=6252&lid=3804>

Mapping of CO with PSO:

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	2	3	2	3	3
CO 2	2	3	2	3	3	3
CO 3	2	3	3	3	3	3
CO 4	1	3	3	3	3	3
CO 5	2	3	2	3	3	2
Average	5	2.8	2.6	2.8	3	2.8

KEY:

PEDAGOGY (TEACHING METHODOLOGY): Article Review, Quizzes/Objective tests, Class test, Home assignment, Paper presentation or seminar

END SEMESTER EXAMINATION

QUESTION PAPER PATTERN END SEMESTER EXAMINATION (PAPER MODE)

Knowledge Level	Section	Marks	Word Limit	Total	Special instructions, if any
K1, K2	Section A (Multiple choice question)	10X1=30	Mark the correct choice	75	
K2,K3, K4	Section B (Answer any five question out of 7 Question)	5X5 = 25	Short answers {approx. 500 Words)		
K3,K4, K5	Section C 2 out of 5 Questions *10 Marks	2X10 = 10	Elaborate answers (approx. 1000 Words)		

*** 75 marks to be converted as 60 marks.**

**UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT
(2020 – 2021)**

Knowledge Level	Section	Word Limit	Marks	Total	Special instructions, if any		
INTERNAL SETTING							
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks(No Choice)	25X1=25	Choose the write option	50			
EXTERNAL SETTING							
K2,K3,K4,K5	Section B 5 out of 7 Questions *5 Marks	5x5 = 25	Short answers/500 Words				

50 marks to be converted as 60 marks.

ALLIED PAPER-I
ALLIED CHEMISTRY-I

TOTAL HOURS: 75
CREDITS: 4

SUB CODE: 20UFMAT1001
L-T-P: 4 2 0

COURSE OBJECTIVES

1. To explore the basic concepts in chemistry
2. To learn and apply the theoretical principles
3. To learn the basic principles in electrochemistry
4. To know the methods suitable for water purification
5. To learn the fundamentals of organic chemistry and heterocyclic compounds
6. To know the basic principles of photochemistry

COURSE OUTCOME: On successful completion of the course the students will be able to

CO NO.	CO Statement
CO1	Know and identify methods suitable for water purification
CO2	Acquire knowledge about the advantages of solid, liquid and gaseous fuel
CO3	Gaining the knowledge about basic of fundamental organic chemistry
CO4	Acquire knowledge about basics of physical chemistry
CO5	Know and prepare the good fertilizer

UNIT-1: ELECTROCHEMISTRY

15 Hrs.

1.1 Electrochemistry: Strong and Weak electrolyte, common ion effect, pH, Buffer solutions. Henderson equation and buffer action in biological systems

UNIT-2: INDUSTRIAL CHEMISTRY

15 Hrs.

Fuels-gaseous – water gas, natural gas, semi-water gas
Fertilizers - Preparation and uses of urea, ammonium sulphate, Superphosphate, Triple super phosphate, NPK.
Hardness of water: Temporary and permanent hardness, disadvantage of hard water-softening of hard water-reverse osmosis-purification of water for domestic use: uses of chlorine, ozone and uv- light.

UNIT-3: FUNDAMENTALS OF ORGANIC CHEMISTRY

15 Hrs.

Classification of organic compounds- Hybridization in methane, ethane, acetylene,
Classification of reagents- Electrophiles, Nucleophiles and Free radicals definition examples-
classification of reactions-addition, substitution, elimination, condensation and polymerization
Electrophilic substitution reaction mechanism in benzene (Nitration and Sulphonation only)

UNIT-4: HETEROCYCLIC COMPOUNDS

15 Hrs.

4.1 Introduction to Heterocyclic compounds preparation and properties of furan, thiophene, pyrrole and pyridine.

UNIT-5: PHOTOCHEMISTRY**15 Hrs.**

Introduction to photochemistry-statement of Grothus-Draper Law, Stark-Einsteins law, quantum yield , Hydrogen –chlorine reaction (Elementary idea only). Photosynthesis, Photosensitization, phosphorescence, fluorescence and chemiluminiscence - Definition with examples

TEXTBOOKS:

1. Soni, P. L., & Katyal, M. (2006). Textbook of inorganic chemistry. Sultan Chand
2. Soni, P. L. (2006). Textbook of organic chemistry. Sultan Chand.
3. Sharma, B. K. (2000). Industrial chemistry. Krishna Prakashan Media.
4. Myers, R. (2003). The basics of chemistry. Greenwood Publishing Group.
5. Goldberg, D. E. (2006). Fundamentals of chemistry. McGraw-Hill.

BOOKS FOR REFERENCE:

1. Bahl, B. S., & Bahl, A. (2008). Advanced Organic Chemistry, Revised ed. S. Chand and Company, India.
2. Puri, L. B., Sharma, I. R., & Pathania, M. S. (2013). Principles of physical chemistry. Vishal
3. McMurry, J., Ballantine, D. S., Hoeger, C. A., Peterson, V. E., & Castellion, M. (2010). Fundamentals of general, organic, and biological chemistry. Pearson Education.
4. Mills, K., & Joule, J. A. (2010). Heterocyclic Chemistry. Blackwell.
5. Saha, S., & Mondal, S. (Eds.). (2018). Photochemistry and Photophysics: Fundamentals to Applications. BoD–Books on Demand.

E-LEARNING RESOURCES:

1. www.virtlab.com
2. <http://nptel.ac.in>
3. MATLAB
4. Mooc.org
5. <http://swayam.gov.in>

Mapping of CO with PSO

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	2	3	0
CO2	3	2	2	2	3	1
CO3	3	3	3	3	3	1
CO4	3	2	2	2	2	0
CO5	3	2	3	3	2	1
Average	3	2.2	2.4	2.4	2.6	0.6

KEY:**PEDAGOGY (TEACHING METHODOLOGY):** Lecture, Group discussion, PPT

END SEMESTER EXAMINATION:
QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)
Theory UG –Question paper Pattern- Conventional on-paper mode

Bloom's Category Level	Sections	Marks	Word limit	Total	Special Instructions, if any:
K1,K2	Section A Multiple choice question 15 x 2 = 30	30	Mark the correct choice	75	
K2,K3,K4	Section B 5 out of 7 Questions *5 Marks	25	Short answers (500 Words)		
K3, K4,K5,K6	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx 1000 Words)		

* 75 marks to be converted as 60 marks.

UG/PG QUESTION PAPER PATTERN for OBE ONLINE ASSESSMENT (2020 -2021)

Bloom's Category Level	Sections	Marks	Description of answer	Total	Special Instructions, if any:		
INTERNAL SETTING							
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	25X1=25	Choose the write option.	50			
EXTERNAL SETTING							
K2,k3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	25	Short answers/500 Words				

* 50 marks to be converted as 60 marks.

SEMESTER II

	Part	Subject	Title of the Paper	Code	L	T	H	Credits	CIA	ESE	Total
II SEM	I	Language (Tamil/Hindi/Sanskrit/French)	Tamil -II/ Hindi-II/ Sanskrit-II/ French II	20ULTFC2002 20ULHFC2002 20ULSFC2002 19ULFFC1002	4	2	6	3	40	60	100
	II	English	Foundation English-II	20UGEFC2002	4	2	6	3	40	60	100
	III	Core Major-Paper III	Nutrition I	20UFMCT2003	4	2	6	4	40	60	100
			Physiology & Nutrition Practical	20UFMCP2001	4	2	6	4	40	60	100
		Allied I- Paper II	Allied Chemistry – II	20UFMAT2002	2	2	4	4	40	60	100
		Allied I- Practical I	Allied Chemistry - Practical I	20UFMAP2002	1	1	2	2	40	60	100
	IV	Soft Skill	Essentials of Spoken and Presentation Skills	20USSSP2002				3	50		50
		Value Education	Environmental studies	20UESVE2001				2	50		50
		Value Education	Yoga and Wellness	20UYGVE2002				2	50		50
								27			

SEMESTER-II

CORE PAPER-III NUTRITION I

TOTAL HOURS: 75

CREDIT: 4

COURSE OBJECTIVES

1. Understand the importance of various macronutrients in relation to health.
2. Acquire skills on the requirements of nutrients.
3. Gain knowledge on nutritional deficiencies.

SUB CODE: 20UFMCT2003

L-T-P: 4 2 0

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Conceptual knowledge in the principles of human nutrition in relation to health.
CO2	Obtain skills on different methods of estimating total energy expenditure and requirements.
CO3	Learn the role of carbohydrate, fiber and prevention of nutritional deficiencies.
CO4	Comprehend the functions of fats and its association with health and diseases.
CO5	Gain insight in determining the protein requirement and its role in malnutrition.

SYLLABUS

UNIT-1

15 Hrs.

History of Nutrition – Development of Nutrition as a Science – Definition of Nutrition – Undernutrition, over nutrition and malnutrition.

Introduction to nutrition – Food as a source of nutrients, function of foods, definition of nutrients , adequate , optimum and good nutrition, malnutrition . Inter relationship between nutrition and health, visible symptoms of good health.

UNIT-2

15 Hrs.

ENERGY-Energy units – Kilocalories, Megajoules, determination of energy value of foods, Physiological fuel value of foods, Determination of energy requirements using direct calorimetry & indirect calorimetry. Respiratory quotient; Components of Total Energy Requirement- Basal metabolism- definition, determination – Benedict Roth basal Metabolism Apparatus – factors affecting BMR; Physical activity- estimation of energy cost of physical activity- PAL, MET equivalents; Specific dynamic action of food; Factorial method of calculating TER; Recommended Energy requirements for different age groups; Reference man and Reference woman- definition

UNIT-3

15 Hrs.

CARBOHYDRATES-Definition, classification, digestion, absorption and utilization- functions of carbohydrates in the body -Regulation of blood sugar levels. Dietary fiber – Definition, soluble and insoluble fibers, sources of fiber, components, physiological effects of dietary fiber; Role of fiber in human nutrition. Introduction to Prebiotics.

UNIT-4

15 Hrs.

LIPIDS-Classification of lipids and fatty acids, digestion and absorption of lipids. Essential fatty acids- Sources, functions & effect of deficiency, PUFA & MUFA- Sources and health benefits, Sources and functions of Cholesterol, Phospholipids and TGL, Characteristics of animal and vegetable fats, Use of Blended oils. Fat requirements for different age groups; Dietary lipids and their relation to cardiovascular diseases.

UNIT-5

15 Hrs.

PROTEINS-Classification and functions of protein, digestion and absorption. Classification of Amino acids –Indispensable and dispensable amino acids – special function of amino acids – protein deficiency – Protein Energy Malnutrition – kwashiorkor and marasmus –etiology, clinical features, treatment and prevention – Evaluation of protein quality –PER, BV, NPU and NPR, chemical score, mutual supplementation of Proteins.

TEXT BOOKS

1. Sumati, R., Mudambi., Rajagopal,M.V. (2007). *Fundamentals of Foods, Nutrition and Diet therapy*.(5th ed.). New Delhi: New Age Publication.
2. Eastwood, M. (2013). Principles of Human Nutrition. Germany: Wiley.
3. Srilakshmi.B. (2017). *Nutrition Science*,(6th ed.). New Delhi: New age Publishers.
4. Lanham-New, S. A., Vorster, H. H., Cassidy, A. (2013). Introduction to Human Nutrition. Germany: Wiley.
5. Swaminathan, M. (2017). *Handbook of Food and Nutrition*. India: Bangalore Print. & Publishing Company.

BOOKS FOR REFERENCE

1. Raymond, J. L., Anderson, J. J. B., Krause, M. V., Mahan, L. K. (2004). *Krause's Food, Nutrition, & Diet Therapy*. India: Saunders.
2. Whitney, E. & Rolfes, S.R. (2002). *Understanding Normal and Clinical Nutrition*. (11th ed.). USA :Wadsworth Thomson learning.
3. Roday, S. (2018). *Food science and nutrition*. (3rd ed.). Oxford University Press.
4. Gibney, M. J., Lanham,S.A. Cassidy,A., Vorster, H.H. (2009). *Introduction to Human Nutrition*, (2nd ed.). Wiley-blackwell.
5. Insel, P. Turner, E. & Ross, D. (2004). *Nutrition*. (2nd ed.). Canada: ADA.

E-LEARNING RESOURCES

1. www.nutrition.gov- Service of National agricultural library, USD
2. www.nal.usda.gov/fnic- Food and Nutrition information center.
3. www.nutrition.gov- Service of National agricultural library, USD
4. www.asbmr.org/ - American society for bone and mineral research
5. <http://www.navigator.tufts.edu/> - Tufts University Nutrition Navigator

Mapping of CO with PSO:

CO/PSO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	2	2	3
CO2	3	1	2	2	2	1
CO3	2	3	3	1	3	1
CO4	3	3	3	2	3	1
CO5	3	2	3	2	2	1
Average	2.8	2.4	3	2.2	2.4	1.4

KEY:

PEDAGOGY (TEACHING METHODOLOGY): Article Review, Quizzes/Objective tests, Class test, Home assignment, Paper presentation or seminar

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards) Theory UG –Question paper Pattern- Conventional on-paper mode

Knowledge Level	Section	Marks	Word Limit	Total	Special Instructions, if any
K1, K2	Section A (Multiple choice question)	10X1= 30	Mark the correct choice	75	
K3, K4	Section B (Answer any five question out of 7 Question)	5X5 = 25	Short answers {approx. 500 Words)		
K4, K5	Section C (2 out of 5 Questions) *10 Marks	2X10 = 10	Elaborate answers (approx. 1000 Words)		

*** 75 marks to be converted as 60 marks.**

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if any
INTERNAL SETTING					
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks(No Choice)	25X1=25	Choose the write option	50	
EXTERNAL SETTING					
K3,K4,K5	Section B 5 out of 7 Questions *5 Marks	5x5 = 25	Short answers/500 Words		

***50 marks to be converted as 60 marks.**

**CORE PRACTICAL-I
PHYSIOLOGY AND NUTRITION PRACTICAL**

**TOTAL HOURS: 75
CREDIT: 4**

**SUB CODE: 20UFMCP2001
L-T-P: 0 0 6**

COURSE OBJECTIVES

To introduce students to

1. To estimate the various blood constituents
2. Gain knowledge of the role of microorganisms in health and disease
3. To understand the role of microorganisms in spoilage of various foods
4. To gain skill in qualitative tests and quantitative estimation of nutrients

COURSE OUTCOMES: On completion of the course the students will be able to

CO NO.	CO Statement
CO1	Observe and learn the microscopic structures of tissues.
CO2	Know their blood group and to estimate its components.
CO3	Experience the respiratory rate, pulse rate and the arterial blood pressure.
CO4	Learn the quantitative analytical aspects of selective micronutrients.
CO5	Study the identification of different minerals.

SYLLABUS

PHYSIOLOGY PRACTICALS

40 Hrs.

1. Microscopic studies of different tissues. Epithelial, connective, muscular and nervous tissues
2. Estimation of Hemoglobin
3. Microscopic study of blood - WBC, RBC estimation
4. Blood grouping
5. Blood smear
6. Estimation of arterial Blood pressure
7. Effect of exercise on Respiratory rate and pulse rate

NUTRITION PRACTICALS

35 Hrs.

1. Quantitative estimation of calcium
2. Quantitative estimation of Vitamin C
3. Quantitative estimation of Phosphorous

4. Quantitative estimation of iron
5. Qualitative tests for minerals

TEXTBOOKS

1. Chatterjee, C.C. (2016). *Human Physiology*. (11th ed.). Kolkata :Medical Allied Agency.
2. Sembulingam, K. (2012). *Essentials of Medical Physiology*. (6thed.). New Delhi:Jaypee Brothers Medical Publishers (P) Ltd.
3. George, F.M. (2006). *Vitamins in food- analysis, bioavailability and stability*. CRC press.
4. Nielsen, S. S. (2010). *Food Analysis Laboratory Manual*. United States: Springer US.
5. Belitz, H., Grosch, W., Schieberle, P. (2009). *Food Chemistry*. Germany: Springer.

BOOKS FOR REFERENCE

1. Best & Taylor. (2011). *Physiological Basis of Medical Practice*. (13th ed.). The Saunders Company.
2. Chaudhri, K. (2016). *Concise Medical Physiology*. (7thed.). Calcutta:New Central Book Agency (Parental) Ltd.
3. Szefer, P., Nriagu, J.O. (2007). *Mineral components in foods*. CRC press.
4. Bogden, J.D., & Klevay, L. M.(2000). *Clinical Nutrition of the Essential Trace Elements and Minerals*. New Jersey : Humana Press, Totowa.
5. Reilly, C., Metal. (2002). *Contamination of Food: Its Significance for Food Quality and Human Health*. Blackwell Science, Oxford.

E-LEARNING RESOURCESS

1. <https://www.physiology.org/journal/physrev>
2. <https://www.annualreviews.org/journal/physiol>
3. <https://www.frontiersin.org/journals/physiology>
4. <http://www.olabs.edu.in/>
5. <https://www.youtube.com/watch?v=VmbWjaBn4MU>

Mapping of CO/PSO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	1	3	3
CO 2	3	2	2	2	3	3
CO 3	3	2	2	2	3	3
CO 4	3	2	2	3	3	2
CO 5	3	2	2	3	3	3
Average	3	2.2	2.2	2.2	3	2.8

KEY:

PEDAGOGY (TEACHING METHODOLOGY): Exams, Lab Work, Viva/Oral exam, Class Assignments, Observation

**ALLIED PRACTICAL-I
ALLIED CHEMISTRY**

**TOTAL HOURS: 40
CREDITS: 2**

**SUB CODE: 20UFMAP2001
L-T-P: 0 0 2**

COURSE OBJECTIVES:

To enable the students to practically

1. Estimate the given substance volumetrically.
2. Analyze and identify the organic compounds qualitatively

COURSE OUTCOME: On successful completion of the course the students will be able to

CO	CO Statement
CO1	Know and define the various terms in volumetric analysis
CO2	Acquire knowledge and perform the volumetric analysis and estimate the quantity present.
CO3	Identify and analyze organic compounds

VOLUMETRIC ANALYSIS

1. Estimation of Sodium hydroxide using standard Sodium Carbonate and link Hydrochloric acid
2. Estimation of Borax using standard Sodium Carbonate and link Hydrochloric acid
3. Estimation of Ferrous sulphate using standard Mohr salt solution and link potassium permanganate
4. Estimation of Oxalic acid standard ferrous sulphate solution and link potassium permanganate
5. Estimation of Hydrochloric acid standard oxalic acid solution and link sodium hydroxide.

ORGANIC COMPOUND ANALYSIS

Systematic analysis of organic compounds containing one functional group to distinguish between aliphatic and aromatic, Saturated and unsaturated, detection of Elements (Nitrogen, Sulphur and Halogen) and characterization by confirmatory tests - Phenols, Acids (mono and di), Aromatic primary amine, Aliphatic Amide and Glucose

TEXT BOOK

1. Lab Manual- Prepared by Faculty, Department of Chemistry, SDNB Vaishnav College for Women.

BOOKS FOR REFERENCE:

1. Gnanapragasam, N. S., & Ramamurthy, G. (2004). Organic Chemistry Lab Manual. New Ed., SV.
2. Furniss, B. S. (1989). Vogel's textbook of practical organic chemistry. Pearson Education India.
3. McPherson, P. (2014). Practical Volumetric Analysis. Royal Society of Chemistry.

Mapping of CO with PSO

CO/PO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	2	2
CO2	3	3	3	3	3	2
CO3	3	3	3	3	3	2
Average	3	3	3	3	2.6	3

KEY:

PEDAGOGY (TEACHING METHODOLOGY): Demonstration and individual hands on practical.

ALLIED PAPER-II
ALLIED CHEMISTRY-II

TOTAL HOURS: 60
CREDITS: 4

SUB CODE: 20UFMAT2002
L-T-P: 4 2 0

COURSE OBJECTIVES:

1. To explore the basic concepts in chemistry
2. To learn and apply the theoretical principles
3. To understand the preparation and properties of carbohydrates and proteins
4. To learn the analytical techniques in chemistry
5. To learn and remember pharmacological terms used in medical fields

COURSE OUTCOME: On successful completion of the course the students will be able to

CO NO.	CO Statement
CO1	Gaining the knowledge about carbohydrates and proteins
CO2	Acquired the knowledge in analytical techniques in chemistry
CO3	Gaining the knowledge about pharmacological terms in medicinal chemistry

UNIT-1: CARBOHYDRATES

15 Hrs.

Classification - Preparation and reactions of glucose and fructose. Discussion of open and ring structure of glucose, mutarotation. Interconversion of glucose to fructose and vice versa- properties of sucrose. Properties of Starch, cellulose and derivatives of cellulose

UNIT-2: PROTEINS

15 Hrs.

Amino acids-classification, preparation and properties of alpha amino acids- preparation of dipeptide using Bergman method. Proteins-classification according to composition-biological functions and shape- Nucleic acids- Elementary idea of DNA and RNA

UNIT-3: PHARMACEUTICAL CHEMISTRY

10 Hrs.

Definition and one example each- analgesics, antipyretics, tranquilizers, sedatives, hypnotics, local anesthetics and general anesthetics. Cause and treatment of – Diabetes, cancer and AIDS

UNIT-4: SEPARATION AND PURIFICATION TECHNIQUES

10 Hrs.

Separation techniques-Extraction-distillation, Vacuum, fractional and steam-crystallization,

sublimation.

UNIT-5: CHROMATOGRAPHY

10 Hrs.

Principles and application of column, paper and thin layer chromatography.

TEXTBOOKS

1. Soni, P. L., & Katyal, M. (2006). Textbook of inorganic chemistry. Sultan Chand
2. Soni, P. L. (2006). Textbook of organic chemistry. Sultan Chand
3. Myers, R. (2003). The basics of chemistry. Greenwood Publishing Group.
4. Sharma, B. K. (2000). Instrumental methods of chemical analysis. Krishna Prakashan Media.
5. Gopalan, R., Subramanian, P. S., & Rengarajan, K. (2003). Elements of Analytical Chemistry. Sultan Chand & Sons, New Delhi

BOOKS FOR REFERENCE

1. Goldberg, D. E. (2006). Fundamentals of chemistry. McGraw-Hill.
2. McMurry, J., Ballantine, D. S., Hoeger, C. A., Peterson, V. E., & Castellion, M. (2010). Fundamentals of general, organic, and biological chemistry. Pearson Education.
3. Ghosh, J. (2006). Fundamental concepts of applied chemistry. S. Chand Publishing.
4. Bahl, B. S., & Bahl, A. (2008). Advanced Organic Chemistry, Revised ed. S. Chand and Company, India
5. Cairns, D. (Ed.). (2012). Essentials of pharmaceutical chemistry. Pharmaceutical Press.

E-LEARNING RESOURCES

1. www.virtlab.com
2. <http://nptel.ac.in>
3. MATLAB
4. Mooc.org
5. <http://swayam.gov.in>

Mapping of CO with PSO

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	3	3	2	1
CO2	3	3	3	3	3	3
CO3	3	2	1	2	1	1
Average	3	2.6	2.3	2.6	2	1.6

KEY:

PEDAGOGY (TEACHING METHODOLOGY): Lecture, Group discussion, PPT.

END SEMESTER EXAMINATION:**QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)
Theory UG –Question paper Pattern- Conventional on-paper mode**

Knowledge Level	Section	Word limit	Marks	Total	Special Instructions, if any
K1, K2	Section A Multiple Choice Questions 15*2 marks	30	Mark the correct choice	75	
K2,K3,K4	Section B 5 out of 7 Questions *5 Marks	25	Short answers (500 Words)		
K3, K4,K5,K6	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx1000 Words)		

* 75 marks to be converted as 60 marks.

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Sections	Marks	Description of answer	Total	Special Instructions, if any	
INTERNAL SETTING						
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	25X1=25	Choose the write option.	50		
EXTERNAL SETTING						
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions	7 25	Short answers/500			

	*5 Marks		Words		
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* 50 marks to be converted as 60 marks.

SEMESTER III

	Part	Subject	Title of the Paper	Code	L	T	H	Credits	CIA	ESE	Total
III SEM	I	Language (Tamil/Hindi/Sanskrit/French)	Tamil-III/ Hindi-III/ Sanskrit-III/ French III	20ULTFC3003 20ULHFC3003 20ULSFC3003 19ULFFC3003	4	2	6	3	40	60	100
	II	English	Foundation English-III	20UGEFC2002	4	2	6	3	40	60	100
	III	Core Major-Paper IV	Nutrition through life cycle	20UFMCT3004	4	2	6	4	40	60	100
		Core Major-Paper V	Medical nutrition therapy I	20UFMCT3005	4	2	6	4	40	60	100
		Allied II-Paper III	Nutritional Biochemistry	20UFMAT3003				5	40	60	100
	IV	Non-Major Elective	Women and Health	20UFMNE3001				2	50		50
							21				

SEMESTER-III

CORE PAPER-IV NUTRITION THROUGH LIFE CYCLE

TOTAL HOURS: 75
CREDIT: 4

SUB CODE: 20UFMCT3004
L-T-P: 4 2 0

COURSE OBJECTIVES

1. Develop a knowledge base of the nutritional needs at different stages of growth.
2. Understand the impact of nutrition on the life cycle, before and during pregnancy, during lactation and infancy, during childhood and adolescence, and through adulthood and aging.
3. Properly design individualized eating plans by utilizing diet principles, the Food Guide Pyramid, Exchange List and other food guide plans.

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Illustrate food groups, food exchange list, food pyramid and to identify the foundations of a balanced diet.
CO2	Calculate and interpret nutrient composition of foods
CO3	Apprehend the factors affecting meal planning.
CO4	Understand the characteristics and significance of dietary guidelines for Indians.
CO5	Ascertain nutritional needs in balanced menus for individuals across various age groups, and for different income levels.

SYLLABUS

UNIT-1: Recommended Dietary Allowance (RDA) and Meal Planning 15 Hrs.

- Introduction to meal planning: Food Groups and Concept of Balanced Diet. Food Exchange list, Food Guide Pyramid, Food Plate.
- Concept of Dietary Reference Intakes (DRI)-RDA-factors affecting RDA for Indians-Reference man and woman.
- Principles of meal planning-steps involved in planning a diet.

- Adult- nutritional requirements, planning balanced diets for adult men and women.

UNIT-2: Nutrition in Pregnancy and Lactation 15 Hrs.

- Physiological stages of pregnancy, nutritional requirements, food requirement and complications of pregnancy.
- Physiology of lactation, nutritional requirements, dietary guidelines, composition of breast milk and concerns of breast feeding mother. Lactogogues.

UNIT-3: Nutrition during Infancy and Early childhood 15 Hrs.

- Growth and development during infancy, nutritional requirements. Breast feeding and its advantages, Infant milk substitute act. Artificial feeding-Advantages. Introduction of supplementary feeding-Low cost supplementary foods, preterm baby and low birth weight infant.
- Pre-school: Growth and Nutritional needs, problems in feeding patterns and food acceptance, PEM, Vitamin A.

UNIT-4: Nutrition for School Age and Adolescence 15 Hrs.

- School age: Physical development, Nutritional requirement, factors affecting food needs, importance of healthy snacks, packed lunch- mid day meal, childhood obesity.
- Adolescence: Growth and development, food choices, nutritional requirements, eating disorders, good eating practices and nutritional anemia.

UNIT-5: Geriatric Nutrition 15 Hrs.

- Factors affecting nutrient requirements and food intake, nutrient needs and RDA, nutrition disorders in the aged.

ACTIVITY

1. Weights and measures standard, household measures for raw and cooked food.
2. Preparation of complementary foods
3. Planning, preparation and calculation of nutrient content of meals for adult man and woman doing different physical activities- sedentary, moderate and heavy.
4. Planning, preparation and calculation of nutrient content of balanced diet with modifications to meet increased demands of expectant mothers and lactating women, with reference to special foods to be included during this stage.
5. Planning, preparation and nutrient content calculation for diet for a preschool child.
6. Balanced diet planning, preparation and calculation of nutrient content of meals/packed lunch for school age. Planning and preparation of meal for adolescents.
7. Meal planning, preparation and calculation of nutrient content for the elderly considering their special needs.
8. Planning and preparation of diets (low and medium cost) for deficiency diseases:
 - a) PEM
 - b) Vitamin A deficiency

c) Nutritional anemia.

TEXTBOOKS:

1. Madden,A., Webster-Gandy,J., and Holdsworth, M .(2012).*Oxford Handbook of Nutrition and Dietetics*.(2nd ed.).United Kingdom: OUP Oxford.
2. Srilakshmi, B. (2019). *Dietetics*. (8th ed.). New Delhi: New Age International (P) Limited Publishers.
3. Khanna, K. et al. (2013). *Textbook of Nutrition and Dietetics*. (2nd ed.). New Delhi: Elite Publishing House (P) Ltd.
4. Brown, J. E. (2016). *Nutrition Through the Life Cycle*. United States: Cengage Learning.
5. Mahan, L.K, and Raymond, J.L. (2017). *Krause’s Food and the Nutrition Care Process*. (14th ed.). United Kingdom: Elsevier.

BOOKS FOR REFERENCES:

1. Rama Sastri, B. V., Gopalan, C., Balasubramanian, S. C. (1994). *Nutritive Value of Indian foods*. Hyderabad: National Institute of Nutrition, Indian Council of Medical Research.
2. Mudambi, S.R., and Rajagopal, M.V. (2012). *Fundamentals of Food, Nutrition and Diet Therapy*. (6th ed.). New Delhi: New Age International (P) Ltd.
3. Krishnaswamy, K., Sesikeran, B., et al. (2011). *Dietary guidelines for Indians- A manual*. (2nd ed.). Hyderabad: National Institute of Nutrition.
4. Longvah, T. et al (2017). *Indian food composition tables*. (1st ed.). Hyderabad, Telangana: National Institute of Nutrition.
5. Joshi, S. A. (2017). *Nutrition and Dietetics*. (4th ed.). India: Tata McGraw-Hill Publishing Company.

E-LEARNING RESOURCES:

1. <https://www.eatright.org/food#Nutrition-> Academy of Nutrition and Dietetics
2. <https://www.nhlbi.nih.gov/health/educational/wecan/eat-right/index.html>-U.S. Department of Health & Human Services
3. <https://www.choosemyplate.gov/>- U.S. Department of Agriculture
4. <http://www.fao.org/nutrition/education/food-dietary-guidelines/regions/countries/India/en>- Food and Agriculture Organization of the United Nations.
5. <https://www.nin.res.in/>

Mapping of CO with PSO:

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	2	3	3	3	3
CO 2	2	2	3	3	3	2
CO 3	2	2	3	3	2	3

CO 4	3	2	3	2	2	2
CO 5	3	3	3	3	3	3
Average	2.6	2.2	3	2.8	2.6	2.6

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Practicum, Assignment, Presentations, Projects, Quiz, Demonstrations

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)
Theory UG –Question paper Pattern- Conventional on-paper mode

Knowledge Level	Section	Word limit	Marks	Total	Special Instructions, if any
K1, K2	Section A Multiple Choice Questions 15*2 marks	30	Mark the correct choice	75	
K2,K3,K4	Section B 5 out of 7 Questions *5 Marks	25	Short answers (500 Words)		
K3, K4,K5,K6	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx1000 Words)		

*** 75 marks to be converted as 60 marks.**

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Sections	Marks	Description of answer	Total	Special Instructions, if any		
INTERNAL SETTING							
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	25X1=25	Choose the write option.	50			
EXTERNAL SETTING							
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	25	Short answers/500 Words				

*** 50 marks to be converted as 60 marks.**

CORE PAPER-V
MEDICAL NUTRITION THERAPY-I

TOTAL HOURS: 75
CREDIT: 4

SUB CODE: 20UFMCT3005
L-T-P: 4 2 0

COURSE OBJECTIVES

1. Gain insight into the principles of diet therapy and different therapeutic diets.
2. Develop skills in modifying normal diet for therapeutic purposes.
3. Apprehend the etiology, pathophysiology and nutritional management of common diseases.

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Interpret the terminologies and laboratory parameters in a medical record, relating to nutrition.
CO2	Comprehend and apply the concepts of nutrition to evaluate, address and improve the disease conditions of individuals.
CO3	Elaborate on the dietary guidelines and describe the role of food in health promotion and disease prevention.
CO4	Discern the risk factors and dietetic-nutritional problems in patients.
CO5	Elucidate the part of nutritional management in the prevention and/ or management of diseases such as cancer, AIDS, and diabetes.

SYLLABUS

UNIT-1: Concept of Diet Therapy, Parenteral and Enteral Nutrition 15 Hrs.

- Diet Therapy: Basic Concepts. Therapeutic adaptations of the normal diet. Progressive diets- Clear Fluid, Full Fluid, Soft Diet and Regular diet.
- Special feeding methods - Parenteral and Enteral Nutrition.

UNIT-2: Febrile conditions 15 Hrs.

- Etiology, clinical features and nutritional management of infections and fever: typhoid (Acute Fever); tuberculosis, AIDS (Chronic Fever).

UNIT-3: Nutrition in critical care 15 Hrs.

- Diet in Sepsis and Trauma.
- Diet in Burns – Definition, types and dietary Management in Burns.
- Diet in Surgery - Preoperative and Post-operative diets.

UNIT-4: Weight Imbalances and Diabetes mellitus 15 Hrs.

- Etiology, prevalence, pathophysiology, principles of diet management and lifestyle modification for:
 - a) Overweight, Obesity and Underweight
 - b) Diabetes mellitus – Prediabetes, GDM, Type-1, Type-2
- Role of functional foods and nutraceuticals in dietary management of diseases.

UNIT-5: Cancer, Genetic Disorders and Allergic conditions 15 Hrs.

- Nutrition and Cancer - Etiology of Cancer, Effect of Cancer Therapy on Nutritional Status and Nutrition in Prevention and management of Cancer.
- Phenylketonuria, Maple Syrup Urine Disease (MSUD), Tyrosinemia, Homocystinuria, Galactosemia, Gout- Causes, symptoms and dietary management.
- Food Allergy and food intolerance – Definition, etiology, clinical features, diagnosis and nutritional management.

TEXTBOOKS:

1. Antia, F.P., and Abraham, P. (2002). *Clinical dietetics and nutrition*. (4th ed.). New Delhi: Oxford University Press.
2. Srilakshmi, B. (2019). *Dietetics*. (8th ed.). New Delhi: New Age International (P) Limited Publishers.
3. Khanna, K. et al. (2013). *Textbook of Nutrition and Dietetics*. (2nd ed.). New Delhi: Elite Publishing House (P) Ltd.
4. Longvah, T. et al (2017). *Indian food composition tables*. (1st ed.). Hyderabad, Telangana: National Institute of Nutrition.
5. Mahan, L.K, and Raymond, J.L. (2017). *Krause's Food and the Nutrition Care Process*. (14th ed.). United Kingdom: Elsevier.

BOOKS FOR REFERENCES:

1. Bamji, M.S., Rao, N.P., and Reddy, V. (2017). *Textbook of Human Nutrition*. (4th ed.). India: Oxford and IBH Publishing co. (P) Ltd.
2. Nix McIntosh, S. (2017). *William's Basic Nutrition and Diet Therapy*. (15th ed.). India: Elsevier Health Sciences.
3. Mudambi, S.R., and Rajagopal, M.V. (2012). *Fundamentals of Food, Nutrition and Diet Therapy*. (6th ed.). New Delhi: New Age International (P) Ltd.
4. Indian Dietetic Association. (2018). *Clinical Dietetics Manual*. (2nd ed.). New Delhi: Elite Publishing House (P) Ltd.
5. Joshi, S. A. (2017). *Nutrition and Dietetics*. (4th ed.). India: Tata McGraw-hill Publishing Company.

E-LEARNING RESOURCES:

1. <https://www.fda.gov/food>- U.S. Food and Drug Administration
2. <https://academic.oup.com/jn>- The Journal of Nutrition
3. <http://idaindia.com/>- Indian Dietetic Association
4. <http://www.nutritionsofityindia.org/>- Nutrition Society of India
5. <https://www.nin.res.in/>- National Institute of Nutrition.

Mapping of CO with PSO:

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	2	2	3	3	3
CO 2	3	2	3	3	3	3
CO 3	3	2	3	2	1	2
CO 4	2	2	2	2	1	2
CO 5	3	2	2	3	2	3
Average	2.8	2	2.4	2.6	2	2.6

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Projects, Presentations, Assignment, Group Discussions, Quiz, Concept mapping.

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)
Theory UG –Question paper Pattern- Conventional on-paper mode

Knowledge Level	Section	Word limit	Marks	Total	Special Instructions, if any
K1, K2	Section A Multiple Choice Questions 15*2 marks	30	Mark the correct choice	75	
K2,K3,K4	Section B 5 out of 7 Questions *5 Marks	25	Short answers (500 Words)		
K3, K4,K5,K6	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx 1000 Words)		

* 75 marks to be converted as 60 marks.

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Sections	Marks	Description of answer	Total	Special Instructions, if any
INTERNAL SETTING					
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	25X1=25	Choose the write option.	50	
EXTERNAL SETTING					
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	25	Short answers/500 Words		

* 50 marks to be converted as 60 marks.

**ALLIED PAPER-III
NUTRITIONAL BIOCHEMISTRY**

**TOTAL HOURS: 75
CREDIT: 4**

**SUB CODE: 20UFMAT3003
L-T-P: 4 2 0**

OBJECTIVES

To introduce students to

1. The basic principles of biochemistry
2. An understanding of the functions of biological systems in relation to nutritional biochemistry
3. The skills in qualitative tests and quantitative estimation of nutrients.

COURSE OUTCOMES: On successful completion of the course the students will be able to

CO No	CO Statement
CO 1	Understand the significance of organic reactions with reference to biological systems.
CO 2	Adequately explain the chemistry of carbohydrates, proteins, lipids, enzymes and nucleic acids.
CO 3	Comprehend the metabolic pathways of carbohydrates, proteins and lipids.
CO 4	Discern the hormonal regulation and interrelationship of the macronutrient's metabolism.

SYLLABUS

UNIT-1

15 Hrs.

ENZYMES: Definition, Classification, Properties, Nomenclature, Mechanism of enzyme action, Factors affecting enzymatic activity, Co-enzyme and Enzyme Inhibition.

BIOLOGICAL OXIDATION: Definition, High energy compounds and Electron transport chain

UNIT-2

15 Hrs.

CARBOHYDRATE: Classification. Glycolysis, TCA cycle, Gluconeogenesis, Pentose Phosphate Pathway (No structure), Blood Glucose Homeostasis.

UNIT-3

15 Hrs.

Classification of Proteins and Amino acids (structural and nutritional) Structure of protein - Primary, Secondary, Tertiary and Quaternary, Properties of Proteins, Hydrolysis, Denaturation, Precipitation, Coagulation.

UG Regulations 2020-2021

Catabolism of Proteins- Oxidative deamination, Transamination, Transdeamination and decarboxylation, Fate of Amino group and Fate of Carbon Skeleton. Urea cycle.

UNIT-4

15 Hrs.

LIPIDS: Classification, chemical composition and Properties of Lipids. Classification of Fatty acids- Classification

LIPID METABOLISM: Biosynthesis of fatty acid, β -Oxidation of fatty acids, ketone bodies Ketogenesis, Biosynthesis and Degradation of Cholesterol. Lipoproteins – classification and functions.

UNIT-5

15 Hrs.

REGULATION OF METABOLISM: Inter relationship between carbohydrate, fat and protein metabolism, hormonal regulation of carbohydrate, fat and protein metabolism.

NUCLEIC ACIDS: definition of nucleoprotein, Functions and components of nucleic acids. DNA and RNA – Types, Structure and function

ACTIVITY

1. Qualitative tests for sugars – glucose, fructose, lactose, maltose and glucose.
2. Qualitative tests for proteins

TEXT BOOKS

1. Ramadevi. (2016). *Ambika Shanmugam's Fundamentals of Biochemistry for Medical Students*. (8 ed.). India: Wolter Kluwer.
2. Satyanarayana, U. (2006). *Biochemistry* (3rd ed.). Kolkata: Books and Allied (P) Ltd.
3. Bender, D., Rodwell, V. W., Botham, K. M., Weil, P. A., Kennelly, P. J. (2018). *Harper's Illustrated Biochemistry*. (31st ed.). Thirty-First Edition. United States: McGraw-Hill Education.
4. Conn, E. E., Stump, P. K., Bruening, G. & Doi, R.H. (2009). *Outlines Of Biochemistry*. (5th ed.). India: Wiley India Pvt. Limited
5. Fearon, W. R. (2014). *An Introduction to Biochemistry*. Netherlands: Elsevier Science.

BOOKS FOR REFERENCE

1. Vasudevan, D. M., S, S., Vaidyanathan, K. (2016). *Textbook of Biochemistry for Medical Students*. India: Jaypee Brothers, Medical Publishers Pvt. Limited.
2. Rama Rao, A. V. S. S. (2006). *A Textbook of Biochemistry*. India: UBS Publishers' Distributors Pvt. Limited.
3. Talwar, G. P., Sri Vatsava, L. N. & Moudgil, K. D. (1989). *Text book of Biochemistry and Human Biology*. New Delhi, ND: Prentice Hall of India (P) Ltd.

- Nelson, D. L., & Cox, M. M. (2017). *Lehninger Principles of Biochemistry* (7th ed.). W.H. Freeman.
- Devlin, T. M. (2011). *Textbook of biochemistry: With clinical correlations*. Hoboken, NJ: John Wiley & Sons.

E-LEARNING RESOURCES

- <http://swayam.gov.in>
- www.virtlab.com
- www.pdfdrive.com
- <https://nmlm.gov/data/guides/life-sciences/biochemistry>
- <https://www.qmul.ac.uk/sbcs/iupac/>

Mapping of CO with PSO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	2	2	3	2
CO 2	3	3	3	2	3	3
CO 3	3	2	3	3	3	2
CO 4	3	3	3	3	3	3
Average	3	2.75	2.75	2.5	3	2.5

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Video Presentation, Assignments, Class Test, Quizzes/Objective tests, Observation

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards) Theory UG –Question paper Pattern- Conventional on-paper mode

Knowledge Level	Section	Word limit	Marks	Total	Special Instructions, if any
K1, K2	Section A Multiple Choice Questions 15*2 marks	30	Mark the correct choice	75	
K2,K3,K4	Section B 5 out of 7	25	Short answers (500 Words)		

	Questions *5 Marks				
K3, K4,K5,K6	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx 1000 Words)		

* 75 marks to be converted as 60 marks.

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Sections	Marks	Description of answer	Total	Special Instructions, if any
INTERNAL SETTING					
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	25X1=25	Choose the write option.	50	
EXTERNAL SETTING					
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	25	Short answers/500 Words		

* 50 marks to be converted as 60 marks.

NON MAJOR ELECTIVE - WOMEN AND HEALTH

TOTAL HOURS: 20
CREDIT: 2

SUB CODE: 18UFMNE3001
L-T-P:

OBJECTIVES

1. To introduce the students to the principles of basic Nutrition.
2. To enable students to obtain knowledge of menu planning.
3. Understand the importance of various macronutrients in relation to women health.
4. To help the students to explore the nutrition related problems in community.

COURSE OUTCOME: On successful completion of the course the students will be able to

CO No	CO Statement
CO 1	Understand the concept- anatomy of female reproductive system.
CO 2	Acquire knowledge on the various food groups and plan a balanced diet.
CO 3	Understand the importance of various nutrients in relation to health.
CO 4	Gain insight in determining the nutritional requirement for women.
CO 5	Learn the different aspects of nutritional problem and its treatment.

SYLLABUS

UNIT – 1

Hrs:

PHYSIOLOGY OF WOMEN

Anatomy of Female Reproductive System, Menstruation Cycle, Premenstrual Syndrome, PCODS, Post Menopausal Syndrome, Cancer – Basic concept in Diet Therapy

UNIT – 2

Hrs:

BASIC MENU PLANNING

Define Health and Nutrition, Food Groups, Principles of planning diet, The Food Guide – The food guide pyramid, my plate, plan a balanced diet.

UNIT – 3

Hrs:

INTRODUCTIONS TO BASIC NUTRITION

Define Nutrition – Macronutrient (Carbohydrate, Protein, Fat, Fibre and Water) – Sources, Function, Micronutrient (Water Soluble & Fat Soluble Vitamin, Macro and Micro minerals) – Sources, Function.

UNIT – 4

Hrs:

NUTRITION FOR WOMEN

Nutritional Requirements for Adolescent girl, Adult women, Pregnancy and Lactating and old age

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UNIT – 5

Hrs:

NUTRITIONAL PROBLEMS FOR WOMEN

Nutritional Problem – Obesity, Eating Disorders, Osteoporosis, Anaemia, Undernutrition, - Etiology, Causes, Symptoms and Treatment

TEXTBOOKS

1. Chatterjee, C. (2017). Text Book of Medical Physiology; London W.B.
2. Whitney., Cataldo and Rolfe (2002). Understanding Normal and Clinical Nutrition. *Wadsworth Thomson learning, USA.*
3. Srilakshmi, B. (2011). Food Science. 7th Ed., *New Age International Publications*, New Delhi.
4. Eastwood, M. (2003). Principles of Human Nutrition. 2nd Edition. *C.V. Mosby Company.*
5. Sumati, R., Mudambi, M.V., Rajagopal. (2015). Fundamentals of food, nutrition and diet therapy. *New age international publishers.* New Delhi.

BOOKS FOR REFERENCE

1. Indian Dietetic Association. (2018). Clinical Dietetics Manual, 2nd Ed. Delhi: Elite Publishing House (P) Ltd.
2. Guyton and Hall (Arthur C. Guyton and John E. Hall) (2016) Functions of the Human Body., Thirteenth edition, Rebecca Grunion Publishing service, Philadelphia.
3. Williams, S.R. (2018) Basic Nutrition and Diet Therapy. 12th Ed. Times Mirror Mosby College Publishing.
4. Brow, A. (2000). Understanding Food. Thomson Learning Publications. Wadsworth.
5. Mahan, L.K., Raymond, J.L. (2016). Krause's Food and the Nutrition Care Process; 14th Ed; Elsevier.

WEB RESOURCES

1. <https://www.physiology.org/journal/physrev>
2. <https://www.annualreviews.org/journal/food>
3. <https://www.eatright.org/food#Nutrition>
4. www.nutrition.gov
5. <http://www.nutritionandsocietyindia.org/>

Mapping of CO with PO

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6
CO 1	1	1	1	3	3	1
CO 2	3	3	3	2	3	2
CO 3	3	3	3	3	3	2
CO 4	2	3	3	2	3	1
CO 5	3	3	3	3	3	2
Average	2.4	2.6	2.6	2.6	3	1.6

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Mapping of CO with PSO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	2	0	2	0	1	2
CO 2	3	3	3	3	1	2
CO 3	3	2	3	3	2	2
CO 4	1	1	3	3	2	3
CO 5	1	0	3	3	3	3
Average	2	1.2	2.8	2.4	1.8	2.4

PEDAGOGY

1. Journal Article Review,
2. Poster Presentation,
3. Quizzes/Objective tests,
4. Field Assessments,
5. Open Book Tests.

QUESTION PAPER PATTERN END SEMESTER EXAMINATION

QUESTION PAPER PATTERN FOR OBE (2020-21 ONWARDS) THEORY UG –QUESTION PAPER PATTERN- CONVENTIONAL ON-PAPER MODE

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions if Any
K1, K2	Section A (Multiple choice question - Answer all the questions)	Correct choice	15X2= 30	75	
K2, K3, K4	Section B (Answer any five questions out of 7 questions – 5 Marks)	Short answers { approx. 500 Words)	5X5 = 25		
K3,K4, K5,K6	Section C 2 out of 5 Questions - 10 Marks	Elaborate answers (approx. 1000	2X10 = 20		

		Words)			
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*** 75 marks to be converted as 60 marks.**

**UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSEMENT
(2020 – 2021)**

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions if any		
INTERNAL SETTING							
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	Choose the correct option	25X1=25	50	K 1 & K2 - Understanding Level K 3 - Apply Level K 4 - Analyze Level K 5 – Evaluate Level K6 – Create Level		
EXTERNAL SETTING							
K2,K3,K4,K5 ,K6	Section B 5 out of 7 Questions *5 Marks	Short answers/500 Words	5x5 = 25				
	Section C						

***50 marks to be converted as 60 marks.**

SEMESTER IV

	Part	Subject	Title of the Paper	Code	L	T	H	Cre dits	CIA	ESE	Total
IV SEM	I	Language (Tamil/Hindi/Sanskrit/French)	Tamil- IV/ Hindi-IV/ Sanskrit-IV/ French IV	20ULTFC4004 20ULHFC4004 20ULSFC4004 19ULFFC4004	4	2	6	3	40	60	100
	II	English	Foundation English-IV	20UGFC4004	4	2	6	3	40	60	100
	III	Core Major- Paper VI	Medical nutrition therapy II	20UFMCT4006	4	2	6	4	40	60	100
		Core Major- Practical II	Medical nutrition therapy practical	20UFMCP4002	4	2	6	4	40	60	100
		Allied III- Paper IV	Food Microbiology	20UFMAT4004				5	40	60	100
	IV	Non-Major Elective	Women and Health	20UFMNE4002				2	50		50
							21				

SEMESTER-IV

CORE PAPER-VI

MEDICAL NUTRITION THERAPY-II

TOTAL HOURS: 75
CREDIT: 4

SUB CODE: 20UFMCT4006
L-T-P: 4 2 0

COURSE OBJECTIVES

1. Identify the scope of dietetics and the role of dietitian in health care
2. Elucidate the association between nutrition and infection
3. Present extensive and imperative factual guidance on all aspects of dietetics from the promotion of health to the management of diseases

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Compile pertinent information for extensive nutrition assessments
CO2	Develop competence in administering clinical, biochemical and pharmacological principles in the assessment and dietetic treatment of a patient.
CO3	Devise and execute nutrition education programs for robust or ailing individual(s).
CO4	Engage in the integrative dietary group of a hospital
CO5	Illustrate the etiology, manifestation and dietary management of the diseases of the heart, liver, gallbladder, kidneys and gastrointestinal tract.

SYLLABUS

UNIT-1:

15 Hrs.

Diet Planning, Diet counselling and Nutrition education. Nutritional assessment of patients, psychology of feeding the patient. Role and Responsibilities of Dietitian in the hospital and community. Indian Dietetic Association- The Registered Dietitian.

UNIT-2: Renal disease

15 Hrs.

Diseases of the excretory System - Etiology, Symptoms, Diagnosis, Nutritional Therapy

- Kidney – Nephrosis, Nephritis, Acute Kidney Disease, Chronic Kidney Disease and

Dialysis – Types

- Renal Calculi - Types, Diet Management.

UNIT–3: Diseases of the Liver, Gallbladder and Pancreas

15 Hrs.

Etiology, Symptoms, Pathophysiology and Dietary Management of Liver diseases - Hepatitis, Cirrhosis, Hepatic Coma. Cholecystitis, Cholelithiasis and Pancreatitis.

UNIT–4:GI tract

15 Hrs.

Etiology, Symptoms and Dietary Management of

- Diarrhea, Constipation, Peptic ulcer-gastric and duodenal ulcer, GERD, Tropical sprue.
- IBD, IBS, Celiac Disease, Lactose Intolerance.

UNIT–5: Cardiovascular disease

15 Hrs.

Diets for Lifestyle Conditions - Prevalence, Etiology, Principles of Diet, Management and Lifestyle Modification, Special foods/Dietary Supplements- Cardiovascular Diseases - Atherosclerosis, Hypertension and Hyperlipidemia.

TEXTBOOKS:

1. Antia, F.P., and Abraham, P. (2002). *Clinical dietetics and nutrition*. (4th ed.). New Delhi: Oxford University Press.
2. Srilakshmi, B. (2019). *Dietetics*. (8th ed.). New Delhi: New Age International (P) Limited Publishers.
3. Khanna, K. et al. (2013). *Textbook of Nutrition and Dietetics*. (2nd ed.). New Delhi: Elite Publishing House (P) Ltd.
4. Mahan, L.K, and Raymond, J.L. (2017). *Krause's Food and the Nutrition Care Process*. (14th ed.). United Kingdom: Elsevier.
5. Nix McIntosh, S. (2017). *William's Basic Nutrition and Diet Therapy*. (15th ed.). India: Elsevier Health Sciences.

BOOKS FOR REFERENCES:

1. Bamji, M.S., Rao, N.P., and Reddy, V. (2017). *Textbook of Human Nutrition*. (4th ed.). India: Oxford and IBH Publishing co. (P) Ltd.
2. Mudambi, S.R., and Rajagopal, M.V. (2012). *Fundamentals of Food, Nutrition and Diet Therapy*. (6th ed.). New Delhi: New Age International (P) Ltd.
3. Indian Dietetic Association. (2018). *Clinical Dietetics Manual*. (2nd ed.). New Delhi: Elite Publishing House (P) Ltd.
4. Joshi, S. A. (2017). *Nutrition and Dietetics*. (4th ed.). India: Tata McGraw-hill Publishing Company.
5. Longvah, T. et al (2017). *Indian food composition tables*. (1st ed.). Hyderabad, Telangana: National Institute of Nutrition.

E-LEARNING RESOURCES:

1. <https://www.fda.gov/food/>- U.S.Food and Drug Administration
2. <https://academic.oup.com/jn/>- The Journal of Nutrition
3. <http://idaindia.com/>- Indian Dietetic Association
4. <http://www.nutritionocietyindia.org/>- Nutrition Society of India
5. <https://www.nin.res.in/>- National Institute of Nutrition.

Mapping of CO with PSO:

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	2	1	2	2	3	2
CO 2	3	3	3	3	3	3
CO 3	3	2	3	3	2	2
CO 4	1	2	2	2	3	3
CO 5	3	2	3	3	3	3
Average	2.4	2	2.6	2.6	2.8	2.6

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Presentations, Practicum, Discussion, Journal article review, Quiz, Concept mapping.

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)
Theory UG –Question paper Pattern- Conventional on-paper mode

Knowledge Level	Section	Word limit	Marks	Total	Special Instructions, if any
K1, K2	Section A Multiple Choice Questions 15*2 marks	30	Mark the correct choice	75	
K2,K3,K4	Section B 5 out of 7 Questions *5 Marks	25	Short answers (500 Words)		
K3, K4,K5,K6	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx 1000 Words)		

*** 75 marks to be converted as 60 marks**

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Sections	Marks	Description of answer	Total	Special Instructions, if any
INTERNAL SETTING					
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	25X1=25	Choose the write option.	50	
EXTERNAL SETTING					
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	25	Short answers/500 Words		

*** 50 marks to be converted as 60 marks.**

CORE PRACTICAL-II
MEDICAL NUTRITION THERAPY PRACTICAL

TOTAL HOURS: 75
CREDIT: 4

SUB CODE: 20UFMCP4002
L-T-P: 0 0 6

COURSE OBJECTIVES

1. Apprehend the principles of dietary modifications.
2. Plan, prepare and calculate nutrient content of diet for different disease conditions.
3. Acquire skills in dietary counseling for prevention / treatment of various diseases / disorders
4. Observe and study the food service management practices

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Apprehend the etiology, symptoms, onset and nutritional management of various types of diseases.
CO2	Apply the knowledge on dietary therapy to plan therapeutic diets for disease conditions.
CO3	Exhibit skills in modifying normal diets and preparing appropriate therapeutic diets.
CO4	Practice diet counselling and suggest individually tailored diet plans for various disease conditions.
CO5	Become a health care provider.

SYLLABUS

I. Planning, preparation and calculation of diets for the following conditions

- a) Therapeutic diets- normal, soft, clear and full fluid
- b) Peptic ulcer
- c) Ulcerative Colitis
- d) Viral hepatitis
- e) Cirrhosis
- f) Obesity and Underweight
- g) Type 1 and Type 2 Diabetes
- h) Nephritis and Nephrotic syndrome
- i) Hypertension and Atherosclerosis

II. Visit to a dietary department of a hospital

III. Dietary Internship for 1 month in a teaching hospital

TEXTBOOKS:

1. Indian Dietetic Association. (2018). *Clinical Dietetics Manual*. (2nd ed.). New Delhi: Elite Publishing House (P) Ltd.
2. Longvah, T. et al (2017). *Indian food composition tables*. (1st ed.). Hyderabad, Telangana: National Institute of Nutrition.
3. Rama Sastri, B. V., Gopalan, C., Balasubramanian, S. C. (1994). *Nutritive Value of Indian foods*. Hyderabad: National Institute of Nutrition, Indian Council of Medical Research.
4. Bajaj, M. (2019). *Diet Metrics: Hand Book of Food Exchanges*. (1st ed.). India: Notion Press Media Pvt. Limited.
5. Vimla, V. (2009). *Advances in Diet Therapy*. (2009). India: New Age International (P) Limited.

BOOKS FOR REFERENCES:

1. Mahan, L.K, and Raymond, J.L. (2017). *Krause's Food and the Nutrition Care Process*. (14th ed.). United Kingdom: Elsevier.
2. Srilakshmi, B. (2019). *Dietetics*. (8th ed.). New Delhi: New Age International (P) Limited Publishers.
3. Antia, F.P., and Abraham, P. (2002). *Clinical dietetics and nutrition*. (4th ed.). New Delhi: Oxford University Press.
4. Joshi, S. A. (2017). *Nutrition and Dietetics*. (4th ed.). India: Tata McGraw-Hill Publishing Company.
5. Mudambi, S.R., and Rajagopal, M.V. (2012). *Fundamentals of Food, Nutrition and Diet Therapy*. (6th ed.). New Delhi: New Age International (P) Ltd.

MAPPING CO with PSO

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	3	2	2
CO 2	3	3	3	3	2	2
CO 3	2	2	2	3	2	2
CO 4	3	2	2	2	2	2
CO 5	1	2	2	1	1	2
Average	2.4	2.4	2.4	2.4	1.8	2

KEY:

PEDAGOGY (TEACHING METHODOLOGY): Assignment, Observation, Group discussion.

**ALLIED PAPER-IV
FOOD MICROBIOLOGY**

**TOTAL HOURS: 75
CREDIT: 3**

**SUB CODE: 20UFMAT4004
L-T-P: 4 2 0**

COURSE OBJECTIVES

To enable students

1. Gain knowledge of the role of microorganisms in health and disease
2. To understand the role of microorganisms in spoilage of various foods.
3. To gain knowledge of microorganisms in relation to food and food preservation

COURSE OUTCOMES: On successful completion of the course the students will be able to

CO No.	CO Statement
CO 1	Understand the general characteristics of microbes and its application in the field of nutrition.
CO 2	Define and distinguish the methods of sterilization and disinfection.
CO 3	Attain knowledge on the concept of microbes in food spoilage and contamination.
CO 4	Identify and analyze the role of microorganism in human welfare
CO 5	Evaluate the preventive measures to food poisoning and food borne infections.

SYLLABUS

UNIT -1

15 Hrs.

INTRODUCTION TO MICROORGANISMS

Classification of microorganism - bacteria, virus, yeasts, moulds, algae, protozoa. morphology, classification, motility, nutrition, respiration and reproduction.

Economic importance of moulds, yeast and bacteria

- Microorganisms present in air, water and soil
- List of air, water and soil borne infections
- Sanitary tests done on water.

UNIT -2

15 Hrs.

DESTRUCTION OF BACTERIA

a) **Sterilization** - Application of dry and moist heat

Disinfection - Methods of disinfection, natural, physical and chemical.

Purification of water – domestic and industrial method (sedimentation, slow sand and rapid sand filters) of water purification

Use of Certain Common Chemicals like alum, quick lime and potassium permanganate in water purification.

UNIT -3

15 Hrs.

GENERAL PRINCIPLES UNDERLYING SPOILAGE

Definition and causes of food spoilage - classification of food by the case of spoilage – factors affecting the growth of microorganisms in food

FOOD MICROBIOLOGY CONTAMINATION AND SPOILAGE OF FOODS

Source of contamination and spoilage of

Cereal and Cereal products and baked products, Fruits and vegetables, Meat, Poultry, Fish, Eggs Milk and canned foods.

UNIT – 4

15 Hrs.

MICROORGANISM IN HUMAN WELFARE

Definition of fermentation, types of fermentation

Introduction to starter culture

Cereal, pulse, milk, fruit and vegetable based fermented products of India/Asian countries.

Concept of probiotics, prebiotics, single cell protein – definition, health benefit and mechanism of action.

UNIT -5

15 Hrs.

FOOD INFECTIONS AND FOODBORNE DISEASES

Definition of food infection and food poisoning

i) Microbial food poisoning by clostridium botulinum (Botulism), staphylococcus aureus and bacillus cereus and Escherichia coli

ii) Food infections –Salmonellosis, Shigellosis, Typhoid and Cholera.

Measures to prevent microbial food poisoning.

ACTIVITY

1. Identification of prepared slides - mold- mucor, rhizopus, aspergillus, penicillium, yeast and bacteria–bacilli.

2. Simple staining, identification of organism in contaminated water and food.

3. Examination of the motility of micro – organisms – hanging drop preparation. 4. Demonstration of sterilization methods- Hot air oven and autoclave

5. Field trip to dairy and food industries.

TEXT BOOK

1. Ananthanarayan, R., Paniker, C. J. (2006). *Ananthanarayan and Paniker's Textbook of Microbiology*. India: Orient Longman.

2. Arora, D. R. (2012). *Textbook of Microbiology* (4th ed.). New Delhi, ND: CBS Publishers and distribution Pvt Ltd.

3. Frazier, W. C., Westhoff, D. C. (2014). Food Microbiology. India: McGraw Hill Education (India) Pvt. Limited.
4. Pelczar, J. (1998). *Microbiology*. (7th ed.). India: McGraw-Hill Education.
5. Adams, M. R., Moss, M. O., McClure, P. J. (2016). *Food Microbiology*. United Kingdom: Royal Society of Chemistry.

BOOKS FOR REFERENCE

1. Purohit, S. S. (2002). *Microbiology - Fundamentals & applications* (6th ed.). Indiana: Agrobices.
2. Dubey, R. C., & Maheshwar, D. K. (2005). *A Textbook of Microbiology* (1sted.) S. Chand & Co Ltd Publication.
3. Heritage, J., Evans, E. G., & Killington, R. A. (2002). *Introductory Microbiology*. Cambridge university press.
4. Manuselis, G., Mahon, C. R., Lehman, D. C. (2018). *Textbook of Diagnostic Microbiology - E-Book*. United States: Elsevier Health Sciences.
5. Sastry, A. S., Bhat, K. S. (2018). *Review of Microbiology and Immunology*. India: Jaypee Brothers, Medical Publishers Pvt. Limited.

E-LEARNING RESOURCES

- 1) <http://www.us.elsevierhealth.com/medicine/microbiology>.
- 2) <http://www.journals.elsevier.com/food-microbiology>.
- 3) <http://www.microbiol.org>
- 4) <https://open.umn.edu/opentextbooks/textbooks/microbiology>
- 5) <https://guides.library.umass.edu/c.php?g=672432&p=4735854>

Mapping of CO with PSO

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	2	3	3	3
CO2	3	3	3	3	3	2
CO3	3	3	3	2	3	3
CO4	2	2	3	3	3	2
CO5	3	2	3	3	3	2
Average	2.8	2.4	2.8	2.8	3	2.4

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Class assignment, Quizzes/Objective tests, Class test, Home assignments, Seminar.

END SEMESTER EXAMINATION:**QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)
Theory UG –Question paper Pattern- Conventional on-paper mode**

Knowledge Level	Section	Word limit	Marks	Total	Special Instructions, if any
K1, K2	Section A Multiple Choice Questions 15*2 marks	30	Mark the correct choice	75	
K2,K3,K4	Section B 5 out of 7 Questions *5 Marks	25	Short answers (500 Words)		
K3, K4,K5,K6	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx1000 Words)		

* 75 marks to be converted as 60 marks

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Sections	Marks	Description of answer	Total	Special Instructions, if any
INTERNAL SETTING					
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	25X1=25	Choose the write option.	50	

EXTERNAL SETTING					
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	25	Short answers/500 Words		

* 50 marks to be converted as 60 marks

NON MAJOR ELECTIVE - WOMEN AND HEALTH

TOTAL HOURS: 20
CREDIT: 2

SUB CODE: 18UFMNE3001
L-T-P:

OBJECTIVES

5. To introduce the students to the principles of basic Nutrition.
6. To enable students to obtain knowledge of menu planning.
7. Understand the importance of various macronutrients in relation to women health.
8. To help the students to explore the nutrition related problems in community.

COURSE OUTCOME: On successful completion of the course the students will be able to

CO No	CO Statement
CO 1	Understand the concept- anatomy of female reproductive system.
CO 2	Acquire knowledge on the various food groups and plan a balanced diet.
CO 3	Understand the importance of various nutrients in relation to health.
CO 4	Gain insight in determining the nutritional requirement for women.
CO 5	Learn the different aspects of nutritional problem and its treatment.

SYLLABUS

UNIT – 1

PHYSIOLOGY OF WOMEN

Anatomy of Female Reproductive System, Menstruation Cycle, Premenstrual Syndrome, PCODS, Post Menopausal Syndrome, Cancer – Basic concept in Diet Therapy

Hrs:

UNIT – 2

BASIC MENU PLANNING

Define Health and Nutrition, Food Groups, Principles of planning diet, The Food Guide – The

Hrs:

food guide pyramid, my plate, plan a balanced diet.

UNIT – 3

Hrs:

INTRODUCTIONS TO BASIC NUTRITION

Define Nutrition – Macronutrient (Carbohydrate, Protein, Fat, Fibre and Water) – Sources, Function, Micronutrient (Water Soluble & Fat Soluble Vitamin, Macro and Micro minerals) – Sources, Function.

UNIT – 4

Hrs:

NUTRITION FOR WOMEN

Nutritional Requirements for Adolescent girl, Adult women, Pregnancy and Lactating and old age

UNIT – 5

Hrs:

NUTRITIONAL PROBLEMS FOR WOMEN

Nutritional Problem – Obesity, Eating Disorders, Osteoporosis, Anaemia, Undernutrition, - Etiology, Causes, Symptoms and Treatment

TEXTBOOKS

6. Chatterjee,C. (2017). Text Book of Medical Physiology; London W.B.
7. Whitney., Cataldo and Rolfes (2002). Understanding Normal and Clinical Nutrition. *Wadsworth Thomson learning, USA.*
8. Srilakshmi,B.(2011). Food Science.7th Ed., *New Age International Publications*, New Delhi.
9. Eastwood,M.(2003). NPrinciples of Human Nutrition. 2ndEdition. *C.V.Mosby Company.*
10. Sumati,R., Mudambi,M.V., Rajagopal. (2015). Fundamental of food, nutrition and diet therapy. *New age international publishers.* New Delhi.

BOOKS FOR REFERENCE

6. Indian Dietetic Association. (2018). Clinical Dietetics Manual, 2nd Ed. Delhi: Elite Publishing House (P) Ltd.
7. Guyton and Hall (Arthur C. Guyton and John E. Hall) (2016)Functions of the Human Body., Thirteenth edition , Rebecca Grunion Publishing service, Philadelphia.
8. Williams, S.R. (2018) Basic Nutrition and Diet Therapy. 12th Ed. Times Mirror Mosby College Publishing.
9. Brow, A.(2000). Understanding Food. Thomson Learning Publications. Wadsworth.
10. Mahan, L.K, Raymond, J.L. (2016). Krause’s Food and the Nutrition Care Process; 14th Ed; Elsevier.

WEB RESOURCES

6. <https://www.physiology.org/journal/physrev>
7. <https://www.annualreviews.org/journal/food>
8. <https://www.eatright.org/food#Nutrition>
9. www.nutrition.gov
10. <http://www.nutritionandsocietyindia.org/>

Mapping of CO with PO

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6
CO 1	1	1	1	3	3	1
CO 2	3	3	3	2	3	2
CO 3	3	3	3	3	3	2
CO 4	2	3	3	2	3	1
CO 5	3	3	3	3	3	2
Average	2.4	2.6	2.6	2.6	3	1.6

Mapping of CO with PSO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	2	0	2	0	1	2
CO 2	3	3	3	3	1	2
CO 3	3	2	3	3	2	2
CO 4	1	1	3	3	2	3
CO 5	1	0	3	3	3	3
Average	2	1.2	2.8	2.4	1.8	2.4

PEDAGOGY

6. Journal Article Review,
7. Poster Presentation,
8. Quizzes/Objective tests,
9. Field Assessments,
10. Open Book Tests.

QUESTION PAPER PATTERN END SEMESTER EXAMINATION

QUESTION PAPER PATTERN FOR OBE (2020-21 ONWARDS) THEORY UG –QUESTION PAPER PATTERN- CONVENTIONAL ON-PAPER MODE

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions if Any
K1, K2	Section A (Multiple choice question - Answer all the questions)	Correct choice	15X2= 30		

K2, K3, K4	Section B (Answer any five questions out of 7 questions – 5 Marks)	Short answers { approx. 500 Words)	5X5 = 25	75	
K3,K4, K5,K6	Section C 2 out of 5 Questions - 10 Marks	Elaborate answers (approx. 1000 Words)	2X10 = 20		

*** 75 marks to be converted as 60 marks.**

**UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSEMENT
(2020 – 2021)**

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions if any
INTERNAL SETTING					
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	Choose the correct option	25X1=25	50	K 1 & K2 - Understanding Level K 3 - Apply Level K 4 - Analyze Level K 5 – Evaluate Level K6 – Create Level
EXTERNAL SETTING					
K2,K3,K4,K5, K6	Section B 5 out of 7 Questions *5 Marks	Short answers/500 Words	5x5 = 25		
	Section C				

***50 marks to be converted as 60 marks.**

SEMESTER V

	Part	Subject	Title of the Paper	Code	L	T	H	Credits	CIA	ESE	Total
V SEM	III	Core Major - Paper VII	Human Development	20UFMCT5007	4	2	6	4	40	60	100
		Core Major - Paper VIII	Food Service Management I	20UFMCT5008	4	2	6	4	40	60	100
		Core Major - Paper IX	Nutrition II	20UFMCT5009	4	2	6	4	40	60	100
		Core Major - Paper X	Community Nutrition	20UFMCT5010	4	2	6	4	40	60	100
		Core Elective-I	Fundamentals of Textiles & Clothing	20UFMET5001	4	2	6	5	40	60	100
	IV	Skill Enhancement Course		20USSSE5003				3	-		-
								24			

**CORE PAPER-VII
HUMAN DEVELOPMENT**

TOTAL HOURS: 75
CREDIT:

SUB CODE:
L-T-P:4 2 0

COURSE OBJECTIVES

To enable students

1. To understand the principles of human development.
2. Develop a scientific approach towards behavior patterns in individual, family and community life.

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Analyses the developmental milestones of individuals in the domains of physical, social, emotional, cognitive and language development throughout the lifespan.
CO2	Attain knowledge of family crisis, adjustment in marriage, need of parenting and vocational selection in early adulthood.
CO3	Establishing an awareness of the various problems of children with special needs.
CO4	Gaining insight into the needs and problems of old age in current scenarios and solving them.
CO5	Adopting the skills to face upcoming challenges and opportunities in life.

SYLLABUS

UNIT-1

15 hrs.

GROWTH AND DEVELOPMENT

Meaning and importance of growth and development, maturation and learning, principles of governing growth and development.

PRENATAL DEVELOPMENT-concept, stages of prenatal development, factors influencing prenatal development, birth process, complications during pregnancy

UNIT -2:

15 hrs.

INFANCY (0-2 YEARS) DEVELOPMENT-physical, motor, social emotional and language, child rearing practices and immunization.

EARLY CHILDHOOD (2-6 YEARS) DEVELOPMENT-physical, motor, social, emotional Cognitive and language. Behavioral problems-causes and treatment. Importance of play and play activities, selection of play equipment.

UNIT –3:

15 hrs.

LATE CHILDHOOD (6-12YEARS)

DEVELOPMENT-physical, motor, social, emotional, cognitive, moral and language, styles of parenting.

ADOLESCENCE (12-18YEARS)

DEVELOPMENT-physical, emotional, social and moral, Adjustment problems, ways to improve communication between parents and adolescence, juvenile delinquency-causes and measures.

UNIT –4:

15 hrs.

ADULTHOOD

Characteristics and developmental tasks, vocational selection and adjustment

Meaning of marriage and family, Adjustments in marriage-with mate, sex, finance, society and in-laws. Family life cycles-stages-adjustments in different stages, critical family situations and impact on children.

OLD AGE-Characteristics, physical and physiological changes of old age and place of the aged in Indian society.

UNIT –5:

15 hrs

CHILDREN WITH SPECIAL NEEDS

Orthopedically challenged, mentally retarded, learning disability, gifted children, Autism, Dyslexia, Rehabilitation Techniques.

ACTIVITY

1. Visit to nursery school- Preparation of case study of a child.
2. sociometric study of adolescents.
3. survey on problems of old age
4. A survey on preferences of adolescents in choosing a life partner.

TEXTBOOKS

1. Berk, L.E.(2007). *Development through the life span*. New Delhi : Pearson Educational.
2. Hurlock, E.B. (2006). *Child growth and development*, New York : Tata Mc.Graw Hill Company.
3. Hurlock, E.B. (2004). *Child development*. (6th ed.,). New York : Tata Mcgraw hill education.
4. Devadas, R.P. and Jaya, N.(2003). *A Textbook on Child Development*. New Delhi: MacMillan India Ltd.
5. Boss. P, et al.,(2005). *Source book of Family Theories and Methods*. A Contextual Approach, Springer Science.

BOOKS FOR REFERENCE

1. Peterson, G.W. and Bush, K.R.(2016). *Handbook of Marriage and the Family* (3rd ed.,). United States: Springer.
2. Sigelman, C.K. and Rider, E.A.(2015). *Life-span Human development*. (8th ed.,). United States : Cengage Learning.
3. McCarthy, J.R. and Edwards,R. (2010). *Key Concepts in family studies*. (1st ed.,).United states : SAGE publications.
4. Santrock, J.W.(2007). *Adolescence*. (11th ed.,). New Delhi : Tata McGraw hill education.
5. Berk, L.E.(2003). *Child Development*. (6th ed.,). New Delhi : Prentice Hall of India Pvt Ltd.
6. Berk, L.E.(2001). *Child Development*. (3rd ed.,). New Delhi : Prentice Hall of India Pvt Ltd.
7. Devadas, R.P. (2003). *A Textbook on Child Development*. New Delhi : MacMillan India Ltd.
8. Hurlock, E.B.(1997). *Child development*. (6th ed.,). New York : Tata McGraw hill education.

E-LEARNING RESOURCES:

1. <https://www.alleydog.com/glossary/definition.php?term=Family+Studies>
2. <https://www.parents.com/toddlers-preschoolers/development/behavioral/preschoolers-101-understanding-preschooler-development/>
3. <https://my.clevelandclinic.org/health/articles/7060-adolescent-development>
4. <https://www.nagc.org/resources-publications/resources/what-giftedness>

Mapping of CO with PSO:

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	2	3	3
CO 2	2	1	3	2	3	2
CO 3	2	2	3	1	2	3
CO 4	2	1	2	2	2	2
CO 5	3	3	3	3	3	3
Average	2.4	2	2.8	2	2.6	2.6

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Practicum, Assignment, Presentations, Projects, Quiz, Demonstrations

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)
Theory UG –Question paper Pattern- Conventional on-paper mode

Knowledge Level	Section	Word limit	Marks	Total	Special Instructions, if any
K1, K2	Section A Multiple Choice Questions 15*2 marks	30	Mark the correct choice	75	
K2,K3,K4	Section B 5 out of 7 Questions *5 Marks	25	Short answers (500 Words)		
K3, K4,K5,K6	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx 1000 Words)		

* 75 marks to be converted as 60 marks

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Sections	Marks	Description of answer	Total	Special Instructions, if any	
INTERNAL SETTING						
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	25X1=25	Choose the write option.	50		
EXTERNAL SETTING						
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	25	Short answers/500 Words			

* 50 marks to be converted as 60 marks.

CORE PAPER-VIII
FOOD SERVICE MANAGEMENT-I

TOTAL HOURS: 75
CREDIT:4

SUB CODE:
L-T-P: 4 2 0

COURSE OBJECTIVES

1. To acquire knowledge on the organizational aspects and functioning of different types of food service institutions
2. Comprehend the notion and principles of organization management and financial management.
3. Develop abilities to procure and store quantity food.
4. Understand the fundamentals of sanitation and safety.

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Elucidate the origin and categorization of food service sectors.
CO2	Employ the basic principles and tools of management for efficaciously handling an establishment
CO3	Utilize the expertise obtained for food purchasing, storing and record maintenance
CO4	Apply the understanding of concepts of management to book keeping and methods of pricing.
CO5	Explore the importance of hygiene and safety in the food service units.

SYLLABUS

UNIT-1: Food Service Industry

15 Hrs.

- Food Service Industry- history and development
- Sectors of Food Service Industry: Classification of food service- Commercial- hotels, restaurants, Popular catering- fast foods, take away, franchising and leisure attractions. Transport catering- air, rail, sea and space. Miscellaneous- contract and outdoor catering. Non-Commercial- hospitals, schools, philanthropic establishments.
- Food service systems- Conventional, Cook chill/cook freeze, Commissary and Assembly service. Could kitchen set up and meaning.

UNIT-2: Management and Organization**15 Hrs.**

- Definition and types of organization
- Principles, functions and tools of management

UNIT-3: Food Purchase and Storage**15 Hrs.**

- Food Purchase; Buying and Receiving methods.
- Food storage: Types of storage, maintenance of store records- Requisition slips, order form, stock book, invoice, goods received book, inventories.
- Computer applications in food service establishments.

UNIT-4: Financial Management**15 Hrs.**

- Book keeping- Single entry and double entry systems, types of accounts, advantages of double entry system.
- Elements of cost- food, labor and overhead costs. Break even analysis.
- Control- factors affecting cost control.
- Budgeting, books of accounts- Journal, Ledger, subsidiary books, difference between Journal and Ledger; trial balance and balance sheet, inventories, records for control.
- Pricing- dish costing, meal/menu pricing, factors affecting pricing

UNIT-5: Hygiene, Sanitation and Safety**15 Hrs.**

- Hygiene and sanitation in food handling, plant equipment, personnel, raw materials and methods of work. HACCP-Definition and steps involved.
- Waste management- Techniques to use leftover effectively and safely, types of waste-storage, kitchen and service area waste: waste disposal.
- Control of rodents and pests: Classification of pests, control and eradication of pest control.
- Safety: causes and prevention of accidents in a food service.
- Work simplification and its application in food preparation and service.

TEXTBOOKS

1. Sethi, M., and Malhan, S. (2015). *Catering Management: An integrated approach*. (3rd ed). New Delhi :New age international publishers.
2. Sethi, M. (2015). *Institutional Food Management*. (3rd ed.). New Delhi :New age international publishers.
3. Singaravelavan, R. (2012). *Food and Beverage Services*. (1st ed.). India: Oxford University Press.
4. Suganthi, V., and Premakumari,C. (2019).*Food Service Management*. (1st ed.). Dipti Press (OPC) Pvt.Ltd, Chennai
5. Roday, S. (2017). *Food Hygiene and Sanitation*. (2nd ed.). India: McGraw-Hill Education (India) Pvt Limited.

BOOKS FOR REFERENCE

1. Theis, M., Payne-Palacio, J. (2000). West and Wood's Introduction to Foodservice. (9th ed.). United Kingdom: Prentice Hall.
2. Cousins, J., and Weekes, S. (2020). Food and Beverage Service. (10th ed.). United Kingdom: Hodder Education.
3. Andrews, S. (2007). *Textbook of Food & Beverage Management*. India: McGraw-Hill Education (India) Pvt Limited.
4. Bali, P. S. (2021). *Quantity Food Production Operations*. (3rd ed.). India: Oxford University Press.
5. Pantelidis, I., Lockwood, A., Davis, B., Alcott, P. (2013). *Food and Beverage Management*. (5th ed.). United Kingdom: Taylor & Francis.

E-LEARNING RESOURCES

1. <https://www.fda.gov/food/hazard-analysis-critical-control-point-haccp/haccp-principles-application-guidelines>
2. <https://www.ccohs.ca/oshanswers/hsprograms/house.html>
3. <https://www.eatrightpro.org/practice/practice-resources/foodservice>
4. <https://www.ers.usda.gov/topics/food-markets-prices/food-service-industry.aspx#.U1leEVVdW4I>
5. <https://theicn.org/>

Mapping of CO with PSO:

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	2	1	1	1	1	2
CO 2	3	1	2	2	3	3
CO 3	3	1	2	1	3	3
CO 4	3	2	2	2	3	3
CO 5	2	2	3	3	3	3
Average	2.6	1.4	2	1.8	2.6	2.8

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Assignment, Quiz , Group discussion, Seminar , Field visit.

END SEMESTER EXAMINATION:**QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)
Theory UG –Question paper Pattern- Conventional on-paper mode**

Knowledge Level	Section	Word limit	Marks	Total	Special Instructions,if any
K1, K2	Section A Multiple Choice Questions 15*2 marks	30	Mark the correct choice	75	
K2,K3,K4	Section B 5 out of 7 Questions *5 Marks	25	Short answers (500 Words)		
K3, K4,K5,K6	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx1000 Words)		

* 75 marks to be converted as 60 marks

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Sections	Marks	Description of answer	Total	Special Instructions, if any
INTERNAL SETTING					
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	25X1=25	Choose the write option.	50	

EXTERNAL SETTING					
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	25	Short answers/500 Words		

* 50 marks to be converted as 60 marks

**CORE PAPER-IX
NUTRITION-II**

TOTAL HOURS: 75

SUB CODE:

CREDIT: 4

L-T-P: 4 2 0

COURSE OBJECTIVES

1. To learn the role of various micronutrients in the body functions.
2. To gain knowledge regarding the metabolism of nutrients.
3. To understand the mechanism of water and electrolytes in the body.

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Able to conceptualize the metabolism of fat- and water-soluble vitamins.
CO2	Apply the knowledge in determining the nutritional requirements.
CO3	Associate knowledge of nutrients with their deficiencies.
CO4	Comprehend the functions of macro and micro nutrients with health.
CO5	Learn the role of water and electrolytes mechanisms in human health.

SYLLABUS

UNIT-1:

15hrs.

FAT SOLUBLE VITAMINS

Metabolism, Functions, Distribution in the body, Effects of deficiency, Food sources, Requirements, unit of measurements and hypervitaminosis of vitamins A, D, E and K.

UNIT-2:

15hrs.

WATER SOLUBLE VITAMINS

Ascorbic acid and B Complex vitamins- Thiamine, Riboflavin and Niacin- Functions, effects of deficiency, food sources and requirements for different age groups.
Importance of folic acid, Pyridoxine, Vitamin B12, Biotin and Pantothenic acid to the body.

UNIT-3

15hrs.

MACRO MINERALS- Calcium, Phosphorous, Magnesium, Potassium, Sodium and Chloride- Functions, effects of deficiency, food sources and RDA.

MICRO / TRACE MINERALS - Iron, Zinc, Fluoride and Copper- Distribution in the body; functions, effects of deficiency, food sources and requirements for different age groups.

UNIT-4

15hrs.

ULTRATRACE MINERALS:

(a) Iodine, Selenium, Manganese, Chromium, Molybdenum and Cobalt - Functions, Effects of deficiency, Food sources and Requirements.

(b) Selenium and Vitamin E relationship, Chromium and glucose tolerance factor.

(c) Importance of vitamins and mineral supplement.

UNIT-5

15hrs.

(a) **WATER** – Functions, sources, requirements. Distribution of water in the body, Composition of body fluids, water exchange between plasma and interstitial fluid & Osmolar regulation.

(b) **WATER IMBALANCE** – Dehydration: Types, Routes of fluid and electrolyte loss and Water intoxication.

(c) **ELECTROLYTE MECHANISM** – Distribution and maintenance of electrolytes in the body. Pathophysiology of water and antidiuretic hormone metabolism.

TEXT BOOKS

1. Srilakshmi, B. (2017). *Nutrition Science*, (6th ed.). New Age International (P) Ltd., New Delhi.
2. Krause, M.V. & Hunesher, M.A. (2013). *Food, Nutrition and Diet Therapy*. (14th ed.). Saunders Company, Philadelphia, London.
3. Gibney, M.J., Lanham, S.A., Cassidy, A. Vorster, H.H. (2009). *Introduction to Human Nutrition*. (2nd ed.). Wiley-Blackwell.
4. Whitney, E. Rolfes, S.R. (2008). *Understanding Nutrition*. (11th ed.). Thomson learning.
5. Insel, P., Turner, E & Ross, D. (2008). *Nutrition*, (2nd ed.). ADA, Jones & Bartlett, Canada.

BOOKS FOR REFERENCE

1. Gropper, S.S., Smith, J.L, Groff, J. (2009). *Advanced nutrition and human metabolism*. (5th ed.). Wadsworth cengage learning.
2. Mahtab, S., Bamji., Krishnasamy, K., Brahman, K.N.V. (2015). *Text Book of Human Nutrition*, (3rd ed.). Oxford and IBH Publishing Co. P. Ltd., New Delhi.
3. Guthrie, H.A. (1986). *Introductory Nutrition*. (6th ed.). C.V. Mosby Co. St. Louis.
4. Sumathi, R. Mudambi & Rajagopal, M.V. (2001). *Foods and Nutrition*. (4th ed.). New Age International Ltd. Publishers, New Delhi.
5. Joshi, S. A. (2007). *Nutrition and Dietetics*. Tata McGraw-Hill publishing Company Ltd

E-LEARNING RESOURCES

1. <http://www.iom.edu/> - National institute of medicine
2. www.asbmr.org/ - American society for bone and mineral research
3. <http://www.navigator.tufts.edu/> - Tufts University Nutrition Navigator
4. www.nal.usda.gov/fnic - Food and Nutrition information center
5. www.nutrition.gov - Service of National agricultural library, USD

Mapping of CO with PSO:

CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	2
CO2	3	3	3	3	3	1
CO3	3	3	3	2	3	2
CO4	3	3	3	3	3	2
CO5	3	3	3	3	3	1
Average	3	3	3	2.8	3	1.6

KEY:

PEDAGOGY (TEACHING METHODOLOGY): Article Review, Quizzes/Objective tests, Class test, Home assignment, Paper presentation or seminar

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards) Theory UG –Question paper Pattern- Conventional on-paper mode

Knowledge Level	Section	Word limit	Marks	Total	Special Instructions, if any
K1, K2	Section A Multiple Choice Questions 15*2 marks	30	Mark the correct choice	75	
K2,K3,K4	Section B 5 out of 7 Questions *5 Marks	25	Short answers (500 Words)		
K3, K4,K5,K6	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx1000 Words)		

*** 75 marks to be converted as 60 marks**

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Sections	Marks	Description of answer	Total	Special Instructions, if any	
INTERNAL SETTING						
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	25X1=25	Choose the write option.	50		
EXTERNAL SETTING						
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	25	Short answers/500 Words			

*** 50 marks to be converted as 60 marks.**

**CORE PAPER-X
COMMUNITY NUTRITION**

**TOTAL HOURS: 75
CREDIT: 3**

**SUB CODE:
L-T-P: 4 2 0**

COURSE OBJECTIVES

1. To enable students to understand the importance of nutrition in national progress and the Significance of assessment of nutritional statuses.
2. To recognize the solutions to overcome problems of malnutrition in the company and the role of national and international agencies in this area.

COURSE OUTCOMES: On successful completion of the course the students will be able to

CO No.	CO Statement
CO 1	Acquire the knowledge on the concepts of Nutritional Development of the Nation
CO 2	Relate the theoretical knowledge with the methods of evaluation of the nutritional status of an individual.
CO 3	Understand the various schemes and agencies involved in community nutrition
CO 4	Apply knowledge in the field of Infection and Immunization
CO 5	Comprehend the knowledge gained on the concepts of Child Nutrition with regards to Breastfeeding and Weaning foods.

SYLLABUS

UNIT-1:

15 Hrs.

- Nutrition and health in National development
- Nutritional problems confronting our country–malnutrition- types, causes, symptoms of overnutrition and undernutrition.
- Food and Nutrition Security.

UNIT-2:

15 Hrs.

Methods of assessment of nutritional status

- Identification of risks groups.
- Direct assessment– Diet surveys, Anthropometry, Clinical and Biochemical Estimations.
- (c) Indirect assessment– Food Balance Sheets, Agricultural Data, Ecological Parameters

and Vital Statistics.

- (d) Use of growth charts.

UNIT-3:

15 Hrs.

- Nutrition Education- Definition, Objectives and Types. (Lecture, Demonstration, Nutrition Exhibition and Audio-Visual Aids)
- National and International agencies in community nutrition - ICDS, SNP, ANP, Midday meal programme, FAO, WHO, UNICEF, CARE, AID, ICMR, CSIR, NIN, CFTRI

UNIT-4:

15 Hrs.

- Breastfeeding and its advantages, Hazards of bottle feeding.
- Complementary feeding- Definition, Planning, Formulating and Preparing of Home Based Weaning Foods, Importance of correct and timely weaning.

UNIT-5:

15 Hrs.

- Nutrition and infection- relationship,
- Immunization and its importance, Immunization Schedule.
- Modern methods of improving nutritional quality - Fortification & enrichment of foods.
- Nutrient Supplementations - Types of supplements, advantages and disadvantages.

OBJECTIVES OF THE ACTIVITY

- To enable the students to learn and prepare different types of visual aid for the community.
- To gain practical experience in giving demonstration and conducting surveys and other methods of assessments.

ACTIVITY

1. Diet and Nutrition surveys

- a) Identifying vulnerable and at risk groups.
- b) Diet survey and breastfeeding and weaning practices of specific groups.
- c) Use of anthropometric measurements in children.

2. Methods of Extension used in community

- a) Preparation of visual aids- charts, posters, models, etc. for exhibition
- b) Lecture Method and Demonstrations to target groups.

3. Field visits to—

- a) Observe the working of nutrition programmes.
- b) Hospitals to observe nutritional deficiencies.

TEXT BOOKS

1. Reh., & Emma. (1976) *Manual on Household Food consumption surveys FAO nutritional studies*. Rome.
2. Shukla, P. K. (1982). *Nutritional problem of India*. New Delhi, ND: Prentice Hall of India Pvt.Ltd.
3. Shantighosh. (1977). *The feeding and care of infants and young children, voluntary*. Health Association of India. New Delhi.
4. Ibrahim, G. J. (1983). *Nutrition in mother and children Health*. London: Macmillan.
5. Salil & Rita S Raghuvanshi Sehgal. (2007). *Textbook of Community Nutrition*.

BOOKS FOR REFERENCE

1. Nweze Eunice Nnakwe. (2017). *Community Nutrition*. Jones and Bartlett Publishers.
2. Elizabeth Eilender. (2016). *Public Health and Community Nutrition*. Momentum Press.
3. Ritchey, S. J. & Taper, J. (1983). *Maternal and child Nutrition*. New Delhi, ND: Harper and Row Publishers.
4. Mc Laren. D. S. (1983). *Nutrition in the Community*. John Wiley and sons.
5. Jelliffe.D.B. (1996). *The Assessment of Nutritional status on the community-WHO Monographseries*. Geneva.

E-LEARNING RESOURCES

1. Journal of Community Health
2. Indian Journal of Community Medicine
3. The Journal of Community Nutrition and Health
4. Journal of Public Health and Nutrition.
5. International Journal of Food, Nutrition and Public Health.

Mapping of CO with PSO

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	3	3	2	3	3
CO2	3	3	3	3	2	3
CO3	2	3	3	2	3	3
CO4	3	2	3	3	2	3
CO5	3	3	3	2	2	3
Average	2.6	2.8	3	2.4	2.4	3

KEY:

PEDAGOGY (TEACHING METHODOLOGY): Lecture, Case study, Field Survey, Models, Journal Reviewing, Assignments, Power point presentations and group discussion

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)

Theory UG –Question paper Pattern- Conventional on-paper mode

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if any
K1, K2	Section A (Multiple choice question - Answer all the questions)	Correct choice	15X2=30	75	
K2, K3, K4	Section B (Answer any five questions out of 7 questions – 5 Marks)	Short answers { approx. 500 Words)	5X5 = 25		
K3,K4, K5,K6	Section C 2 out of 5 Questions - 10 Marks	Elaborate answers (approx. 1000 Words)	2X10 = 20		

*** 75 marks to be converted as 60 marks.**

**UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT
(2020 – 2021)**

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if any		
INTERNAL SETTING							
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	Choose the correct option	25X1=25	50			
EXTERNAL SETTING							
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	Short answers/500 Words	5x5 = 25				
	Section C						

***50 marks to be converted as 60 marks**

**CORE ELECTIVE-I
FUNDAMENTALS OF TEXTILES AND CLOTHING**

TOTAL HOURS: 75
CREDIT:

SUB CODE:
L-T-P:4 2 0

COURSE OBJECTIVES

To enable students

1. Study the science of textiles and use this knowledge in wise buying.
2. Learn the techniques involved in garment construction.

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	To acquaint students with current scenario of the fashion industry
CO2	Attain knowledge of fiber science and fabric construction to suit the emerging trends in clothing needs of the society.
CO3	Establishing practical skills in drafting, pattern making and apparel making for the family and community.
CO4	Equipping the students to be an innovative entrepreneur in garment outlets.
CO5	Adopting the sewing skills to face new trends in fashion technology.

SYLLABUS

UNIT-1: FIBRE STUDY

15 Hrs.

- (a) General classification and characteristics of fibres
- (b) Manufacture, uses and properties of Cotton, Jute, Wool, Silk,

UNIT –2: YARN

15 Hrs.

Steps involved in processing cotton yarns – classification of yarns based on direction of twist, count – simple and novelty yarns. Introduction to spinning, Definition, Classification; chemical and Mechanical. Steps in spinning process, Weaving- meaning and definition, types of weave - plain weave, twill weave.

UNIT–3: TECHNIQUES OF CLOTHING CONSTRUCTION

15 Hrs.

- (a) Selection, use and care of sewing machines and sewing tools.
- (b) Study of basic hand stitches – temporary and permanent.

- (c) Seams and seam finishes.
- (d) Methods of introducing fullness into a fabric – darts, tucks, pleats and gathers.

UNIT-4: PRINCIPLES OF PATTERN MAKING

15 Hrs.

- (a) Steps in preparing the basic bodice and stitches sleeve based on body measurements.
- (b) Steps in fabric preparation, principles of pattern drafting and pattern alteration
- (c) Pattern Layout.
- (d) Methods of transferring pattern markings onto a fabric.

UNIT-5: FABRIC EMBELLISHMENT

15 Hrs.

- (a) Embroidery
- (b) Applique
- (c) Sequins and mirror work.

ACTIVITY

1. Hand stitches-temporary and permanent
2. Seam and seam finishes
3. Mirror work.
4. Fullness in garments.
5. Fasteners
6. Paper pattern.
7. Identification of fabric sample
8. Samples of weave-plain, twill

TEXTBOOKS

1. Kothari, V. K. (2010). *Progress in Textile Science*, Vol I II and III, IAFL Publications, New Delhi.
2. Corbman, B.P. (2005). *Textiles Fiber to Fabric*. (6th ed.). McGraw Hill International Editions, New Delhi.
3. Sekhri, S. (2011). *Textbook of Fabric science, Fundamentals to finishing*. PHI Learning Private limited,
4. Baskar, A.F. (2007). *Hand Book of Textiles*, Abhishek Publications, Chandigarh
5. Gokerneshan, N. (2009). *Weaving Preparation Technology*, Abishek Publications, Chandigarh

REFERENCES

1. Helen, J. (2000). *Patternmaking for Fashion Design*, Armstrong Pearson Education, Delhi.
2. Mullick, P. (2006). *Text book of Textile Designing*, Kalyani Publishers.
3. Gokarneshan, N. (2004). *Fabric structure and design*. New Age International Publishers.
4. Corbman, B.P. (2000). *Fibre to fabric*. International students Edition, McGraw Hill Book Co., Singapore.

5. Sara, J., Radolph & Lang Ford, A.L. (2002). *Textiles*. Prentice hall, New York.
6. Murphy, W.S. (2001). *Handbook of weaving*, Abhishek publication. Chandigarh.
7. Mahadevan, M.G. (2001). *Textile Spinning, Weaving and Designing*. Abhishek Publication, Chandigarh.

E-LEARNING RESOURCES

1. https://en.wikipedia.org/wiki/History_of_clothing_and_textiles
2. <https://sewing.com/hand-embroidery-stitches/>
3. <https://www.pinterest.com/quiltingartsmagazine/embellishment-techniques/>
4. <https://www.thesprucecrafts.com/stitches>
5. <https://handwovenmagazine.com/weaving-looms-types/>

Mapping of CO with PSO:

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	3	1	2	3
CO 2	3	3	3	1	3	3
CO 3	2	3	3	1	2	3
CO 4	3	3	2	1	3	3
CO 5	2	3	2	1	2	3
Average	2.6	3	2.6	1	2.4	3

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Practicum, Assignment, Presentations, Demonstrations, Quiz

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards) **Theory UG –Question paper Pattern- Conventional on-paper mode**

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if any
K1, K2	Section A (Multiple choice question - Answer all the questions)	Correct choice	15X2= 30	75	
K2, K3, K4	Section B (Answer any five questions out of 7)	Short answers {approx.	5X5 = 25		

	questions – 5 Marks)	500 Words)			
K3,K4, K5,K6	Section C 2 out of 5 Questions - 10 Marks	Elaborate answers (approx. 1000 Words)	2X10 = 20		

***75 marks to be converted as 60 marks.**

**UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT
(2020 – 2021)**

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions,if any		
INTERNAL SETTING							
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	Choose the correct option	25X1=25	50			
EXTERNAL SETTING							
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	Short answers/500 Words	5x5 = 25				
	Section C						

***50 marks to be converted as 60 marks.**

SEMESTER VI

	Part	Subject	Title of the Paper	Code	L	T	H	Credits	CIA	ESE	Total
VI SEM	III	Core Major - Paper XI	Sports Nutrition	20UFMCT6011	4	2	6	4	40	60	100
		Core Major - Paper XII	Food Service Management II	20UFMCT6012	4	2	6	4	40	60	100
		Core Major - Paper XIII	Clinical Nutrition	20UFMCT6013	4	2	6	4	40	60	100
		Core Elective-II	Interior Decoration	20UFMET6002	4	2	6	5	40	60	100
		Core Elective-III	Diet Counselling and Patient Care	20UFMET6003	4	2	6	3	40	60	100
		Internship	Internship	20UFMIP6001	-	-	-	2	-	-	-
	IV	Skill Based Elective	Computing Skills – Swayam-MOOC courses	20USSCS6FM4				3	50		50
V	Extension Activities						1				
							26				

**SEMESTER-VI
CORE PAPER- XI
SPORTS NUTRITION**

TOTAL HOURS: 75

SUB CODE:

CREDIT: 4

L-T-P: 4 2 0

COURSE OBJECTIVES

1. To learn about the importance of Nutrition in sports personnel
2. To find out the sources of generation of energy for muscle and force generation
3. To know about the ergogenic aids and supplements available in the market.
4. Apply the knowledge acquired for planning diet for athletes.

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Enriches knowledge in knowing the importance and scope of sports nutrition.
CO2	Learn the nutritional guidelines for performance enhancement.
CO3	Understanding the weight management and different types of body composition assessment.
CO4	Apprehending the skills on diet for various sports events and nutritional concern for special athletes.
CO5	Analyze the appropriate use of herbal, nutritional supplements.

SYLLABUS

UNIT I - Introduction to Sports Nutrition

15 Hrs.

- Introduction to Sports Nutrition- Definition and scope of Sports Nutrition
- Physical Fitness- Definition, Factors affecting physical fitness, Components of fitness, Fitness testing methods.
- Physical Activity- Types of physical activity, Determinants of physical activity, Benefits of physical activity.
- Exercise- Classification of exercise, specific exercise for strengthening various health benefits. Yoga and its benefits in Health and Disease.

UNIT II - Fuel Sources for Muscle and Exercise Metabolism **15 Hrs.**

- Skeletal muscle, Types of muscle contraction, Types of muscle fiber, Factors determining muscular strength, Muscular fatigue, adaptation of skeletal muscles to Exercise training.
- Sources of energy for muscle force generation- energy pathways- regulation of energy metabolism-metabolic response to exercise-factors influencing choice of fuels-Components of energy expenditure- energy balance

UNIT III - Macro and Micro Nutrients in Sports Nutrition **15 Hrs.**

- Role of carbohydrates before, during and after exercise- carbohydrate loading
- Protein requirements for exercise- Health risks with excessive protein intake
- Fat as a fuel during exercise - fat supplementation and exercise supplements that increase fat oxidation
- Water- thermoregulation and exercise in the heat- effect of exercise on exercise performance- heat illness- Fluid guidelines before, during and after exercise, Over hydration
- Micronutrients- essential function of vitamins and minerals for athletes- role of antioxidants

UNIT IV – Body Composition and Weight Management **15 Hrs.**

- Body composition analysis-importance of body composition, different techniques- normative value for comparison
- Weight management- Ideal body weight composition- making weight and weight loss strategies, Relative energy Deficit (RED)
- Eating disorders- Types, prevalence, risk factors, effect on sports performance, treatment and prevention

UNIT V - Practical Sports Nutrition **15 Hrs.**

- Pre event and post event meals- preparing for competition, dealing with cramps, stitch, GI stress, electrolyte balance
- Eating for anaerobic power- aerobic power- timing of meals and snacks-Recovery food Food for power sports, endurance sports, combined power
- Nutrition for special population- Travelling athlete, Child athlete, ageing athlete, Diabetic athlete, Vegetarian athlete and Disabled athlete
- Overview of supplements and sports foods- Use of performance enhancing substances among athletes- Anabolic steroids-Sports foods (cereal bar, sports drinks, carbohydrate gels, Liquid meal replacements, Vitamins)- Different types of protein supplements, creatine, glutamine, BCAA, HMB, caffeine, glycerol, bicarbonate, citrate. WADA- Anti doping rules and regulations. Benefits/Mechanism of action and Applications of Herbal Supplements- Ergogenic Herbal supplements

ACTIVITY

1. Body fat analysis-learn to use skin fold calipers, bio electrical impedance analysis technique. Observe DEXA analysis.
2. Measurement of Blood pressure, heart rate, calculate METs, VO2 max
3. Learn to take whole body measurements from a certified fitness trainer using a measuring tape
4. Observe fitness testing methods by a sports physiotherapist or certified fitness trainer-to measure cardio vascular fitness, core strength, muscular endurance, explosive power, flexibility, agility, stability, strength, speed
5. Planning diets for strength sports, endurance sports, racquet sports, team games
6. Planning diets for competition, recovery (case studies)
7. Assignment on sports foods and supplements available in the market
8. Guest lecture by a sports nutritionist, fitness trainer, sports physician or physiotherapist on career opportunities
9. Attend a sports tournament-swimming or tennis or hockey or cricket or track and field sports etc.

TEXT BOOKS

- 1.Bean, Anita. (2006). *Sports Nutrition*.(5th ed.,). New York : A & C Black Publishers Ltd.
- 2.Greenberg, S. J and Pargman, D. (1989). *Physical Fitness – A Wellness Approach* Prentice. United Kingdom :Hall International (UK) Limited.
- 3.Mishra, S. C. (2005). *Physiology in Sports*. New Delhi : Sports Publication.
- 4.Srilakshmi,B., Suganthi, V and Ashok, C.K.(2018). *Exercise physiology, fitness and Sports Nutrition*. Chennai : New age international publishers.
- 5.Swaminathan, M. (2008). *Essentials of Food and Nutrition*. Bangalore :Printing Publishing Co.
6. Fawson, A. L., Hoeger, C. I., Hoeger, W. W., Hoeger, S. A. (2019). *Lifetime Physical Fitness and Wellness*. United States: Cengage Learning.

BOOKS FOR REFERENCE

1. Benardot, Dan. (2000). *Advanced Sports Nutrition*.(3rd ed.,). Human Kinetics
2. Bourns, Fred. (2002). *Essentials of Sports Nutrition*.(2nd ed.,). United States : John and Wiley.
3. Burke, Louise. (2007). *Practical Sports Nutrition*. Human Kinetics.
4. Deakin, Burke. (2006). *Clinical Sports Nutrition*.(3rd ed.,). Australia : McGraw-Hill.
5. Gleeson, Jeukendrup.(2004). *Sports Nutrition: An Introduction to Energy Production and Performance*. Human Kinetics.
6. Suzanne Girard Eberle. (2014). *Endurance Sports Nutrition*. Human Kinetics.

E-LEARNING RESOURCES

1. <https://www.nal.usda.gov/fnic/fitness-and-sports-nutrition>
2. <https://www.ncbi.nlm.nih.gov/pmc/articles>
3. <https://jissn.biomedcentral.com/articles>

4. <https://www.nutritionist-resource.org.uk/articles/sports-nutrition.html>
5. <https://www.sciencedirect.com/journal/nutrition>

Mapping of CO/PSO

CO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	3	3
CO2	3	3	3	3	3	3
CO3	3	3	3	3	3	3
CO3	3	3	3	3	3	3
CO4	3	3	3	3	3	3
CO5	3	3	3	3	3	3
Average	3	3	3	3	3	3

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Article Review, Quizzes/Objective tests, Class test, Home assignment, Paper presentation or seminar

END SEMESTER EXAMINATION:

**QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)
Theory UG –Question paper Pattern- Conventional on-paper mode**

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if Any
K1, K2	Section A (Multiple choice question - Answer all the questions)	Correct choice	15X2= 30	75	
K2, K3, K4	Section B (Answer any five questions out of 7 questions – 5 Marks)	Short answers {approx. 500 Words)	5X5 = 25		
K3,K4, K5,K6	Section C 2 out of 5 Questions - 10 Marks	Elaborate answers (approx. 1000 Words)	2X10 = 20		

***75 marks to be converted as 60 marks.**

**UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT
(2020 – 2021)**

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions,if Any
INTERNAL SETTING					
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	Choose the correct option	25X1=25	50	
EXTERNAL SETTING					
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	Short answers/500 Words	5x5 = 25		
	Section C				

***50 marks to be converted as 60 marks.**

CORE PAPER-XII
FOOD SERVICE MANAGEMENT-II

TOTAL HOURS: 75
CREDIT: 4

SUB CODE:
L-T-P: 4 2 0

COURSE OBJECTIVES

1. To understand the applications of basic principles to bulk production of the food
2. To gain knowledge regarding selection and purchase of food
3. To develop skills in menu planning for quality preparation
4. To understand the different styles of food service in volume feeding
5. To gain knowledge of food service layout
6. To gain knowledge to develop skills in handling equipment and maintenance

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Understanding the concepts of floor planning and layouts of the food service institution.
CO2	Obtaining the detailed understanding with the different equipment utilized in the service production
CO3	Analyzing and developing the skills in various styles of food and beverage services
CO4	Discuss the basic guidelines involved in personnel management
CO5	Comprehending the knowledge and skills to become an entrepreneur and to understand the various labor laws established.

SYLLABUS

UNIT-1: Floor planning and layouts

15 Hrs.

Planning of Food Service unit - Planning and organizing space relationships and arrangement of equipment with assembly line concept.

Layout- Detailed layout and location of functional areas in relation to capacity, receipt, purchase & storage of food, food production, food service, removal of soiled dishes, hand washing and dishwashing. Lighting and ventilation.

UNIT-2: Equipment in food service**15Hrs.**

Classification of equipment, traditional and modern equipment, factors affecting selection of equipment-electrical and nonelectrical equipment for food storage, preparation, service and dishwashing. Base materials and insulating materials

UNIT-3: Menu planning**15 Hrs.**

- Menu planning – Definition, types, menu planning for various sectors and institutions, health safety in menu planning, standardization of recipes, portion control.
- Types of food and beverage services – Mis-en-place& Mis-en-scene, Table service – English/Silver – Gueridon, Tray, Trolley, Lounge, Room service. Single point service – Take away, Vending kiosks, food courts & bars, Automats.

UNIT-4: Personnel Management**15 Hrs.**

- **Staffing-** Manpower planning, labour sources, selection, recruitment and training, wages, salaries, incentives, promotion, demotion, transfer, dismissal. Managerial problems of the Food Service Unit.
- Leadership - styles and qualities, authority and responsibility, delegation, supervision, motivation and controlling.

UNIT-5:**15 Hrs.**

FSSAI (Food safety standard authority of India), Procedures to apply for FSSAI in Tamil Nadu. Entrepreneurial ship in catering. Laws Governing Food Service Establishment pertaining to employees –Labour laws

TEXT BOOKS

1. Mohini Sethi and Surjet Malhan. (2017). *Catering Management, “An Integrated Approach.* (3rd ed.,). Bangalore : New Age International Pvt Ltd.
2. Suganthi, V and Premakumari, C. (2017). *Food Service Management.* Chennai: Dipti Press (OPC) Pvt.LTD.
3. Andrews, S. (2009). *Food and Beverage Service.* (2nd ed.,). New Delhi: Tata McGraw hill publishing company limited.
4. Mary, B. Gregoire, Marian, C. Spears. (2007). *Food Service Organizations.* United States : Pearson Prentice Hall.
5. Jyoti, S. Sharma. (2006). *Food Service Modern Technique and Practices.* New Delhi : Akansha Publishing House.

BOOKS FOR REFERENCE

1. Avery, A.A. (1991). *Modern Guide to Food Service Equipment.* C.B.I Publishing Inc.

2. Carol, A. King. (1988). *Professional Dining Room Management*. (2nd ed.,). New York: Wiley Publisher.
3. Norman, E. J., Katsigris, C., Thomas, C. (2013). *Design and Equipment for Restaurants and Foodservice: A Management View*. United Kingdom: Wiley..
4. Kotschevar, L and Terrll, M. E. (1971). *Food Service Planning Layout and Equipment*. (3rd ed.,). United States: John Wiley Eastern Ltd.
5. Cousins, J., Weekes, S. (2020). *Food and Beverage Service*. (10th ed.). United Kingdom: Hodder Education.

E-LEARNING RESOURCES

1. <https://www.ccohs.ca/oshanswers/hsprograms>
2. <https://www.eatrightpro.org/practice/practice-resources>
3. <https://www.ers.usda.gov/topics/food-markets-prices/food-service-industry.aspx>
4. <https://theicn.org/>
5. www.fssai.gov.in

Mapping for CO/PSO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	3	1	1	2	3
CO 2	3	3	1	1	2	3
CO 3	2	2	2	3	1	3
CO 4	3	3	3	3	3	3
CO 5	3	3	3	3	3	3
Average	2.8	2.8	2	2.2	2.2	3

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Article Review, Quizzes/Objective tests, Class test, Home assignment, Paper presentation or seminar

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)
Theory UG –Question paper Pattern- Conventional on-paper mode

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if any
K1, K2	Section A (Multiple choice question - Answer all the questions)	Correct choice	15X2= 30		

K2, K3, K4	Section B (Answer any five questions out of 7 questions – 5 Marks)	Short answers {approx. 500 Words)	5X5 = 25	75	
K3,K4, K5,K6	Section C 2 out of 5 Questions - 10 Marks	Elaborate answers (approx. 1000 Words)	2X10 = 20		

***75 marks to be converted as 60 marks.**

**UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT
(2020 – 2021)**

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if any
INTERNAL SETTING					
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	Choose the correct option	25X1=25	50	
EXTERNAL SETTING					
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	Short answers/500 Words	5x5 = 25		
	Section C				

***50 marks to be converted as 60 marks.**

CORE PAPER-XIII

CLINICAL NUTRITION

TOTAL HOURS: 75

SUB CODE:

CREDIT: 4

L-T-P:4 2 0

COURSE OBJECTIVES

1. To gain knowledge and develop skills in assessing the patients.
2. To learn the normal and abnormal metabolic conditions in the body.
3. To understand the inborn errors of metabolism with respect to various nutrients.

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Gain knowledge and develop skills in assessing the patients.
CO2	Examine and assess various diagnostic tests in different disease conditions.
CO3	Comprehend the concepts of liver and kidney function test in diagnosis and interpretation
CO4	Learn the role of nutrients in gene expression and inborn errors of metabolism.
CO5	Gain insight into drug and nutrient interaction.

SYLLABUS

Unit-1:

15 Hrs.

- **Clinical Nutrition-** Introduction, Definition, Role and types of Dietitians.
- **The Nutrition Care Process:** Nutrition Screening, Diagnosis and Intervention, Different Screening Tools- SGA, MUST, MST, MNT; Clinical Reports - POMR, SOAP and A-D-I-M-E. Monitoring and Evaluation of nutrition care and influences of nutrition care.

Unit-2: Biochemical Parameters and their Interpretation

15 Hrs.

- Complete Blood Count
- Diabetes Mellitus - Fasting glucose, Postprandial glucose, IGT, OGTT, Initial glucose

challenge test, HBA1C, Insulin sensitivity test, Fructosamine test.

- Cardiac Disease- Assay of enzymes involved in cardiac disease.

Unit-3: Biochemical Parameters and their Interpretation

15 Hrs.

- Liver Function Tests - Test for jaundice, plasma protein concentration, excretion of foreign substance, blood coagulation, serum enzyme derived from liver, conversion of ammonia to urea, determination of glutamine in cerebrospinal fluid.
- Kidney Function Tests- Tests based on Glomerular filtration rate, Renal blood flow, Tubular function. Renal Calculi.

Unit-4 Inborn errors of metabolism

15 Hrs.

- **Carbohydrate** - Galactosemia, Fructosuria, Pentosuria, Glycogen storage diseases.
- **Protein**- Albinism, Phenylketonuria, Alcaptonuria, Histidinuria, Cystonuria, Maple syrup urine disease, Hartnup syndrome.
- **Fat**- Gaucher's, Niemann-Pick, Krabbe's, Tay-Sach's, Fabry's diseases.

Unit -5: Food–Drug Interaction

15 Hrs.

- Effect of food on drugs and effect of drug on food and nutrition.
- Modification of drug action by food and nutrition. Effect of drug on nutritional status.
- Nutrigenetics, Nutrigenomics and Nutraceuticals – Meaning, Definition, Importance to Personalized Nutrition

ACTIVITY

- Case Study and Case Presentation

TEXT BOOKS:

1. Krause, M.V. & Hunisher, M.A. (2013). *Food, Nutrition and Diet Therapy*. (14th ed.). W.B. Saunders Company, Philadelphia, London.
2. Deb, A.C. (2011). *Fundamentals of Biochemistry*, (10th ed.). New central book agency, Kolkata.
3. Shanmugam, A. (2016). *Fundamentals of biochemistry for medical students*. (8th ed.). Wolters Kluwer pvt.ltd.
4. Ramasamyier, S. (2011). *Handbook of Clinical Biochemistry*. (2nd ed.). WorldScientific.
5. Chawla, R. (2014). *Practical Clinical Biochemistry Methods and Interpretations*. (1st ed.). Jaypee brothers.

BOOKS FOR REFERENCE

1. Talwar, G.P., Srivatsa, L.N & Moudgil, D. (2003). *Textbook of biochemistry and human biology*, (3rd ed.). Prentice hall of India Pvt Ltd, New Delhi.
2. Crook, M.A. (2012). *Clinical Biochemistry and Metabolic Medicine*. (8th ed.). CRC Press.
3. Ahmed, N. (2011). *Clinical Biochemistry*. (1st ed.). OUP Oxford.
4. Marshall, W.J & Bangert, S.K.(1995). *Clinical Biochemistry: Metabolic and Clinical Aspects*, (1st ed.). Churchill Livingstone.
5. Ferguson, L.R. (2014). *Nutrigenomics and Nutrigenetics in functional foods and personalized nutrition*. CRC press.

E-LEARNING RESOURCES

1. www.cdc.gov - Centers for Disease Control and Prevention (CDC)
2. www.nal.usda.gov/fnic/ - Food and Nutrition Information Center
3. http://en.wikipedia.org/wiki/Nutrition_Care_Process - Wikipedia: Nutrition Care Process
4. www.navigator.tufts.edu - Tufts University Nutrition
5. www.cc.nih.gov/nutr.care.htm - National Institutes of Health

Mapping of CO with PSO:

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	3	3	3	3
CO2	3	2	3	3	3	3
CO3	3	2	3	3	3	3
CO4	3	2	3	3	3	3
CO5	3	2	3	3	3	3
Average	3	2	3	3	3	3

KEY:

PEDAGOGY (TEACHING METHODOLOGY): Article Review, Quizzes/Objective tests, Class test, Home assignment, Paper presentation or seminar

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards) Theory UG –Question paper Pattern- Conventional on-paper mode

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if any
K1, K2	Section A (Multiple choice question - Answer all the questions)	Correct choice	15X2= 30		

K2, K3, K4	Section B (Answer any five questions out of 7 questions – 5 Marks)	Short answers { approx. 500 Words)	5X5 = 25	75	
K3,K4, K5,K6	Section C 2 out of 5 Questions - 10 Marks	Elaborate answers (approx. 1000 Words)	2X10 = 20		

***75 marks to be converted as 60 marks.**

**UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT
(2020 – 2021)**

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if any		
INTERNAL SETTING							
K1,K2,K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	Choose the correct option	25X1=25	50			
EXTERNAL SETTING							
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	Short answers/500 Words	5x5 = 25				
	Section C						

***50 marks to be converted as 60 marks.**

**CORE ELECTIVE-II
INTERIOR DECORATION**

**TOTAL HOURS: 75
CREDIT:**

**SUB CODE:
L-T-P:4 2 0**

COURSE OBJECTIVES

To enable students to

1. Gain understanding of the basic art principles.
2. Develop ability to apply the above knowledge to create interesting and beautiful Interiors for varied purposes

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Gain Understanding of the basic art principles and to develop aesthetic sense and appeal.
CO2	Apply theoretical knowledge in colour and lighting to practical situations in interiors.
CO3	Developing the technical skills in students to enable them to be successful entrepreneurs in the field of interior decoration.
CO4	Attain the knowledge of basic aspects in flower arrangement and accessories in interiors and apply the principles suitably to keep pace with the current scenario.
CO5	Providing an opportunity to one's individual freedom of self-expression in decorating living spaces.

SYLLABUS

UNIT-1: Art in daily living - importance of good taste, objectives of interior design 15Hrs.

- Design elements of design -line, shape, size, space, texture, pattern, colour and light, Characteristics of structural and decorative designs,
- Types of design-Naturalistic, conventional, geometrical, and abstract
- Principles of design - Harmony, Balance, Rhythm, Proportion, Emphasis.

UNIT-2:

15 Hrs.

- Colour - Qualities of colour - Hue, value, intensity, Colour harmony-related colour harmony, contrasting colour harmony, developing colour schemes for different rooms, prang colour chart, neutral colours

UNIT-3:**15 Hrs.**

- Flooring – Different types of flooring and partition for Interior Design. Wood Flooring, False roofing, false partition, wall like glass, plaster slab, metal lath, wood wool and gypsum.
- Floor coverings - rugs and carpets, selection, care and maintenance.
- Curtain and draperies-types, selection care and maintenance.

UNIT-4:**15 Hrs.**

- Furniture and Furnishings - selection and arrangement of furniture in different rooms. Different types of furnishing materials - Factors considered in their selection. Types of window treatment.
- Accessories - Selection, Use and Care of accessories, Types – Decorative and functional. Picture mounting, wall hangings

UNIT -5:**15 Hrs.**

- Lighting - Importance of lighting - Principles and types of Lighting - Lighting needs for various activities.
- Flower arrangement - Types, use and care - Flower arrangement for different room, selection of materials.

ACTIVITY

1. Preparation of Value chart, prang colour chart
2. Visit to hotels and restaurant

TEXTBOOKS

1. Kothari, V. K. (2010). *Progress in Textile Science*. Vol I II and III New Delhi : IAFL Publication.
2. Bernard, P. Corbman. (2005). *Textiles Fiber to Fabric*. (6th ed.,). New Delhi: McGraw Hill International Editions.
3. Seema Sekhri .(2011). *Textbook of Fabric science, Fundamentals to finishing*. New Delhi : PHI Learning Private limited,
4. Baskar ,A.F. (2007). *Hand Book of Textiles*. Chandigarh : Abhishek Publications.
5. Gokerneshan.N. (2009). *Weaving Preparation Technology*. Chandigarh : Abishek Publications,

REFERENCES

1. Helen, J. (2000). *Patternmaking for Fashion Design*. New Delhi : Armstrong Pearson Education, Delhi.
2. Premlata Mullick .(2006). *Text book of Textile Designing*,.Chennai : Kalyani Publishers.
3. Gokarneshan, N. (2004). *Fabric structure and design*. New Delho : New Age International Publishers.
4. Corbman, B.P. (2000). *Fibre to fabric, International students Edition*. Singapore : McGraw Hill Book Co.

5. Sara, J. Radolph and Anna, L. Lang Ford. (2002). *Textiles* New York : Prentice hall.
6. Murphy, W.S. (2001). *Handbook of weaving*. Chandigarh: Abhishek publication,.

E-LEARNING RESOURCES

1. <https://www.housebeautiful.com/home-remodeling/interior-designers/tips/g864/decorating-secrets/>
2. <https://modernethanolfireplaces.com/blogs/news/best-interior-design-sites>
3. <http://anj.co.in/idea-at-anj/importance-of-lighting>
4. <https://www.architecturaldigest.in/content/living-room-interior-design-7-ways-to-make-more-space/>
5. <https://www.interiorzine.com/>

Mapping of CO with PSO:

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3	2	2	1	3	3
CO 2	3	2	3	1	3	3
CO 3	3	2	3	1	3	3
CO 4	3	2	2	1	3	2
CO 5	3	2	2	1	2	3
Average	3	2	2.4	1	2.8	2.8

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Practicum, Assignment, Presentations, Demonstrations, Quiz

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards) **Theory UG –Question paper Pattern- Conventional on-paper mode**

Knowledge Level	Section	Word limit	Marks	Total	Special Instructions,if any
K1, K2	Section A Multiple Choice Questions 15*2 marks	30	Mark the correct choice	75	
K2,K3,K4	Section B 5 out of 7 Questions *5 Marks	25	Short answers (500 Words)		

K3, K4, K5,	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx 1000 Words)		
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* 75 marks to be converted as 60 marks.

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if Any		
INTERNAL SETTING							
K1, K2, K3	Section A Multiple Choice Questions 25 Questions *1 Marks (No Choice)	Choose the correct option	25X1=25	50			
EXTERNAL SETTING							
K2, K3, K4, K5, K6	Section B 5 out of 7 Questions *5 Marks	Short answers/500 Words	5x5 = 25				
	Section C						

* 50 marks to be converted as 60 marks.

**CORE ELECTIVE-III
DIET COUNSELING AND PATIENT CARE**

**TOTAL HOURS: 75
CREDIT: 5**

**SUB CODE:
L-T-P: 4 2 0**

COURSE OBJECTIVES

1. To familiarize students with diet counselling skills and acquaint them with basic principles of psychology
2. Understand the interrelationship between Nutrition and Psycho social disorders.
3. To understand the special needs and health challenges of the human life cycle.
4. To familiarize with the health promoting treatment.

COURSE OUTCOMES: On completion of the course the students will be able to

CO No.	CO Statement
CO1	Enriches in knowing the guidelines for counseling
CO2	Understanding the techniques embedded in skills of counseling
CO3	Comprehending the different components involved in counseling
CO4	Evaluating and analyzing the ethical standard in counseling
CO5	Apply and relate the knowledge obtained in counseling and patient care

SYLLABUS

UNIT-1:Introduction to counselling

15 Hrs.

Definition of counselling · Theories of counselling – Reality theory, Gestalt theory, cognitive behavioral counselling theory. · Types of counselling - client centered counselling · Behavioural counselling · Directive and non-directive and eclectic counselling · Areas of counselling- individual (personalized), family, group.

UNIT-2:Basic counselling skills

15 Hrs.

Observation Skills · Questioning · Communication Skills (Listening, Feedback, Non-Verbal) · Making Notes and Reflections · The Counselling Interview · History Taking · Interviewing (Characteristics, Types, Techniques) · Counselling to special group – children, adolescent and elderly

UNIT-3:Component of counselling

15Hrs.

Client-

Counsellor Relationship ·the Counsellor as a Role Model ·the Counsellor’s Needs ·
Counsellor Objectivity/Subjectivity · Emotional Involvement ·Counsellor Limits in Practice

UNIT-4:Counselling ethics

15 Hrs.

Need for Ethical Standards · Ethical Codes and Guidelines · Rights of Clients · Dimensions of Confidentiality · Dual Relationships in Counselling Practices · The Counsellor’s Ethical and Legal Responsibilities · Ethical Issues in the Assessment Process.

UNIT-5: Diet counselling at hospital and community level

15 Hrs.

Role of counselling in hospital · Role of counselling in community · Organizing health camps and patient feedback – at hospital level · Organizing health camps and patient feedback – at community level · Diet counselling for obese people · Diet counselling for Diabetics · Diet counselling for CVD · Diet counselling for mother and child care · Diet counselling for adolescent · Patient follow up / home visits

TEXT BOOKS

1. Linda, G. Snetselaar,.(2009). *Nutrition Counseling Skills for the Nutrition Care Process*. (4th ed.,): Jones and Bartlett Publishers.
2. Mahan, L.K., Raymond, J.L.(2017). *Krause's Food and Nutrition Therapy*.(12th ed.), United Kingdom : Elsevier.
3. Richard, O. Straub. (2017) . “*Health Psychology*”. (6th ed.,) New York: Worth Publishers
4. Robinson, C. H. (1990). *Normal and Therapeutic Nutrition*. United States: Macmillan Publishing Company.
5. Taylor, S. E. (2006). *Health Psychology*. India: McGraw-Hill Education (India) Pvt Limited.
6. Nix McIntosh, S. (2016). *Williams' Basic Nutrition & Diet Therapy - E-Book*. India: Elsevier Health Sciences.

BOOKS FOR REFERENCE

1. Beena, C and Parweshwaran, E.G. *Invitation to Psychology*. Neel Kamal Publications.
2. Gable, J.and Herrmann, T. (2016). *Counselling skills for dieticians* (3rd ed.). United Kingdom: Blackwell publishing Ltd.
3. Gibson, R.L. and Mitchell, M.H.(2005). *Introduction to counselling and guidance*. (6th ed.,).
4. Gelso, C.J. and Fretz, B.R.(1995). *Counselling Psychology*. Bangalore: Prism Books Pvt Ltd.
5. Sharma, T.C.(2002). *Modern Methods of Guidance and Counseling*. New Delhi: Sarup & Sons.

E-LEARNING RESOURCES

1. <https://www.ncbi.nlm.nih.gov/pmc/articles>
2. <https://www.betterhealth.vic.gov.au/health/servicesandsupport/dietitians>
3. <https://www.art-of-patient-care.com/medical-references.html>
4. <http://www.webmd.com/>
5. <https://onlinelibrary.wiley.com/journal>

Mapping of CO with PSO

CO/PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	1	1	2	3
CO2	3	3	1	1	2	3
CO3	2	2	2	3	1	3
CO4	3	3	3	3	3	3
CO5	3	3	3	3	3	3
Average	2.8	2.8	2	2.2	2.2	3

KEY:

PEDAGOGY (TEACHING METHODOLOGY) : Article Review, Quizzes/Objective tests, Class test, Home assignment, Paper presentation or seminar

END SEMESTER EXAMINATION:

QUESTION PAPER PATTERN FOR OBE (2020-21 onwards)
Theory UG –Question paper Pattern- Conventional on-paper mode

Knowledge Level	Section	Word limit	Marks	Total	Special Instructions,if any
K1, K2	Section A Multiple Choice Questions 15*2 marks	30	Mark the correct choice	75	
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K3, K4,K5,	Section C 2 Out of 5 Questions *10 Marks	20	Elaborate answers (approx1000 Words)		

*** 75 marks to be converted as 60 marks.**

UG/PG QUESTION PAPER PATTERN FOR OBE ONLINE ASSESSMENT (2020 – 2021)

Knowledge Level	Section	Word Limit	Marks	Total	Special Instructions, if Any
INTERNAL SETTING					
K1,K2,K3	Section A Multiple Choice Questions	Choose the correct option	25X1=25		
	25 Questions *1 Marks (No Choice)			50	
EXTERNAL SETTING					
K2,K3,K4,K5,K6	Section B 5 out of 7 Questions *5 Marks	Short answers/500 Words	5x5 = 25		
	Section C				

*** 50 marks to be converted as 60 marks.**