FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with "A++" Grade by NAAC (Cycle - IV)

Maryland, Madurai- 625 018, Tamil Nadu, India

NAME OF THE DEPARTMENT: RESEARCH CENTRE OF HOME SCIENCE

NAME OF THE PROGRAMME : HUMAN NUTRITION & NUTRACEUTICALS

PROGRAMME CODE : PSNN

ACADEMIC YEAR : 2021-2022

Minutes of the Board of Studies - Upgradation of Syllabus of The Research Centre of Home Science

To be implemented from the academic year 2022-2023.
Venue: Textiles & Clothing lab.
Convened on 14.03.2022. Convened at 2pm.

Members Present

1. Dr. Vasantha Esther Rani. — Head of the Dept.
Vasantha Esther Rani

2. Dr. G. Sridevi,
Asst. Prof, Dept. of Plant,
Biotechnology, School of Biotech,
Madurai Kamaraj University,
Madurai-21. — University Nominee (Absent).

3. Dr. P. C. Jemina Rani,
Asst. Prof, Dept of Costume
Design & Fashion,
Chikkana Govt. Arts College,
Tirupur - 2. — Subject Expert.
P. C. Jemina Rani
14.3.22

4. Dr. Sridevi Sivakami. PL,
Associate Professor,
Dept of Food Service Management
& Dietetics,
Avinashilingam University,
Coimbatore. — Subject Expert.
PL. Sridevi Sivakami
14/3/2022.

5. Dr. Suresh Govindan,
Research Head, AVN Ayurvedic
Formulations Pvt. Ltd. — Industrialist
14/3/22

6. Ms. K. Susheela,
AVP. Corporate Partnerships,
Callidus Social Entreprises,
Bangalore

ALUMNAE.
K. Suseela
14.03.'22

7. Dr. N. Malathi,
Asst. Professor,
Dept. of Zoology

14/3/22
DEAN OF ACADEMIC AFFA

8. Dr. S. Santhi,
Associate Professor.

STAFF MEMBER.

9. Dr. K. Karthiga,
Asst. Professor

STAFF MEMBER
K. Karthiga

10. Mrs. P. Magdalene Virjini,
Asst. Professor

STAFF MEMBER.
(ABSENT)

11. Ms. C. Helen,
Asst. Professor

STAFF MEMBER.

12. Ms. D. Mouna
Asst. Professor

STAFF MEMBER
D. Mouna

13. Dr. C. Priyalatha
Asst. Professor

STAFF MEMBER.
C. priyalatha

14. Ms. J. Josephine Jesintha
Asst. Professor

STAFF MEMBER
J. Josephine Jesintha

15. Ms. T. Ashma
Asst. Professor

STAFF MEMBER

16. Ms. A. Mabel Esther Parthurna A. Ma	FGDC - Staff Member. A. Mabel Esthu Paripurna.
17. Ms. Bhavani	FGDC - Staff Member. R. Bhavani.

Action Taken Report

S.N.	Common Suggestions offered in the Previous Board	Action Taken for the Academic Year 2021-2022
1.	The proposed self learning courses both discipline specific and interdisciplinary courses was appreciated by the external experts of the Board.	Basics of Psychology for IUG students has been introduced in the II Semester.
2.	The Board felt that the introduction of skill embedded course on Montessori Training was the need of the hour.	Skill embedded course has been introduced and students from all major have enrolled.
3.	Online dietetic / industrial internship was suggested.	The students have attended on-line Holistic Nutrition internship.

Change of Course Title

NA

Change of Course Code

19N6MC4 - Nutrition for Health & Fitness.
19N6ME5 - Food and Dairy Processing
19N6ME6 - Women and Entrepreneurship Development.

NEW COURSES INTRODUCED.

S.No.	Course Code	Course Title	Relevance To				Scope For			Need For Intro
			L	R	N	G	Entr	Emp.	SD	
1.	22UGVACN1	CRASH COURSE - APPAREL MAKING				G			SD	GAINING EXPERTS IN APPAREL MAKING WILL FETCH THE INNUMERABLE JOB OPPORTUNITIES
2.	22UGVACN2	CERTIFICATE COURSE - SURFACE ORNAMENTATION & APPAREL MAKING				G			SD	PAVES WAY FOR SELF EMPLOYMENT

REVISED COURSES.

S. No	Course Code	Course Title	No & Title of Units Revised	% Revision	Need For Revision	Relevance				Scope
						L	R	N	I	Emp Ent
1.	N5CC11	CRECHE & PRESCHOOL MANAGEMENT	• CHILD PSYCHOLOGY INCLUDED. • CONCEPTS OF SPECIAL CHILDREN INCLUDED.	20%	SCOPE FOR CHILD COUNSELING.			N		
2.	19N5CC14	LAB IN PRESCHOOL ADMINISTRATION	SUPPLEMENTARY FOODS PLANNED.	10%	JOBS IN PRESCHOOL ADMINISTRATION			N		E
3.	N5CC15	FAMILY RESOURCE MANAGEMENT	FRM - CHANGED TO HOUSING ART IN HOME.	5%	APT. TITLE			N		
4.	N5ME1	TECHNICAL TEXTILES	TRANSPORTATION TEXTILES WAS USED IN PLACE OF MOBILE T	5%	BETTER TERMINOLOGY				N	Emp.

S No.	Course Code	Course Title.	No. & Title of Revised Course.	% Revision	Need for Revision	Relevance				Score		
						L	R	N	G	Exp	Ent	SD
5.	N5ME2	Food Biotechno	Combination of Unit III & IV to include GM Foods	10%	Recent Trend on GM Foods included				G	Exp.		
6.	N5SB3	Baking, Food Preservation & Adulteration	Instead of Baking, Title changed to Bakery. *Types, methods & identification of adulterants included in Unit III. *In Unit IV Marmalade Vattal + Vadagam included.	40%	More Appropriate			N		Exp	Ent	SD
7.	N5SB4	Participatory Rural Appraisal	In Unit II instead of Mean of methods, Types of means has been included In Unit V, reports & Documents included	20%	Syllabus would be complete if reports & Documents are added.			N				SD.

8.	19NSCC15	Housing Art in Home	Title of FRM-I changed Housing Art in Home	5%	More Appropriate	N	
9.	N6CC15	Family Resource Management	Title changed to Resource Management In Unit V - Green Consumerism included. In Unit II - Lighting Natural Lighing included.	10%	Recent Topic.	N	
10.	N6CC17	Clinical Nutrition & Dietetics	Allergy & Burns included in Unit IV	5%	Need for Dietary Modifications.	G	Emp
11.	19N6ME3	Family Dynamics	Case study included	10%	Practical Knowledge	G	SD
12.	19N6ME4	Food & Dairy Processing	Recent Trends in Packaging included in Unit I	5%	Recent Trend	N	Entre
13.	19N6ME5	Women & Entrepreneurship Devt.	Unit III - MSME Unit II - Inputs to start Business.	5%	Current Topic.	N	Entre
14.	19N6ME6	Nutrition in Health & Fitness	Unit III - Diet Manipulation - changed to Diet Modification Unit I - Naturopathy to be included.		More Appropriate	G	Emp.
16.	19N6SB5	Nutrition Counseling	Unit I - Role of Dietician, Classification & Responsibilities.		10%		

		CODE OF ETHICS RD, MEMBERSHIP IN IDA, NSI	FACILITATES BETTER UNDERSTANDING		N	EMP & SD
16.	19N6SB6. SB - INTERIOR DESIGN & DECORATION	VASTU REPLACED BY VASTU IN HOUSE PLANNING	5%	FOR BETTER UNDERSTANDING.	N	SD
17.	19N4S32. CAD	'IN UNIT II, INTRODUCING IS CHANGED TO INTRODUCTION OF ELEMENTS OF DESIGN. 'IN UNIT V, DRAPING IS EXPANDED AS DRAPING WITH SLEEVES, YOKE COLLAR & POCKETS.	20%	FACILITATES QUESTION SETTING	N	SD

	UPDATION OF OPEN EDUCATIONAL RESOURCES. NA					

REVISION OF COURSES

1.	19NICC2 PHYSIOLOGY	IN UNIT V, MUSCULOSKELETAL SYSTEM WAS INCLUDED.	10%	THE SUBJECT PHYSIOLOGY WOULD BE INCOMPLETE WITHOUT MUSCULO SKELETAL SYSTEM	Gj	EMP.

2.	19N2CC5	FOOD SCIENCE	IN UNIT IV, FACTORS AFFECTING COAGULATION, TESTING FRESHNESS IN EGG, FERMENTED & NON-FERMENTED PRODUCTS. IN UNIT I - DESIGNER FOODS INCLUDED.	10%.	KNOWLEDGE OF COAGULATION TESTING THE FRESHNESS OF EGG & FERMENTED NONFERMENTED PRODUCTS IS ESSENTIAL	G	EMP & SD
3.	19N3CC4	EXTENSION EDUCATION & COMMUNICATION	NATIONAL WELFARE PROGRAMS FOR WOMEN IS INCLUDED.	10%.	ESSENTIAL INFORMATION	N	EMP.
4.	19N4AC4	FOOD PRODUCTION & SERVICE LAB	IN UNIT I, II, III & IV, INDIAN, CONTINENTAL & ORIENTAL CUISINE IS INCLUDED. COURSE MENU - SPECIFIED AS. 3, 5 & 7 COURSE & BANQUET.	10%.	INDEPTH KNOWLEDGE ON DIFFERENT TYPES OF CUISINE.	G	EMP.
5.	19N5CC13	CRECHE & PRESCHOOL MANAGEMENT.	IN UNIT II - ROLE OF CARE TAKER PLANNING ACTIVITIES FOR CHILDREN - BEING GENERAL WAS CHANGED TO SPECIFIC AGE GROUP. AS PER NATIONAL LEVEL.	5%.	CHILDREN IN GENERAL WAS MADE SPECIFIC.	G	EMP.

		IN UNIT IV, PRESCHOOL PROGRAM TYPES OF PLAY IS ADDED.	5%	TO STUDY PLAY WITH DEEPER SENSE	N	ENTR & EMP.
6. 19N5SB3	ENTREPRENEURIAL SKILLS BAKING, FOOD PRESERVATION & ADULTERATION	IN UNIT I - INTRODUCTION TO BAKERY & BAKERY TECHNIQUES - ROLE OF INGREDIENTS IN BAKING INCLUDED	5%	KNOWLEDGE ON THE ROLE OF INGREDIALS IS ESSENTIAL.		SD.
		IN UNIT III - METHODS OF PRESERVATION TOMATO KETCHUP IS INCLUDED.	5%	SKILL IN PREPARING KETCH CAN BE PROFITABLE	N	SD.
7. 19N6CC19	CLINICAL NUTRITION & DIETETICS.	IN UNIT II - DIET THERAPY TYPES/ GRADES OF OBESITY ARE INCUDED. IN DIABETES MELLITUS TYPES OF DM, DIAGNOSIS IS INCLUDED. UNIT I - FEEDING PRACTICES FOR SPECIAL CHILDREN	10%	KNOWLEDE ON OBESITY & DIABETES REQUIRED TO BECOME IDEAL DIETETICIANS	G	EMP
8. 19N6SB5	ENTREPRENEUR SKILLS NUTRITION COUNSELING	IN UNIT IV - COUNSELING CENTRE - TEACHING AIDS USED BY DIETICIAN INCLUDED.	10%	SKILL IN PREPARING TEACHING AIDS IS OF UTMOST IMPORTANCE	N	SD

NEW COURSES INTRODUCED.

S.NO.	COURSE CODE	COURSE TITLE	RELEVANCE TO	SCOPE	NEED FOR INTRODUCTION
1.	21SC2SL N2	BASICS OF PSYCHOLOGY.	G.	EMP	IT IS THE NEED OF THE HOUR. MANY COGNITIVE ISSUES ARE LINKED WITH PSYCHOLOGY.
2.	21Z3SLNB.	PUBLIC HEALTH & HYGIENE.	N.	EMP.	HELPS STUDENTS TO SEEK JOBS AS HEALTH INSPECTOR & SANITATION OFFICER.

INTRODUCTION OF SKILL EMBEDDED CERTIFICATE / DIPLOMA / ADVANCED DIPLOMA VALUE ADDED COURSES.

1.	22UGVAC N1	APPAREL MAKING CRASH COURSE	G	SD	GAINING EXPERTISE IN APPAREL MAKING WILL FETCH JOBS.
2.	22UGVAC N2	SURFACE ORNAMENTATION & APPAREL MAKING	G.	SD.	PAVES WAY FOR SELF EMPLOYMENT.

RUBERICS FOR INTERNSHIPS / PROJECT

NA

- Online Dietetic internship was suggested.
- Internship for the core subject Housing and Art in Home was suggested.

MINUTES OF THE BOARD OF STUDIES – UPGRADATION OF SYLLABUS FOR M.Sc. HUMAN NUTRITION & NUTRACEUTICALS

VENUE : TEXTILES & CLOTHING LAB.

CONVENED ON: 14.03.2022. CONVENED AT : 2 pm.

ACTION TAKEN REPORT

S.No.	COMMON SUGGESTIONS OFFERED IN THE PREVIOUS BOARD	ACTION TAKEN FOR THE ACADEMIC YEAR 2021-2022
1.	The Board members appreciated the framework of syllabi for PG courses	
2.	The choice between dietetic internships and industrial (food) industry internship was appreciated by the Board.	The students are given academic flexibility in choosing their area of interest

NEW COURSES INTRODUCED.

S.No.	COURSE CODE	COURSE TITLE	RELEVANCE	SCOPE	NEED FOR INTRODUCTION
1.	21PG2NS[illegible]	GERIATRIC SCIENCES	G	ENTR	KNOWLEDGE OF DIET COUNSELIN FOR THE ELDERLY IS THE NEED OF THE HOUR

REVISED COURSES.

1.	19PGIN3	APPLIED PHYSIOLOGY	MODIFICATIONS IN REPRODUCTIVE SYSTEM CARRIEDOUT	EMP.	INCLUSION OF SUBHEADINGS
2.	19PG2N10	FFN LAB	G	EMP.	IDENTIFYING THE PRESENCE OF BIOACTIVE COMPONENTS THROUGH QUANTITATIVE ANALYSI

REVISION OF COURSES.

S.No.	COURSE CODE	COURSE TITLE	UNITS REVISED	% REVISION	NEED FOR REVISION	RELEVANCE	SCOPE
1.	[redacted]	[redacted] NUTRITION	[redacted]	[redacted]	FACILITATES STUDENTS TO LEARN BETTER & MAKES QUESTION PAPER SETTING MORE SPECIFIC	G	EMP.
2.	[redacted]	[redacted]	[redacted]	[redacted]	INDEPTH KNOWLEDGE ABOUT MALE & FEMALE REPRODUCTIVE SYSTEM	G	EMP.
3.	[redacted]	[redacted]	[redacted]	[redacted]	RECENT TREND IN FEMALE REPRODUCTIVE HEALTH.	G	EMP.
4.	[redacted]	[redacted]	[redacted]	[redacted]	THE UNITS-III & IV were MADE MORE SPECIFIC		

5. [redacted] INDEPTH KNOWLEDGE CAN BE IMPARTED TO PG STUDENTS. G EMP

NEW COURSES INTRODUCED.

S.NO	Course Code	Course Title	Relevance	Scope	Need for Introduction
1.	21PG2NSL2	Geriatric Science	G.	Entre	Knowledge of Diet Counseling for Elderly.
2.	21PG4NSL4	Sports Nutrition To be implemented from AY 2021-22	G.	Emp.	Need for Diet Counseling for Sports Persons.

INTRODUCTION OF PURELY SKILL EMBEDDED CERTIFICATE / DIPLOMA

NIL.

APPROVAL OF PH.D COURSE WORK SYLLABUS.

NA.

1. HEAD OF THE DEPT — Nasreen Ekram
2. UNIVERSITY NOMINEE — ABSENT.
3. SUBJECT EXPERT — [signature]

4. SUBJECT EXPERT. [signature]

5. INDUSTRIALIST. [signature]

6. ALUMNAE. K. Suseela

7. DEAN OF ACADEMIC AFFAIRS. Malathi 14/3/22

8. STAFF MEMBERS.

1) Vasantha E Rani
2) [signature]
3) K Karthiga
4) [signature]
5. D. [signature]
6. C Priyalatha
7 J. Josephine Jesmitha
8 [signature]
9 A. Mabel Esther Paripurna.
10 R. Bhavany

[signature] 14/3/22

VISION OF THE DEPARTMENT

To empower the potential home makers and home scientists with life management skills to face the multidimensional challenges and contribute towards the progress of home and nation.

MISSION OF THE DEPARTMENT

- To empower today's women with entrepreneurial skills to face the challenges of life effectively.
- To make them self-reliant.
- To explore ways and means to strengthen the industry-institution tie-up in order to prepare the students to meet the industrial expectations through internship in hospitals and industries.
- To kindle the scientific approach of the students towards research.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

PEO 1	Our graduates will be academic, digital and information literates; creative, inquisitive, innovative and committed researchers who would be desirous for the "more" in all aspects
PEO 2	They will be efficient individual and team performers who would deliver excellent professional service exhibiting progress, flexibility, transparency, accountability and in taking up initiatives in their professional work

PEO 3	The graduates will be effective managers of all sorts of real – life and professional circumstances, making ethical decisions, pursuing excellence within the time framework and demonstrating at leadership skills
PEO 4	They will engage locally and globally evincing social and environmental stewardship demonstrating civic responsibilities and employing right skills at the right moment.

GRADUATE ATTRIBUTES (GA)

Fatima College empowers her women graduates holistically. A Fatimite achieves all-round empowerment by acquiring Social, Professional and Ethical competencies. A graduate would sustain and nurture the following attributes:

I. SOCIAL COMPETENCE	
GA 1	Deep disciplinary expertise with a wide range of academic and digital literacy
GA 2	Hone creativity, passion for innovation and aspire excellence
GA 3	Enthusiasm towards emancipation and empowerment of humanity
GA 4	Potentials of being independent
GA 5	Intellectual competence and inquisitiveness with problem solving abilities befitting the field of research

GA 6	Effectiveness in different forms of communications to be employed in personal and professional environments through varied platforms
GA 7	Communicative competence with civic, professional and cyber dignity and decorum
GA 8	Integrity respecting the diversity and pluralism in societies, cultures and religions
GA 9	All – inclusive skill sets to interpret, analyse and solve social and environmental issues in diverse environments
GA 10	Self awareness that would enable them to recognise their uniqueness through continuous self-assessment in order to face and make changes building on their strengths and improving their weaknesses
GA 11	Finesse to co-operate exhibiting team-spirit while working in groups to achieve goals
GA 12	Dexterity in self-management to control their selves in attaining the kind of life that they dream for
GA 13	Resilience to rise up instantly from their intimidating setbacks
GA 14	Virtuosity to use their personal and intellectual autonomy in being life-long learners
GA 15	Digital learning and research attributes
GA 16	Cyber security competence reflecting compassion, care and concern towards the marginalised

GA 17	Rectitude to use digital technology reflecting civic and social responsibilities in local, national and global scenario
PROFESSIONAL COMPETENCE	
GA 18	Optimism, flexibility and diligence that would make them professionally competent
GA 19	Prowess to be successful entrepreuners and become employees of trans-national societies
GA 20	Excellence in Local and Global Job Markets
GA 21	Effectiveness in Time Management
GA 22	Efficiency in taking up Initiatives
GA 23	Eagerness to deliver excellent service
GA 24	Managerial Skills to Identify, Commend and tap Potentials
II. ETHICAL COMPETENCE	
GA 25	Integrity and be disciplined in bringing stability leading a systematic life promoting good human behaviour to build better society
GA 26	Honesty in words and deeds
GA 27	Transparency revealing one's own character as well as self-esteem to lead a genuine and authentic life
GA 28	Social and Environmental Stewardship

GA 29	Readiness to make ethical decisions consistently from the galore of conflicting choices paying heed to their conscience
GA 30	Right life skills at the right moment

PROGRAMME OUTCOMES (PO)

On completion of M. Sc Programme, the graduates would be able to

PO 1	Apply acquired scientific knowledge to solve major complex issues in the society/industry.
PO 2	Attain research skills to solve complex cultural, societal and environmental issues.
PO 3	Employ latest and updated tools and technologies to solve complex issues.
PO 4	Demonstrate Professional Ethics that foster Community, Nation and Environment Building Initiatives.

PROGRAMME SPECIFIC OUTCOMES (PSO)

On completion of M.Sc. Human Nutrition and Nutraceuticals programme, the graduates would be able to

PSO 1	Attain enhanced scientific knowledge about the physiology of the human body.
PSO 2	Gain advanced scientific knowledge in foods, functional foods, nutrition and nutraceuticals
PSO 3	Obtain professional competence in planning diet for normal & therapeutic conditions and diet counseling.
PSO 4	Acquire advanced knowledge and understanding on the preventive and therapeutic role of functional foods.

PSO 5	Develop understanding on the perspectives of research and formulate research designs.
PSO 6	Integrate the basic principles of community nutrition processes to address the major health related concerns of the population.
PSO 7	Imbibe scientific knowledge on the principles, instrumentation techniques and applications of different hi-tech analytical instruments.
PSO 8	Acquire skills in analyzing food components and blood constituents
PSO 9	Demonstrate the knowledge of the scientific basis available to develop innovative value added food products
PSO 10	Achieve professional competence in implementing nutrition care during critical illness and disasters.
PSO 11	Acquire knowledge and understanding the concepts of microbiology in the diverse areas such as food, environment and health.
PSO 12	Attain enhanced knowledge and understanding of the bio molecules and its vital processes in human body.
PSO 13	Advanced scientific knowledge and skill in the maintenance and monitoring of food safety and quality assurance.
PSO 14	Demonstrate the knowledge and skill gained in the management of food service institutions.
PSO 15	Acquire in-depth knowledge on production of processed food products.

10%

I M.Sc., HUMAN NUTRITION AND NUTRACEUTICALS
SEMESTER –I

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSNN	19PG1N1	Advanced Human Nutrition	Major Core	6	4

COURSE DESCRIPTION

The course provides the knowledge on classification, functions, metabolism and deficiency of macro and micronutrients and its interrelationship.

COURSE OBJECTIVES

- Gain in depth knowledge in the study of major and minor nutrients.
- Understand the recent trends in the study of nutrients
- Develop competence for undertaking nutritional investigations.

UNITS

UNIT –I MACRONUTRIENTS AND WATER (18 HRS.)

Carbohydrate - Definition, classification, functions, sources, requirements, digestion and absorption, Dietary Fibre - Definition, classification, functions, sources, requirements.

Protein - Definition, classification, functions, sources, requirements, digestion and absorption, Evaluation of protein quality- protein efficiency ratio, digestibility coefficient, biological value, net protein utilization, net protein ratio, chemical scores and PDCAAS.

Fat - Definition, classification, functions, sources, requirements, digestion and absorption, Essential fatty acids – functions and effects of deficiencies.

Water- Definition, distribution, functions, sources, water balance, fluid and electrolyte balance, Water Deprivation, dehydration, rehydration.

UNIT –II ENERGY (18 HRS.)

Energy – Definition, Units of energy, Determination of energy value of foods – Direct – Bomb Calorimetry, Indirect Calorimetry – Benedicts Oxy calorimetry, Determination of energy requirements – BMR - Definition and factors influencing BMR, Measurement of Basal metabolism, Direct Calorimetry – Atwatar Rose Respiratory Calorimeter, Indirect Calorimetry –Benedict Roth Apparatus, Determination of BMR using production equations (ICMR), Physiological fuel value, gross energy value, Respiratory Quotient, Thermal effect of foods (SDA), Energy requirements during work, Reference man, reference women, RDA for energy, food sources.

UNIT –III MINERALS (18 HRS.)

Calcium, Phosphorus, Magnesium, Sodium, Potassium, Iron, Iodine, Fluorine, Zinc, Selenium and Vanadium – Introduction, functions, sources, requirements, digestion, absorption, storage, excretion, deficiency and toxicity.

UNIT –IV VITAMINS (18 HRS.)

Fat soluble and water soluble vitamins (Thiamine, riboflavin, niacin, vitamin B12, folic acid, pyridoxine, pantothenic acid, biotin and ascorbic acid - nomenclature, functions, sources,requirements, digestion, absorption, storage, excretion, deficiency and toxicity.

UNIT –V INTERRELATIONSHIP AND INTERDEPENDENCE BETWEEN NUTRIENTS AND DRUG INTERACTION (18 HRS.)

Nutrient and nutrient interaction, Nutrient and drug interaction.

BOOK REFERENCES:

1. Berdanier, C.D.(1988). *Advanced Nutrition- Micronutrients*, Marcel Dekker, inc., New York.
2. Brown,M.L.(1990). *Present knowledge in Nutrition,* VI Edition, International Life Science Institute, Nutrition Foundation, Washington.
3. Gruff, J.L., Gropper, S.S, & Hunt, S.M (1995).*Advanced Nutrition and Human metabolism,* West Publishing Company, Minneapolis.

4. Helen, A. Guthrie. (1989). *Introductory Nutrition*, VII edition, Mosby College Publishing Col, Toranto.
5. Mahtab S. Bamji, Palhad Rao R, & Vinodhini Reddy, (1998). *Text book of Human Nutrition*,Oxford and IBH publishing co., Pvt.Ltd., New Delhi.
6. Sith K.L & Dekker M. (1990) .*Trace Minerals in Foods*, Inc., New York.

JOURNAL REFERENCES:

1. British journal of nutrition, Cambridge University Press, London.
2. Nutrition news, Nutrition Institute of Nutrition, Hyderabad.
3. Nutrition reviews, the Nutrient Foundation, Inc., New York.
4. Nutrition and food science- incorporating home economics and technology, Pvt. Ltd., England.
5. The journal of nutrition, Cambridge University Press, London.
6. World review of Nutrition and Dietetics- all volumes.

Open Educational Resources:

1) https://en.wikibooks.org/wiki/Fundamentals_of_Human_Nutrition

2) http://pressbooks.oer.hawaii.edu/humannutrition/

3) https://www.youtube.com/watch?v=sorIaN6vRBI

4) http://pressbooks.oer.hawaii.edu/humannutrition2/

5)https://oer.galileo.usg.edu/cgi/viewcontent.cgi?article=1006&context=health-textbooks

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**MACRONUTRIENTS AND WATER**			
1.1	Carbohydrate	4	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Videos
1.2	Dietary Fibre	2	Chalk & Talk, Lecture, Seminar	Black/white Board,PPT,Videos
1.3	Protein	4	Chalk & Talk, Lecture, Seminar	PPT & White board
1.4	Fat	3	Lecture, Discussion	PPT & White board,Videos
1.5	Essential Fatty acids	2	Lecture	Black/white Board
1.6	Water	3	Lecture, Group Discussion, Seminar	PPT & White board,Videos
UNIT -2	**ENERGY**			
2.1	Energy	3	Lecture, Group Discussion	PPT & White board
2.2	Direct calorimetry	3	Chalk & Talk, Lecture, Demo	Black/white Board, PPT
2.3	Indirect calorimetry	3	Chalk & Talk, Lecture, seminar	Black/white Board, PPT

2.4	Energy requirements during work	3	Lecture	Black/White board
2.5	BMR-Direct Calorimetry	3	Chalk & Talk, Lecture, seminar	Black/white Board, PPT
2.6	BMR-Indirect Calorimetry	3	Chalk & Talk, Lecture, seminar	Black/white Board, PPT
UNIT-3 MINERALS				
3.1	Introduction, Calcium	3	Lecture, Group Discussion	PPT & White board
3.2	Phosphorus, Magnesium	3	Chalk & Talk, Lecture, seminar	Black/white Board, PPT
3.3	Sodium, Potassium	3	Chalk & Talk, Lecture, Seminar	Black Board, PPT, Videos
3.4	Iron, Iodine	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Videos
3.5	Fluorine, Zinc	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Videos
3.6	Selenium, Vanadium	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Videos
UNIT – 4 VITAMINS				
4.1	Vitamin A,D	3	Lecture, Seminar	Black Board,PPT
4.2	Vitamin E,K	3	Lecture, Seminar	Black Board,PPT

4.3	Vitamin B1,B2	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Video
4.4	Niacin,B12	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Video
4.5	Pyridoxine, Pantothenic acid	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Video
4.6	Biotin,Folic acid, Vitamin C	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Vides
UNIT – 5 INTERRELATIONSHIP AND INTERDEPENDENCE BETWEEN NUTRIENTS AND DRUG INTERACTION				
5.1	Interrelationship between Macronutrients	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT
5.2	Vitamins and Vitamins	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT
5.3	Minerals and Minerals	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT
5.4	Vitamins and Minerals	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT
5.5	Macro and micro nutrients	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT
5.6	Nutrients & Drug Interaction	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.
K2	4	4	-	-	-	8	-	8
K3	2	2	-	5	-	9	-	9
K4	2	2	-	-	5	9	-	9
K5	2	2	5	-	-	9	-	9
Non Scholastic	-	-	-	-	-		5	5
Total	10	10	5	5	5	35	5	40

CIA	
Scholastic	**35**
Non Scholastic	**5**
	40

- ✔ **All the course outcomes are to be assessed in the various CIA components.**
- ✔ **The levels of CIA Assessment based on Revised Bloom's**

K2-Understand**,** **K3**-Apply**,** **K4**-Analyze, **K5**- Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS	
C1	C2	C3	C4	C5	C6	CIA	ESE
10	10	5	5	5	5	40	60

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non – Scholastic

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Explain the functions,digestion, absorption, deficiency,sources & requirements of Macronutrients and water	K2	PSO1, PSO2,PSO3,PSO8 & PSO12
CO 2	Elaborate the energy value of foods by using different Calorimetric methods	K2	PSO1, PSO2,PSO3,PSO8 &PSO12
CO 3	Identify the functions, digestion, absorption, deficiency,sources & requirements of Minerals	K3	PSO1,PSO2, PSO3,PSO8 & PSO12
CO 4	Analyze the functions, digestion, absorption, deficiency,sources & requirements of Vitamins	K4	PSO1,PSO2, PSO3,PSO8 & PSO12
CO 5	Explain the knowledge on nutrient-nutrient and nutrient- drug interrelationship	K5	PSO1,PSO2, PSO3,PSO8 & PSO12

Mapping of C0s with PSOs

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10	PSO 11	PSO 12	PSO 13	PSO 14	PSO 15
CO1	3	3	3	1	1	1	1	3	1	1	1	3	1	1	1
CO2	3	3	3	1	1	1	1	3	1	1	1	3	1	1	1
CO3	3	3	3	1	1	1	1	3	1	1	1	3	1	1	1
CO4	3	3	3	1	1	1	1	3	1	1	1	3	1	1	1
CO5	3	3	3	1	1	1	1	3	1	1	1	3	1	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	2	2	1	1
CO2	2	2	1	1
CO3	2	2	1	1
CO4	2	2	1	1
CO5	2	2	1	1

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2 ¨ Weakly Correlated -1

COURSE DESIGNER:

1. **Dr. K.KARTHIGA**

Forwarded By

(Dr.Vasantha Esther Rani)

I M.Sc., HUMAN NUTRITION AND NUTRACEUTICALS

SEMESTER –I

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSNN	**19PG1N1**	**Advanced Human Nutrition**	**Major Core**	**6**	**4**

COURSE DESCRIPTION

The course provides the knowledge on classification, functions, metabolism and deficiency of macro and micronutrients and its interrelationship.

COURSE OBJECTIVES

- Gain in depth knowledge in the study of major and minor nutrients.
- Understand the recent trends in the study of nutrients
- Develop competence for undertaking nutritional investigations.

UNITS

UNIT –I MACRONUTRIENTS AND WATER (18 HRS.)

Carbohydrate - Definition, classification, functions, sources, requirements, digestion and absorption, Dietary Fibre - Definition, classification, functions, sources, requirements.

Protein - Definition, classification, functions, sources, requirements, digestion and absorption, Evaluation of protein quality- protein efficiency ratio, digestibility coefficient, biological value, net protein utilization, net protein ratio, chemical scores and PDCAAS.

Fat - Definition, classification, functions, sources, requirements, digestion and absorption, Essential fatty acids – functions and effects of deficiencies.

Water- Definition, distribution, functions, sources, water balance, fluid and electrolyte balance, Water Deprivation, dehydration, rehydration.

UNIT –II ENERGY (18 HRS.)

Energy – Definition, Units of energy, Determination of energy value of foods – Direct – Bomb Calorimetry, Indirect Calorimetry – Benedicts Oxy calorimetry, Determination of energy requirements – BMR - Definition and factors influencing BMR, Measurement of Basal metabolism, Direct Calorimetry – Atwatar Rose Respiratory Calorimeter, Indirect Calorimetry –Benedict Roth Apparatus, Determination of BMR using production equations (ICMR), Physiological fuel value, gross energy value, Respiratory Quotient, Thermal effect of foods (SDA), Energy requirements during work, Reference man, reference women, RDA for energy, food sources.

UNIT –III MINERALS (18 HRS.)

Calcium, Phosphorus, Magnesium, Sodium, Potassium, Iron, Iodine, Fluorine, Zinc, Selenium and Vanadium – Introduction, functions, sources, requirements, digestion, absorption, storage, excretion, deficiency and toxicity.

UNIT –IV VITAMINS (18 HRS.)

Fat soluble and water soluble vitamins (Thiamine, riboflavin, niacin, vitamin B12, folic acid, pyridoxine, pantothenic acid, biotin and ascorbic acid - nomenclature, functions, sources,requirements, digestion, absorption, storage, excretion, deficiency and toxicity.

UNIT –V INTERRELATIONSHIP AND INTERDEPENDENCE BETWEEN NUTRIENTS AND DRUG INTERACTION (18 HRS.)

10 %

Nutrient and nutrient interaction-Protein-Energy Interrelationship, Effect of Carbohydrate on Protein and Fat metabolism, Effect of Macronutrients on Vitamin requirements, Vitamin-Vitamin Interaction, Vitamin-Mineral Interaction, Mineral-Mineral Interaction. Nutrient and drug interaction.

BOOK REFERENCES:

1. Berdanier, C.D.(1988). *Advanced Nutrition- Micronutrients*, Marcel Dekker, inc., New York.
2. Brown,M.L.(1990). *Present knowledge in Nutrition,* VI Edition, International Life Science Institute, Nutrition Foundation, Washington.
3. Gruff, J.L., Gropper, S.S, & Hunt, S.M (1995).*Advanced Nutrition and Human metabolism,* West Publishing Company, Minneapolis.
4. Helen, A. Guthrie. (1989). *Introductory Nutrition*, VII edition, Mosby College Publishing Col, Toranto.
5. Mahtab S. Bamji, Palhad Rao R, & Vinodhini Reddy, (1998). *Text book of Human Nutrition,*Oxford and IBH publishing co., Pvt.Ltd., New Delhi.
6. Sith K.L & Dekker M. (1990) .*Trace Minerals in Foods*, Inc., New York.

JOURNAL REFERENCES:

1. British journal of nutrition, Cambridge University Press, London.
2. Nutrition news, Nutrition Institute of Nutrition, Hyderabad.
3. Nutrition reviews, the Nutrient Foundation, Inc., New York.
4. Nutrition and food science- incorporating home economics and technology, Pvt. Ltd., England.
5. The journal of nutrition, Cambridge University Press, London.
6. World review of Nutrition and Dietetics- all volumes.

Open Educational Resources:

1) https://en.wikibooks.org/wiki/Fundamentals_of_Human_Nutrition

2) http://pressbooks.oer.hawaii.edu/humannutrition/

3) https://www.youtube.com/watch?v=sorIaN6vRBI

4) http://pressbooks.oer.hawaii.edu/humannutrition2/

5)https://oer.galileo.usg.edu/cgi/viewcontent.cgi?article=1006&context=health-textbooks

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1	**MACRONUTRIENTS AND WATER**			
1.1	Carbohydrate	4	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Videos
1.2	Dietary Fibre	2	Chalk & Talk, Lecture, Seminar	Black/white Board,PPT,Videos
1.3	Protein	4	Chalk & Talk, Lecture, Seminar	PPT & White board
1.4	Fat	3	Lecture, Discussion	PPT & White board,Videos
1.5	Essential Fatty acids	2	Lecture	Black/white Board
1.6	Water	3	Lecture, Group Discussion, Seminar	PPT & White board,Videos
UNIT -2	**ENERGY**			
2.1	Energy	3	Lecture, Group Discussion	PPT & White board
2.2	Direct calorimetry	3	Chalk & Talk, Lecture, Demo	Black/white Board, PPT
2.3	Indirect calorimetry	3	Chalk & Talk, Lecture, seminar	Black/white Board, PPT

2.4	Energy requirements during work	3	Lecture	Black/White board
2.5	BMR-Direct Calorimetry	3	Chalk & Talk, Lecture, seminar	Black/white Board, PPT
2.6	BMR-Indirect Calorimetry	3	Chalk & Talk, Lecture, seminar	Black/white Board, PPT
UNIT-3 MINERALS				
3.1	Introduction, Calcium	3	Lecture, Group Discussion	PPT & White board
3.2	Phosphorus, Magnesium	3	Chalk & Talk, Lecture, seminar	Black/white Board, PPT
3.3	Sodium, Potassium	3	Chalk & Talk, Lecture, Seminar	Black Board, PPT, Videos
3.4	Iron, Iodine	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Videos
3.5	Fluorine, Zinc	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Videos
3.6	Selenium, Vanadium	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Videos
UNIT – 4 VITAMINS				
4.1	Vitamin A,D	3	Lecture, Seminar	Black Board,PPT
4.2	Vitamin E,K	3	Lecture, Seminar	Black Board,PPT

4.3	Vitamin B1,B2	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Video
4.4	Niacin,B12	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Video
4.5	Pyridoxine, Pantothenic acid	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Video
4.6	Biotin,Folic acid, Vitamin C	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT,Vides
UNIT – 5 INTERRELATIONSHIP AND INTERDEPENDENCE BETWEEN NUTRIENTS AND DRUG INTERACTION				
5.1	Interrelationship between Macronutrients	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT
5.2	Vitamins and Vitamins	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT
5.3	Minerals and Minerals	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT
5.4	Vitamins and Minerals	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT
5.5	Macro and micro nutrients	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT
5.6	Nutrients & Drug Interaction	3	Chalk & Talk, Lecture, Seminar	Black Board,PPT

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.
K2	4	4	-	-	-	8	-	8
K3	2	2	-	5	-	9	-	9
K4	2	2	-	-	5	9	-	9
K5	2	2	5	-	-	9	-	9
Non Scholastic	-	-	-	-	-		5	5
Total	10	10	5	5	5	35	5	40

CIA	
Scholastic	**35**
Non Scholastic	**5**
	40

- ✔ **All the course outcomes are to be assessed in the various CIA components.**
- ✔ **The levels of CIA Assessment based on Revised Bloom's**

K2-Understand**,** **K3**-Apply**,** **K4**-Analyze, **K5**- Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS	
C1	C2	C3	C4	C5	C6	CIA	ESE
10	10	5	5	5	5	40	60

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non – Scholastic

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Explain the functions,digestion, absorption, deficiency,sources & requirements of Macronutrients and water	K2	PSO1, PSO2,PSO3,PSO8 & PSO12
CO 2	Elaborate the energy value of foods by using different Calorimetric methods	K2	PSO1, PSO2,PSO3,PSO8 &PSO12
CO 3	Identify the functions, digestion, absorption, deficiency,sources & requirements of Minerals	K3	PSO1,PSO2, PSO3,PSO8 & PSO12
CO 4	Analyze the functions, digestion, absorption, deficiency,sources & requirements of Vitamins	K4	PSO1,PSO2, PSO3,PSO8 & PSO12
CO 5	Explain the knowledge on nutrient-nutrient and nutrient- drug interrelationship	K5	PSO1,PSO2, PSO3,PSO8 & PSO12

Mapping of C0s with PSOs

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10	PSO 11	PSO 12	PSO 13	PSO 14	PSO 15
CO1	3	3	3	1	1	1	1	3	1	1	1	3	1	1	1
CO2	3	3	3	1	1	1	1	3	1	1	1	3	1	1	1
CO3	3	3	3	1	1	1	1	3	1	1	1	3	1	1	1
CO4	3	3	3	1	1	1	1	3	1	1	1	3	1	1	1
CO5	3	3	3	1	1	1	1	3	1	1	1	3	1	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	2	2	1	1
CO2	2	2	1	1
CO3	2	2	1	1
CO4	2	2	1	1
CO5	2	2	1	1

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2 ¨ Weakly Correlated -1

COURSE DESIGNER:

1. **Dr. K.KARTHIGA**

Forwarded By

(Dr.Vasantha Esther Rani)

10%

I M.Sc., HUMAN NUTRITION AND NUTRACEUTICALS

SEMESTER –I

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSNN	19PG1N3	Applied Physiology	Major Core	6	4

COURSE DESCRIPTION

The course provides a detailed insight on the anatomy and functions of the various systems of the human body.

COURSE OBJECTIVES

- Organs of the body and their functions
- Different systems of the body, their functions with special reference to the control and feedback mechanisms
- Physiological changes at different stages of life.

UNITS

UNIT –I BLOOD AND ENDOCRINE SYSTEM (18 HRS.)

Blood

Composition and functions of blood and Plasma proteins,RBC – Structure and functions, Bone marrow – functions, Erythropoiesis, Haemoglobin, Life span ,fate, Anaemia, haemolysis, polycythemia, ESR, WBC – Classification and functions, Coagulation, Bleeding time, clotting time.Blood Groups.Blood indices,Use of blood for investigation and diagnosis of specific disorders.

Endocrine system

Structure, functions,role of hormones,regulation of hormonal secretion and disorders of pituitary gland, thryroid gland, parathyroid gland, pancreas and adrenal glands. Emphasis on physiology of Diabetes and stress hormones.

UNIT –II CIRCULATORY SYSTEM (18 HRS.)

Anatomical considerations of heart, valves of heart and its action, layers of heart, blood vessels – arteries, arterioles, capillaries, veins, vasa vasorum.Blood pressure – factors and regulation.

Cardiac centre – heart rate – regulation, cardiac output, cardiac impulse, junctional tissues, cardiac cycle, heart sounds, ECG, coronary circulation, pulmonary circulation, cerebral circulation, hepatic circulation, renal circulation, cutaneous circulation and skeletal muscle circulation.

UNIT –III DIGESTIVE AND EXCRETORY SYSTEM (18 HRS.)

Digestive system

Review of anatomy and functions- secretary, digestive and absorptive functions of the digestive tract – Buccal cavity, stomach, pancreas, liver, small intestine and large intestine. Role of enzymes and hormones in digestion and absorption of carbohydrate, protein and fat. Dysfunction of liver,pancreas and gallbladder.

Excretory system

Anatomy and functions of kidney and nephrons, juxta glomerular apparatus. Formation of urine, micturition. Role of kidney in maintaining pH of blood. Water, electrolyte and acid base balance, diuretics.

UNIT –IV MUSCULO –SKELETAL AND RESPIRATORY SYSTEM (18 HRS.)

Musculo -Skeletal system

Structure and function of Bone tissue – osteocytes, osteoblasts, osteoclasts, structure of osseous tissue, section of femur bone. Types of muscles – structure and functions.

Respiratory system

Review of structure and functions of the respiratory tract, lung unit.Mechanism of respiration, transport of oxygen and carbon dioxide. Regulation of respiration, lung volumes, pulmonary function tests, Cardio – respiratory response to exercise and physiological effects of training.

UNIT –V NERVOUS SYSTEM AND REPRODUCTIVE SYSTEM (18 HRS.)

Nervous System

Review of structure and function of nervous system –central or somatic nervous system - neuron –types, structure, properties, myelin sheath, nerve endings, synapse, neurotransmitters, reflex arc, receptors, brain –cerebrum-cerebral cortex-cerebral lobes-structure and functions, cerebellum, medulla oblongata, - thalamus, hypothalamus. The role of Hypothalamus in various body functions – obesity, sleep, memory.

Autonomic nervous system – sympathetic and parasympathetic – actions, functions of ANS. Blood Brain Barrier, CSF

Reproductive System

Primary and accessory sex organs, secondary sexual characteristics of male, female, Menstrual cycle, menopause and post menopausal changes. Transgender - Definition and characteristics.

BOOK REFERENCES:

1. Best and Taylor, The Living Body, Chapman and Hall ltd., London.
2. Chatterji (1999).*Human Physiology*, Roy Publications
3. Gitanjali Chatterjee (1999) *Handbook of Food and Nutrition*, Rajat Publications.
4. Guyton, A.C& Hall J.B (1996):*Textbook of Medical Physiology*,9th edition W.B Sanders Company, Prism Books (Pvt) Ltd,Bangalore.
5. Kamala Krishnaswami (2000) *Nutrition Research-Current Scenerio and future trends,* Oxford and IBH Publishing Co.Pvt.ltd.,
6. Lraine M.Summerfield (2000).*Nutrition ,exercise and behaviour an integrated approach to Weight management* ,Thomson learning,
7. Mahtab S. Bamji, Pralhad & Rao Vinodhini Reddy.(1996) *Textbook of Human Nutrition,* Oxford, IBH publishing Co. pvt ltd.,
8. Margaret McWilliams (1994).*Experimental Food laboratory Manual*,Surjeet Publications,
9. Mickael J.Gibney,Ian A.Macdonald & Helen M.Roche (2004),*Nutrition and metabolism* Blackwell Publications,.
10. Mike Epsy (2001) *Nutrition Eating for good health*,Surbhi Publications,Jaipur,.
11. Sembulingam & Prema Sembulingam (2006), *Essentials of Medical Physiology*, Yaypee Brothers, Medical Publishers (p) Ltd, New Delhi.
12. Vijay Kamshik (2000).*Food science and nutrition,* Mangal Deep Publications. Jaipur

JOURNAL REFERENCES:

1. Journal of Applied Physiology
2. Journal of General Physiology
3. BMC Physiology
4. Physiological Reviews
5. International Journal of Basic & Applied Physiology

Open Educational Resources

1. https://journals.physiology.org/doi/full/10.1152/japplphysiol.00711.2011
2. https://www.springer.com/journal/421

3. https://opentextbooks.concordia.ca/oerbydiscipline/chapter/kinesiology-2/
4. https://publons.com/journal/39067/european-journal-of-applied-physiology-and-occupat/
5. https://openstax.org/details/books/anatomy-and-physiology

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 BLOOD AND ENDOCRINE SYSTEM				
1.1	Composition and functions of blood	1	Chalk & Talk	Black Board
1.2	Plasma proteins; RBC – Structure and functions; WBC – Classification and functions	3	Chalk & Talk	Black Board
1.3	Bone marrow – functions, Erythropoiesis	2	Lecture	PPT & Videos
1.4	Haemoglobin, Life span, fate, Anaemia, haemolysis, polycythemia	2	Lecture	Black Board
1.5	Coagulation, bleeding time, clotting time, ESR, Blood Groups; Blood indices; Use of blood for investigation and diagnosis of specific disorders	3	Demonstration	Blood coagulation and grouping kits
1.6	Pituitary gland- Structure, functions, role of hormones,	2	Lecture	PPT

	secretion, regulation and disorders			
1.7	Thyroid gland- Structure, functions, role of hormones, secretion, regulation and disorders	2	Lecture	PPT
1.8	Parathyroid gland, pancreas and adrenal glands.	2	Chalk & Talk	Black Board
1.9	Physiology of diabetes and stress hormones	1	Group discussion	Black Board
UNIT -2	**CIRCULATORY SYSTEM**			
2.1	Anatomical considerations of heart, valves of heart and its action, layers of heart	2	Lecture	Model
2.2	Blood vessel – arteries, arterioles, capillaries, veins, vasovasorum	2	Chalk & Talk	Black Board
2.3	Blood pressure factors and regulation	2	Lecture	PPT
2.5	Cardiac centre – heart rate – regulation	2	Lecture	Smart Board
2.6	Cardiac output, cardiac impulse, functional tissues	2	Lecture	Videos
2.7	Cardiac cycle, ECG, heart sounds	3	Discussion	Videos
2.8	Coronary circulation, Pulmonary circulation, Cerebral circulation, hepatic circulation	3	Chalk & Talk	Black Board

2.9	Renal circulation, cutaneous circulation, and skeletal muscle circulation	2	Chalk & Talk	Black Board
UNIT -3	**DIGESTIVE AND EXCRETORY SYSTEM**			
3.1	Anatomy of digestive system	2	Lecture	Model
3.2	Secretary, digestive, and absorptive functions of the digestive tract	2	Lecture	PPT
3.3	Buccal cavity, stomach, pancreas, liver	1	Chalk & Talk	Black Board
3.4	Small intestine and large intestine	3	Lecture	Smart class
3.5	Role of enzymes and hormones in digestion and absorption of carbohydrate, protein and fat	2	Discussion	Black Board
3.6	Dysfunction of liver, pancreas and gall bladder	2	Lecture	PPT
3.7	Anatomy and functions of kidney and nephrons, juxta glomerular apparatus	3	Lecture	Model
3.8	Formation of urine, micturition	1	Lecture	Smart class
3.9	Role of kidney in maintaining pH of blood. Water, electrolyte	1	Chalk & Talk	Black Board

3.10	Acid base balance, diuretics	1	Lecture	PPT
UNIT -4	**MUSCULO –SKELETAL AND RESPIRATORY SYSTEM**			
4.1	Structure and function of Bone tissue	2	Lecture	Smart class
4.2	Osteocytes, osteoblasts, osteoclasts	2	Chalk & Talk	Black Board
4.3	Structure of osseous tissue	1	Lecture	PPT
4.4	Section of femur bone	1	Lecture	PPT
4.5	Muscles – Structure, types and functions	3	Lecture	Smart class
4.6	Structure and functions of the respiratory tract, lung unit	2	Lecture	Smart class
4.7	Mechanism of respiration	2	Lecture	PPT
4.8	Regulation of respiration, lung volumes	2	Chalk & Talk	Black Board
4.9	Pulmonary function tests, Cardio – respiratory response to exercise and physiological effects of training	3	Discussion	Black Board
UNIT -5	**NERVOUS SYSTEM AND REPRODUCTIVE SYSTEM**			
5.1	Structure and function of nervous system –central or somatic nervous system	2	Chalk & Talk	Black Board

5.2	Neuron –types, structure, properties, myelin sheath, nerve endings, synapse, neurotransmitters, reflex arc, receptors	3	Lecture	PPT
5.3	Brain – cerebrum-cerebral cortex- cerebral lobes	2	Chalk & Talk	Black Board
5.4	Structure and functions - cerebellum, medulla oblongata, thalamus, hypothalamus	2	Lecture	Smart class
5.5	Role of hypothalamus in various body functions – obesity, sleep, memory	1	Discussion	Videos
5.6	Autonomic nervous system – sympathetic and para sympathetic – actions	2	Lecture	PPT
5.7	Functions of ANS. Blood Brain Barrier, CSF	2	Chalk & Talk	Black Board
5.8	Primary and accessory sex organs and secondary sex characters; Transgender- Definition and Characteristics	2	Lecture	Smart class
5.9	Menstrual cycle	1	Chalk & Talk	Black Board
5.10	Menopause and post-menopausal changes.	1	Discussion	Black Board

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.
K2	4	4	-	-	-	8	-	8
K3	2	2	-	5	-	9	-	9
K4	2	2	-	-	5	9	-	9
K5	2	2	5	-	-	9	-	9
Non Scholastic	-	-	-	-	-		5	5
Total	10	10	5	5	5	35	5	40

CIA

Scholastic	**35**
Non Scholastic	**5**
	40

- **All the course outcomes are to be assessed in the various CIA components.**

- **The levels of CIA Assessment based on Revised Bloom's Taxonomy for PG are :**

  K2-Understand**,** **K3**-Apply**,** **K4**-Analyse, **K5**-Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non – Scholastic

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Describe the functions of blood and endocrine system	K2	PSO1
CO 2	Illustrate the anatomy and functions of circulatory system	K2	PSO1
CO 3	Identify the role of digestive and excretory systems	K3	PSO1
CO 4	Analyse the mechanism of musculoskeletal and respiratory systems	K4	PSO1
CO 5	Explain the structure and functions of nervous and reproductive systems	K5	PSO1

Mapping of C0s with PSOs

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10	PSO 11	PSO 12	PSO 13	PSO 14	PSO 15
CO1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Mapping of COs with POs

/ O	PO1	PO2	PO3	PO4
CO1	2	1	1	1
CO2	1	1	1	1
CO3	1	1	1	1
CO4	1	1	1	1
CO5	2	1	1	1

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2

¨ Weakly Correlated -1

COURSE DESIGNER:

1.Dr.Vasantha Esther Rani

2. Mrs.C.Helen

Forwarded By

(Dr.Vasantha Esther Rani)

I M.Sc., HUMAN NUTRITION AND NUTRACEUTICALS

SEMESTER –I

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSNN	19PG1N3	Applied Physiology	Major Core	6	4

COURSE DESCRIPTION

The course provides a detailed insight on the anatomy and functions of the various systems of the human body.

COURSE OBJECTIVES

- Organs of the body and their functions
- Different systems of the body, their functions with special reference to the control and feedback mechanisms
- Physiological changes at different stages of life.

UNITS

UNIT –I BLOOD AND ENDOCRINE SYSTEM (18 HRS.)

Blood

Composition and functions of blood and Plasma proteins,RBC – Structure and functions, Bone marrow – functions, Erythropoiesis, Haemoglobin, Life span ,fate, Anaemia, haemolysis, polycythemia, ESR, WBC – Classification and functions, Coagulation, Bleeding time, clotting time.Blood Groups.Blood indices,Use of blood for investigation and diagnosis of specific disorders.

Endocrine system

Structure, functions,role of hormones,regulation of hormonal secretion and disorders of pituitary gland, thryroid gland, parathyroid gland, pancreas and adrenal glands. Emphasis on physiology of Diabetes and stress hormones.

UNIT –II CIRCULATORY SYSTEM (18 HRS.)

Anatomical considerations of heart, valves of heart and its action, layers of heart, blood vessels – arteries, arterioles, capillaries, veins, vasa vasorum.Blood pressure – factors and regulation.

Cardiac centre – heart rate – regulation, cardiac output, cardiac impulse, junctional tissues, cardiac cycle, heart sounds, ECG, coronary circulation, pulmonary circulation, cerebral circulation, hepatic circulation, renal circulation, cutaneous circulation and skeletal muscle circulation.

UNIT –III DIGESTIVE AND EXCRETORY SYSTEM (18 HRS.)

Digestive system

Review of anatomy and functions- secretary, digestive and absorptive functions of the digestive tract – Buccal cavity, stomach, pancreas, liver, small intestine and large intestine. Role of enzymes and hormones in digestion and absorption of carbohydrate, protein and fat. Dysfunction of liver,pancreas and gallbladder.

Excretory system

Anatomy and functions of kidney and nephrons, juxta glomerular apparatus. Formation of urine, micturition. Role of kidney in maintaining pH of blood. Water, electrolyte and acid base balance, diuretics.

UNIT –IV MUSCULO –SKELETAL AND RESPIRATORY SYSTEM (18 HRS.)

Musculo -Skeletal system

Structure and function of Bone tissue – osteocytes, osteoblasts, osteoclasts, structure of osseous tissue, section of femur bone. Types of muscles – structure and functions.

Respiratory system

Review of structure and functions of the respiratory tract, lung unit.Mechanism of respiration, transport of oxygen and carbon dioxide. Regulation of respiration, lung volumes, pulmonary function tests, Cardio – respiratory response to exercise and physiological effects of training.

UNIT –V NERVOUS SYSTEM AND REPRODUCTIVE SYSTEM (18 HRS.)

Nervous System

Review of structure and function of nervous system –central or somatic nervous system - neuron –types, structure, properties, myelin sheath, nerve endings, synapse, neurotransmitters, reflex arc, receptors, brain –cerebrum-cerebral cortex-cerebral lobes-structure and functions, cerebellum, medulla oblongata, - thalamus, hypothalamus. The role of

Hypothalamus in various body functions – obesity, sleep, memory. Autonomic nervous system – sympathetic and parasympathetic – actions, functions of ANS. Blood Brain Barrier, CSF

Reproductive System 10%

Male reproductive system – Structure and functions; Female reproductive system – Structure and functions; Menstrual cycle - definition, duration, changes during menstrual cycle, premenstrual changes, abnormal menstruation; menopause and post-menopausal changes.

BOOK REFERENCES:

1. Best and Taylor, The Living Body, Chapman and Hall ltd., London.
2. Chatterji (1999).*Human Physiology*, Roy Publications
3. Gitanjali Chatterjee (1999) *Handbook of Food and Nutrition*, Rajat Publications.
4. Guyton, A.C& Hall J.B (1996):*Textbook of Medical Physiology*,9th edition W.B Sanders Company, Prism Books (Pvt) Ltd,Bangalore.
5. Kamala Krishnaswami (2000) *Nutrition Research-Current Scenerio and future trends,* Oxford and IBH Publishing Co.Pvt.ltd.,
6. Lraine M.Summerfield (2000).*Nutrition ,exercise and behaviour an integrated approach to Weight management* ,Thomson learning,
7. Mahtab S. Bamji, Pralhad & Rao Vinodhini Reddy.(1996) *Textbook of Human Nutrition,* Oxford, IBH publishing Co. pvt ltd.,
8. Margaret McWilliams (1994).*Experimental Food laboratory Manual*,Surjeet Publications,
9. Mickael J.Gibney,Ian A.Macdonald & Helen M.Roche (2004),*Nutrition and metabolism* Blackwell Publications,.
10. Mike Epsy (2001) *Nutrition Eating for good health*,Surbhi Publications,Jaipur,.
11. Sembulingam & Prema Sembulingam (2006), *Essentials of Medical Physiology*, Yaypee Brothers, Medical Publishers (p) Ltd, New Delhi.
12. Vijay Kamshik (2000).*Food science and nutrition,* Mangal Deep Publications. Jaipur

JOURNAL REFERENCES:

1. Journal of Applied Physiology
2. Journal of General Physiology
3. BMC Physiology
4. Physiological Reviews
5. International Journal of Basic & Applied Physiology

Open Educational Resources

1.https://journals.physiology.org/doi/full/10.1152/japplphysiol.00711.2011

2. https://www.springer.com/journal/421

3.https://opentextbooks.concordia.ca/oerbydiscipline/chapter/kinesiology-2/

4. https://publons.com/journal/39067/european-journal-of-applied-physiology-and-occupat/

5. https://openstax.org/details/books/anatomy-and-physiology

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 BLOOD AND ENDOCRINE SYSTEM				
1.1	Composition and functions of blood	1	Chalk & Talk	Black Board
1.2	Plasma proteins; RBC – Structure and functions; WBC – Classification and functions	3	Chalk & Talk	Black Board
1.3	Bone marrow – functions, Erythropoiesis	2	Lecture	PPT & Videos
1.4	Haemoglobin, Life span, fate, Anaemia, haemolysis, polycythemia	2	Lecture	Black Board
1.5	Coagulation, bleeding time, clotting time, ESR, Blood Groups; Blood indices; Use of blood for investigation and diagnosis of specific disorders	3	Demonstration	Blood coagulation and grouping kits
1.6	Pituitary gland- Structure, functions,	2	Lecture	PPT

	role of hormones, secretion, regulation and disorders			
1.7	Thyroid gland- Structure, functions, role of hormones, secretion, regulation and disorders	2	Lecture	PPT
1.8	Parathyroid gland, pancreas and adrenal glands.	2	Chalk & Talk	Black Board
1.9	Physiology of diabetes and stress hormones	1	Group discussion	Black Board
UNIT -2	**CIRCULATORY SYSTEM**			
2.1	Anatomical considerations of heart, valves of heart and its action, layers of heart	2	Lecture	Model
2.2	Blood vessel – arteries, arterioles, capillaries, veins, vasovasorum	2	Chalk & Talk	Black Board
2.3	Blood pressure factors and regulation	2	Lecture	PPT
2.5	Cardiac centre – heart rate – regulation	2	Lecture	Smart Board
2.6	Cardiac output, cardiac impulse, functional tissues	2	Lecture	Videos
2.7	Cardiac cycle, ECG, heart sounds	3	Discussion	Videos
2.8	Coronary circulation, Pulmonary circulation, Cerebral circulation, hepatic circulation	3	Chalk & Talk	Black Board

2.9	Renal circulation, cutaneous circulation, and skeletal muscle circulation	2	Chalk & Talk	Black Board
UNIT -3	**DIGESTIVE AND EXCRETORY SYSTEM**			
3.1	Anatomy of digestive system	2	Lecture	Model
3.2	Secretary, digestive, and absorptive functions of the digestive tract	2	Lecture	PPT
3.3	Buccal cavity, stomach, pancreas, liver	1	Chalk & Talk	Black Board
3.4	Small intestine and large intestine	3	Lecture	Smart class
3.5	Role of enzymes and hormones in digestion and absorption of carbohydrate, protein and fat	2	Discussion	Black Board
3.6	Dysfunction of liver, pancreas and gall bladder	2	Lecture	PPT
3.7	Anatomy and functions of kidney and nephrons, juxta glomerular apparatus	3	Lecture	Model
3.8	Formation of urine, micturition	1	Lecture	Smart class
3.9	Role of kidney in maintaining pH of blood. Water, electrolyte	1	Chalk & Talk	Black Board

3.10	Acid base balance, diuretics	1	Lecture	PPT
UNIT -4	**MUSCULO –SKELETAL AND RESPIRATORY SYSTEM**			
4.1	Structure and function of Bone tissue	2	Lecture	Smart class
4.2	Osteocytes, osteoblasts, osteoclasts	2	Chalk & Talk	Black Board
4.3	Structure of osseous tissue	1	Lecture	PPT
4.4	Section of femur bone	1	Lecture	PPT
4.5	Muscles – Structure, types and functions	3	Lecture	Smart class
4.6	Structure and functions of the respiratory tract, lung unit	2	Lecture	Smart class
4.7	Mechanism of respiration	2	Lecture	PPT
4.8	Regulation of respiration, lung volumes	2	Chalk & Talk	Black Board
4.9	Pulmonary function tests, Cardio – respiratory response to exercise and physiological effects of training	3	Discussion	Black Board
UNIT -5	**NERVOUS SYSTEM AND REPRODUCTIVE SYSTEM**			
5.1	Structure and function of nervous system –central or somatic nervous system	2	Chalk & Talk	Black Board

5.2	Neuron –types, structure, properties, myelin sheath, nerve endings, synapse, neurotransmitters, reflex arc, receptors	3	Lecture	PPT
5.3	Brain – cerebrum-cerebral cortex- cerebral lobes	2	Chalk & Talk	Black Board
5.4	Structure and functions - cerebellum, medulla oblongata, thalamus, hypothalamus	2	Lecture	Smart class
5.5	Role of hypothalamus in various body functions – obesity, sleep, memory	1	Discussion	Videos
5.6	Autonomic nervous system – sympathetic and para sympathetic – actions	2	Lecture	PPT
5.7	Functions of ANS. Blood Brain Barrier, CSF	2	Chalk & Talk	Black Board
5.8	Primary and accessory sex organs and secondary sex characters; Transgender- Definition and Characteristics	2	Lecture	Smart class
5.9	Menstrual cycle	1	Chalk & Talk	Black Board
5.10	Menopause and post-menopausal changes.	1	Discussion	Black Board

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.
K2	4	4	-	-	-	8	-	8
K3	2	2	-	5	-	9	-	9
K4	2	2	-	-	5	9	-	9
K5	2	2	5	-	-	9	-	9
Non Scholastic	-	-	-	-	-		5	5
Total	10	10	5	5	5	35	5	40

CIA

Scholastic **35**

Non Scholastic **5**

- **All the course outcomes are to be assessed in the various CIA components.**
- **The levels of CIA Assessment based on Revised Bloom's Taxonomy for PG are :**

K2-Understand**,** **K3**-Apply**,** **K4**-Analyse, **K5**-Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non – Scholastic

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Describe the functions of blood and endocrine system	K2	PSO1
CO 2	Illustrate the anatomy and functions of circulatory system	K2	PSO1
CO 3	Identify the role of digestive and excretory systems	K3	PSO1
CO 4	Analyse the mechanism of musculoskeletal and respiratory systems	K4	PSO1
CO 5	Explain the structure and functions of nervous and reproductive systems	K5	PSO1

Mapping of C0s with PSOs

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10	PSO 11	PSO 12	PSO 13	PSO 14	PSO 15
CO1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Mapping of C0s with POs

/ O	PO1	PO2	PO3	PO4
CO1	2	1	1	1
CO2	1	1	1	1
CO3	1	1	1	1
CO4	1	1	1	1
CO5	2	1	1	1

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2

¨ Weakly Correlated -1

COURSE DESIGNER:

1.Dr.Vasantha Esther Rani

3. Mrs.C.Helen

Forwarded By

(Dr.Vasantha Esther Rani)

10%

II M.Sc., HUMAN NUTRITION & NUTRACEUTICALS

SEMESTER –III

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
PSNN	19PG3N11	Functional Foods & Nutraceuticals in Preventive Dietetics	Major Core	6	5

COURSE DESCRIPTION:

The course elicits the role of various bioactive components in the prevention and treatment of therapeutic conditions.

COURSE OBJECTIVES

The students will be able to

- Identify the role of functional foods and nutraceuticals in oral, gut and renal health.
- Describe the importance of functional foods in weight management and CVD
- Categorize the functional foods for bone health and diabetes.
- Summarize the effect of functional foods and Nutraceuticals in cancer
- Choose the functional foods for the management of nervous and respiratory disorders.

UNIT-I	FFN IN ORAL / GUT & RENAL HEALTH	[18 HRS]

FFN in Oral health

Dietary strategies for oral health

Functional Foods for promoting oral health – xylitol

Relationship between dental caries and dietary carbohydrates

FFN in Gut health

Colonic functional foods –Prebiotic, Probiotic and Symbiotic

Host microbe interaction

Improving the effectiveness of probiotics and prebiotics in optimizing gut health.

Dietary fiber and gut health

FFN in Renal health

Role of functional foods in prevention and treatment of renal disorders – urinary infection, glomerulonephritis, nephrosis, acute renal failure.

UNIT-II	FFN FOR OBESITY, CARDIOVASCULAR DISEASES & DIABETES MELLITUS	[18 HRS]

FFN in Obesity

Role of hormones in obesity.

Role of functional foods in the management of obesity.

FFN in CVD

Role of Functional foods in the management of CVD

FFN in Diabetes Mellitus

Role of Functional Foods and nutraceuticals in blood sugar support

UNIT-III	FFN FOR BONE AND REPRODUCTIVE HEALTH	[18 HRS]

FFN in Bone Health

Bone growth and factors affecting bone mass

Role of functional foods in bone health - Osteoporosis.

FFN in Reproductive Health

Role of FFN in reproductive health

Female infertility-types, role of FFN in managing infertility

Functional foods for menopausal health

UNIT-IV	FFN IN CANCER & AIDS	[18 HRS]

FFN in Cancer

Types of Cancer

Risk factors – Endogenous and exogenous risk factors

Role of functional foods in the prevention of cancer – Symbiotics, Glucosinolates, Phytoesterogens, Dietary fiber and vitamins, Antioxidants.

FFN in AIDS

Role of functional foods in the prevention and treatment of AIDS

UNIT-V	FFN IN NERVOUS & RESPIRATORY SYSTEM	[18 HRS]

Brain mechanisms involved in mood
Role of functional foods in Mood and memory
Alzheimers and Parkinsons diseases – Definition,
causes,symptomssymptoms,role of functional foods
Role of functional foods in the prevention and treatment of respiratory disorders.

REFERENCES:

BOOK REFERENCES:

1. Chatwick R et al. (2003), *Functional Foods*, Springer, Culinary and Hospitality Industry Publications Services.
2. David H Watson, (2001), *Performance Functional Foods,* Culinary and Hospitality Industry Publications.
3. Hari Niwas Mishra et.al., *Functional Foods*, New India Publishing Agency, New Delhi.
4. Israel Goldberg, (2001), *Functional Foods Designer Foods*, Pharma Food,Nutraceuticals Culinary and Hospitality Industry Publications.
5. Mary K. Schimdl and Theodore P Labuza, (2000), *Essential of Functional Foods, C*ulinary and Hospitality Industry Publications Services.
6. Mazza G. (1998), *Functional Foods Biochemical Processing Aspects,* Culinary and Hospitality Industry Publications
7. Robert E C, (2001), Wildman *Handbook of Nutraceuticals and functional Foods*, Culinary and Hospitality Industry Publications.

JOURNAL REFERENCES:

1. Journal of Functional Foods
2. Nutraceuticals World Magazine - Exclusives, Markts, Health,Jobs, Events
3. The American Journal of Clinical Nutrition, Waverfy Press, USA.
4. The Indian Journal of Medical Research, The Indian Council of Medical Research, New Delhi.
5. International Journal of Food Safety, Nutrition and Public Health

OPEN EDUCATIONAL RESOURCES:

1. **http://medcraveonline.com/JNHFE/JNHFE-07-00247.pdf**
2. **http://ssu.ac.ir/cms/fileadmin/user_upload/Daneshkadaha/dbehdasht/behdasht_imani/book/Functional_Foods.pdf**
3. **https://www.researchgate.net/publication/283076818_Food_is_Medicine_-_An_introduction_to_Nutraceuticals**
4. **https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3257668/**
5. **https://ijpsr.com/bft-article/therapeutic-and-preventive-role-of-functional-foods-in-process-of-neurodegeneration/?view=fulltext**
6. **http://www.ijrpc.com/files/17-382.pdf**
7. **https://westminsterresearch.westminster.ac.uk/item/q5494/nutritional-management-in-polycystic-ovary-syndrome-challenges-and-opportunities**

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids

UNIT 1	FFN IN ORAL / GUT & RENAL HEALTH [18 HRS]			
1.1	FFN in oral health	1	Chalk & Talk	Black Board
1.2	Dietary strategies for oral health	2	Chalk & Talk	LCD
1.3	Functional Foods for promoting oral health – xylitol.	2	Lecture	PPT & White board
1.4	Relationship between dental caries and dietary carbohydrates	1	Lecture	Smart Board
1.5	FFN in gut health	1	Lecture	Black Board
1.6	Colonic functional foods –Prebiotic, Probiotic and Symbiotic	2	Discussion	Google classroom
1.7	Host microbe interaction	2	Specimen	Green Board
1.8	Improving the effectiveness of probiotics and prebiotics in optimizing gut health.	2	Discussion	Black Board
1.9	Dietary fiber and gut health	1	Lecture	LCD
1.10	FFN in renal health	1	Lecture	Smart Board
1.11	Role of functional foods in prevention and treatment of renal disorders – urinary infection,glomerulonephritis, nephrosis, acute renal failure.	3	Lecture	PPT

UNIT 2 FFN FOR OBESITY, CARDIOVASCULAR DISEASES & DIABETES MELLITUS				**[18 HRS]**
2.1	FFN in Obesity	1	Lecture	Green Board PPT
2.2	Role of hormones in obesity.	2	Chalk & Talk	Green Board
2.3	Role of functional foods in the management of obesity.	3	Lecture	PPT
2.4	FFN in CVD	3	Chalk & Talk	Video
2.5	Role of Functional foods in the management of CVD	3	Lecture	PPT
2.6	FFN in Diabetes Mellitus	3	Lecture	PPT
2.7	Role of Functional Foods and nutraceuticals in blood sugar support	3	Lecture	PPT
UNIT 3 FFN FOR BONE AND REPRODUCTIVE HEALTH				**[18 HRS]**]
3.1	FFN in Bone Health	2	Lecture	Green Board Charts
3.2	Bone growth and factors affecting bone mass	2	Chalk & Talk	Green Board
3.3	Role of functional foods in bone health - Osteoporosis.	3	Lecture	Black Board
3.4	FFN in Reproductive Health	2	Lecture	LCD

3.5	Role of FFN in reproductive health	3	Lecture	Smart Board
3.6	Female infertility-types, role of FFN in managing infertility	3	Lecture	PPT
3.7	Functional foods for menopausal health	3	Lecture	Black Board
UNIT 4 FFN IN CANCER & AIDS [18HRS]				
4.1	Types of Cancer	1	Lecture	Green Board
4.2	Risk factors – Endogenous and exogenous risk factors	2	Chalk & Talk	Black Board
4.3	Role of functional foods in the prevention of cancer – Symbiotics, Glucosinolates,	3	Lecture	LCD
4.4	Role of functional foods in the prevention of cancer – Phytoesterogens, Dietary fiber	3	Lecture	LCD
4.5	Role of functional foods in the prevention of cancer –Vitamins, Antioxidants.	3	Lecture	Black Board
4.6	Role of functional foods in the prevention of AIDS	3	Lecture	PPT
4.7	Role of functional foods in the treatment of AIDS	3	Lecture	PPT
UNIT 5 FFN IN NERVOUS & RESPIRATORY SYSTEM [18HRS]				

5.1	Brain mechanisms involved in mood	2	Lecture	PPT
5.2	Role of functional foods in Mood and memory	4	Lecture	PPT
5.3	Alzheimers- Definition, causes, symptoms,role of functional foods in treating Alzheimers	4	Lecture	PPT
5.4	Parkinsons disease-Definition, causes, symptoms,role of functional foods in treating Parkinsons diseases	4	Lecture	PPT
5.5	Role of functional foods in the prevention and treatment of respiratory disorders.	4	Lecture	PPT

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.
K2	4	4	-	-	-	8	-	8
K3	2	2	-	5	-	9	-	9
K4	2	2	-	-	5	9	-	9

K5	**2**	**2**	**5**	**-**	**-**	**9**	**-**	**9**
Non Scholastic	**-**	**-**	**-**	**-**	**-**		**5**	**5**
Total	**10**	**10**	**5**	**5**	**5**	**35**	**5**	**40**

CIA	
Scholastic	**35**
Non Scholastic	**5**
	40

- ✔ **All the course outcomes are to be assessed in the various CIA components.**
- ✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy for PG are :**

K2-Understand, **K3**-Apply, **K4**-Analyse, **K5**-Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS	
C1	C2	C3	C4	C5	C6	CIA	ESE
10	10	5	5	5	5	40	60

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non – Scholastic

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Explain the role of functional foods and nutraceuticals in oral, gut and renal health.	K2	PSO2 & PSO4

CO 2	Describe the importance of functional foods in weight management and CVD	K2	PSO2 & PSO4
CO 3	Identify the functional foods for bone health and diabetes	K3	PSO2 & PSO4
CO 4	Analyze the effect of functional foods and Nutraceuticals in cancer	K4	PSO2 & PSO4
CO 5	Choose the functional foods for the management of nervous and respiratory disorders	K5	PSO2 & PSO4

Mapping of COs with PSOs

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10	PSO 11	PSO 12	PSO 13	PSO 14	PSO 15
CO1	1	3	2	3	1	2	1	1	2	1	1	1	1	1	2
CO2	1	3	2	3	1	2	1	1	2	1	1	1	1	1	2
CO3	1	3	2	3	1	2	1	1	2	1	1	1	1	1	2
CO4	1	3	2	3	1	2	1	1	2	1	1	1	1	1	2
CO5	1	3	2	3	1	2	1	1	2	1	1	1	1	1	2

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	3	2	1
CO2	3	3	2	1
CO3	3	3	2	1
CO4	3	3	2	1
CO5	3	3	2	1

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2

Weakly Correlated -1

COURSE DESIGNER:

1. **Dr. Vasantha Esther Rani**
2. **Ms. D.Mouna**

Forwarded By

(Dr.Vasantha Esther Rani)

II M.Sc., HUMAN NUTRITION & NUTRACEUTICALS

SEMESTER –III

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
PSNN	**19PG3N11**	**Functional Foods & Nutraceuticals in Preventive Dietetics**	**Major Core**	**6**	**5**

COURSE DESCRIPTION:

The course elicits the role of various bioactive components in the prevention and treatment of therapeutic conditions.

COURSE OBJECTIVES

The students will be able to

- Identify the role of functional foods and nutraceuticals in oral, gut and renal health.
- Describe the importance of functional foods in weight management and CVD
- Categorize the functional foods for bone health and diabetes.
- Summarize the effect of functional foods and Nutraceuticals in cancer
- Choose the functional foods for the management of nervous and respiratory disorders.

UNIT-I	FFN IN ORAL / GUT & RENAL HEALTH	[18 HRS]

FFN in Oral health

Dietary strategies for oral health

Functional Foods for promoting oral health – xylitol

Relationship between dental caries and dietary carbohydrates

FFN in Gut health

Colonic functional foods –Prebiotic, Probiotic and Symbiotic

Host microbe interaction

Improving the effectiveness of probiotics and prebiotics in optimizing gut health.

Dietary fiber and gut health

FFN in Renal health

Role of functional foods in prevention and treatment of renal disorders – urinary infection, glomerulonephritis, nephrosis, acute renal failure.

UNIT-II	**FFN FOR OBESITY, CARDIOVASCULAR DISEASES & DIABETES MELLITUS**	**[18 HRS]**

FFN in Obesity

Role of hormones in obesity.

Role of functional foods in the management of obesity.

FFN in CVD

Role of Functional foods in the management of CVD

FFN in Diabetes Mellitus

Role of Functional Foods and nutraceuticals in blood sugar support

UNIT-III	**FFN FOR BONE AND REPRODUCTIVE HEALTH**	**[18 HRS]**

FFN in Bone Health

Bone growth and factors affecting bone mass

Role of functional foods in bone health - Osteoporosis.

FFN in Reproductive Health

Role of FFN in reproductive health

Female infertility-types, role of FFN in managing infertility

Functional foods for menopausal health

10 %

FFN IN PCOS

Etiology/Pre-disposing factors

Symptoms of PCOS

Role of Functional foods in the management of PCOS

UNIT-IV	FFN IN CANCER & AIDS	[18 HRS]

FFN in Cancer

Types of Cancer

Risk factors – Endogenous and exogenous risk factors

Role of functional foods in the prevention of cancer – Symbiotics, Glucosinolates, Phytoesterogens, Dietary fiber and vitamins, Antioxidants.

FFN in AIDS

Role of functional foods in the prevention and treatment of AIDS

UNIT-V	FFN IN NERVOUS & RESPIRATORY SYSTEM	[18 HRS]

Brain mechanisms involved in mood

Role of functional foods in Mood and memory

Alzheimers and Parkinsons diseases – Definition, causes,symptomssymptoms,role of functional foods

Role of functional foods in the prevention and treatment of respiratory disorders.

REFERENCES:

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1. Chatwick R et al. (2003), *Functional Foods*, Springer, Culinary and Hospitality Industry Publications Services.
2. David H Watson, (2001), *Performance Functional Foods,* Culinary and Hospitality Industry Publications.

3. Hari Niwas Mishra et.al., *Functional Foods*, New India Publishing Agency, New Delhi.

4.Israel Goldberg, (2001), *Functional Foods Designer Foods*, Pharma Food,Nutraceuticals Culinary and Hospitality Industry Publications.

5.Mary K. Schimdl and Theodore P Labuza, (2000), *Essential of Functional Foods, C*ulinary and Hospitality Industry Publications Services.

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1. Journal of Functional Foods

2. Nutraceuticals World Magazine - Exclusives, Markts, Health,Jobs, Events

3. The American Journal of Clinical Nutrition, Waverfy Press, USA.

4. The Indian Journal of Medical Research, The Indian Council of Medical Research, New Delhi.

5. International Journal of Food Safety, Nutrition and Public Health

OPEN EDUCATIONAL RESOURCES:

1. **http://medcraveonline.com/JNHFE/JNHFE-07-00247.pdf**
2. **http://ssu.ac.ir/cms/fileadmin/user_upload/Daneshkadaha/dbehdasht/behdasht_imani/book/Functional_Foods.pdf**
3. **https://www.researchgate.net/publication/283076818_Food_is_Medicine_-_An_introduction_to_Nutraceuticals**
4. **https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3257668/**
5. **https://ijpsr.com/bft-article/therapeutic-and-preventive-role-of-functional-foods-in-process-of-neurodegeneration/?view=fulltext**
6. **http://www.ijrpc.com/files/17-382.pdf**
7. **https://westminsterresearch.westminster.ac.uk/item/q5494/nutritional-management-in-polycystic-ovary-syndrome-challenges-and-opportunities**

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT 1	**FFN IN ORAL / GUT & RENAL HEALTH [18 HRS]**			
1.1	FFN in oral health	1	Chalk & Talk	Black Board
1.2	Dietary strategies for oral health	2	Chalk & Talk	LCD
1.3	Functional Foods for promoting oral health – xylitol.	2	Lecture	PPT & White board
1.4	Relationship between dental caries and dietary carbohydrates	1	Lecture	Smart Board
1.5	FFN in gut health	1	Lecture	Black Board
1.6	Colonic functional foods –Prebiotic, Probiotic and Symbiotic	2	Discussion	Google classroom
1.7	Host microbe interaction	2	Specimen	Green Board
1.8	Improving the effectiveness of probiotics and prebiotics in optimizing gut health.	2	Discussion	Black Board

1.9	Dietary fiber and gut health	1	Lecture	LCD
1.10	FFN in renal health	1	Lecture	Smart Board
1.11	Role of functional foods in prevention and treatment of renal disorders – urinary infection,glomerulonephritis, nephrosis, acute renal failure.	3	Lecture	PPT
UNIT 2 FFN FOR OBESITY, CARDIOVASCULAR DISEASES & DIABETES MELLITUS				**[18 HRS]**
2.1	FFN in Obesity	1	Lecture	Green Board PPT
2.2	Role of hormones in obesity.	2	Chalk & Talk	Green Board
2.3	Role of functional foods in the management of obesity.	3	Lecture	PPT
2.4	FFN in CVD	3	Chalk & Talk	Video
2.5	Role of Functional foods in the management of CVD	3	Lecture	PPT
2.6	FFN in Diabetes Mellitus	3	Lecture	PPT
2.7	Role of Functional Foods and nutraceuticals in blood sugar support	3	Lecture	PPT
UNIT 3 FFN FOR BONE AND REPRODUCTIVE HEALTH				**[18 HRS]**]

3.1	FFN in Bone Health	2	Lecture	Green Board Charts
3.2	Bone growth and factors affecting bone mass	2	Chalk & Talk	Green Board
3.3	Role of functional foods in bone health - Osteoporosis.	3	Lecture	Black Board
3.4	FFN in Reproductive Health	2	Lecture	LCD
3.5	Role of FFN in reproductive health	3	Lecture	Smart Board
3.6	Female infertility-types, role of FFN in managing infertility	3	Lecture	PPT
3.7	Functional foods for menopausal health	3	Lecture	Black Board
UNIT 4 FFN IN CANCER & AIDS [18HRS]				
4.1	Types of Cancer	1	Lecture	Green Board
4.2	Risk factors – Endogenous and exogenous risk factors	2	Chalk & Talk	Black Board
4.3	Role of functional foods in the prevention of cancer – Symbiotics, Glucosinolates,	3	Lecture	LCD
4.4	Role of functional foods in the prevention of cancer – Phytoesterogens, Dietary fiber	3	Lecture	LCD

4.5	Role of functional foods in the prevention of cancer –Vitamins, Antioxidants.	3	Lecture	Black Board
4.6	Role of functional foods in the prevention of AIDS	3	Lecture	PPT
4.7	Role of functional foods in the treatment of AIDS	3	Lecture	PPT
UNIT 5 FFN IN NERVOUS & RESPIRATORY SYSTEM [18HRS]				
5.1	Brain mechanisms involved in mood	2	Lecture	PPT
5.2	Role of functional foods in Mood and memory	4	Lecture	PPT
5.3	Alzheimers- Definition, causes, symptoms,role of functional foods in treating Alzheimers	4	Lecture	PPT
5.4	Parkinsons disease-Definition, causes, symptoms,role of functional foods in treating Parkinsons diseases	4	Lecture	PPT
5.5	Role of functional foods in the prevention and treatment of respiratory disorders.	4	Lecture	PPT

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.
K2	4	4	-	-	-	8	-	8
K3	2	2	-	5	-	9	-	9
K4	2	2	-	-	5	9	-	9
K5	2	2	5	-	-	9	-	9
Non Scholastic	-	-	-	-	-		5	5
Total	10	10	5	5	5	35	5	40

CIA	
Scholastic	**35**
Non Scholastic	**5**
	40

All the course outcomes are to be assessed in the various CIA components.

✔ **The levels of CIA Assessment based on Revised Bloom's Taxonomy for PG are :**

K2-Understand, **K3**-Apply, **K4**-Analyse, **K5**-Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS	
C1	C2	C3	C4	C5	C6	CIA	ESE
10	10	5	5	5	5	40	60

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non – Scholastic

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Explain the role of functional foods and nutraceuticals in oral, gut and renal health.	K2	PSO2 & PSO4

CO 2	Describe the importance of functional foods in weight management and CVD	K2	PSO2 & PSO4
CO 3	Identify the functional foods for bone health and diabetes	K3	PSO2 & PSO4
CO 4	Analyze the effect of functional foods and Nutraceuticals in cancer	K4	PSO2 & PSO4
CO 5	Choose the functional foods for the management of nervous and respiratory disorders	K5	PSO2 & PSO4

Mapping of C0s with PSOs

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10	PSO 11	PSO 12	PSO 13	PSO 14	PSO 15
CO1	1	3	2	3	1	2	1	1	2	1	1	1	1	1	2
CO2	1	3	2	3	1	2	1	1	2	1	1	1	1	1	2
CO3	1	3	2	3	1	2	1	1	2	1	1	1	1	1	2
CO4	1	3	2	3	1	2	1	1	2	1	1	1	1	1	2
CO5	1	3	2	3	1	2	1	1	2	1	1	1	1	1	2

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	3	2	1
CO2	3	3	2	1
CO3	3	3	2	1
CO4	3	3	2	1
CO5	3	3	2	1

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2
Weakly Correlated -1

COURSE DESIGNER:

1. **Dr. Vasantha Esther Rani**
2. **Ms. D.Mouna**

Forwarded By

(Dr.Vasantha Esther Rani)

10%

II M.Sc., HUMAN NUTRITION AND NUTRACEUTICALS

SEMESTER –III

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
PSNN	19PG3N12	Community Nutrition	PG Core	6	5

COURSE DESCRIPTION

The course imparts the knowledge on various national nutritional problems and its implications, nutrition awareness among various sections of the population.

COURSE OBJECTIVES

- To understand national nutritional problems and their implications.
- To become familiar with the national and international contributions towards improvement of nutrition in India.
- To impart skills in the planning and execution of nutrition awareness programmes among various sections of the population.

UNITS

UNIT –I NUTRITION AND NATIONAL DEVELOPMENT, NATIONAL NUTRITIONAL PROBLEMS (18 HRS.)

Relation of nutrition to national development in terms of socio-economic, industrial and agricultural development.

National nutritional problems – prevalence, causes, consequences and prevention of PEM, vitamin A deficiency, anaemia, iodine deficiency, and fluorosis

UNIT –II MALNUTRITION, STRATEGIES TO OVERCOME MALNUTRITION (18 HRS.)

Malnutrition - Definition, etiology and consequences

Strategies to overcome malnutrition: Food based strategies – Dietary diversification, Horticulture intervention, Food fortification, Nutrition & Health education, Nutrition based strategies – Supplementation, Concepts of Selecting / implementing and intervention strategy.

UNIT–III NUTRITION INTERVENTION PROGRAMMES - NATIONAL,

INTERNATIONAL (18 HRS.)

Genesis, objectives and operation of nutrition intervention programmes in India – School lunch programme, CMNMP, ICDS organized by government for vulnerable sections of the population.

National organizations – ICMR, CSWB, SSWB, NIN, NNMB, CFTRI, DFRL, NIPCCD.

International organization : FAO, WHO, UNICEF, KGNMT, CARE.

UNIT–IV NATIONAL NUTRITION POLICY, NUTRITIONAL SURVEILLANCE (18 HRS.)

National Nutrition policy – aim, nutrition policy instruments and its implementation; Health indicators.

Nutrition Surveillance System- definition, objectives, uses, infrastructure, Health indicators for successful nutrition surveillance programme.

UNIT –V NUTRITION EDUCATION, ASSESSMENT OF NUTRITIONAL STATUS OF COMMUNITY

Nutrition Education - Definition, importance, Process of nutrition education and communication – components of communication process, phases of nutrition education – conceptualization, formulation, implementation and evaluation, Methods of Nutrition education – face to face, mass media, traditional media, and criteria for selecting methods.

Assessment of nutritional status – Direct and indirect methods of assessment- Anthropometric measurements, Biochemical assessment, Clinical assessment, Dietary assessment

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1. Davidson, S.S. Passmore, P. Brack, J.F. (1993) .*Human Nutrition and Dietetics, 9th Edition*, F&S, Lingstone Ltd., Edinburgh and London.

2. Gupta J.P. & Indra Murali (1989) *National Review of Immunisation Programme in India*, National Institute of Health and Family Welfare, New Delhi.

3. Jose M. Conon (1988). *Food Toxicology – Part A Principles and Concepts,* Marceldebber, Inc., New York.

4. King F.S. & Burgess, A. (1992).*Nutrition for Developing Countries, 2nd edition*, Oxford, Oxford University Press, London.

5. Rajammal P. Devadas (1980) *Nutrition and Nutritional Development*, Saradalaya Press, Coimbatore, Tamil Nadu.

6. Sach Dev. H.P.S. & Choudhury, P. (1994).*Nutrition in Children – Developing Country Concerns,* Cambridge Press, New Delhi.

7. Shanthi Ghosh, (1992) .*The Feeding and care of Infants and Young Children,* Voluntary Health Association of India, New Delhi.

8. Shanthi Ghossh (1997) *Nutrition and Child Care, A Practical Guide*, Jay Pee Brothers, Medical Publishers (P) Ltd., New Delhi.

9. UNICEF (1990). *Children and Women in India*, Situation Analysis, New Delhi.

JOURNAL REFERENCES:

1. Journal of Community Health.
2. Journals of Nutrition Education and Behavior.
3. Asia Pacific Journal of Public Health.
4. Indian Journal of Nutrition and Dietetics
5. Journal of Nutrition and Health Sciences

WEB REFERENCES :

1. www.nutritionsociety.org
2. www.who.int
3. www.nin.res.in
4. www.publichealth.org
5. www.fda.gov

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 NUTRITION AND NATIONAL DEVELOPMENT, NATIONAL NUTRITIONAL PROBLEMS				
1.1	Relation of nutrition to national development in terms of socio-economic, industrial and agricultural development	2	Chalk & Talk	Black Board
1.2	Prevalence, causes, consequences and prevention of PEM	4	Lecture	PPT
1.3	Prevalence, causes, consequences and prevention of vitamin A deficiency	4	Lecture	PPT
1.4	Prevalence, causes,	4	Lecture	Videos

	consequences and prevention of anaemia			
1.5	Prevalence, causes, consequences and prevention of iodine deficiency	2	Chalk & Talk	Black Board
1.6	Prevalence, causes, consequences and prevention of iodine deficiency of fluorosis	2	Lecture	PPT
UNIT -2 MALNUTRITION, STRATEGIES TO OVERCOME MALNUTRITION				
2.1	Malnutrition- - Definition, etiology and consequences	3	Chalk & Talk	Black Board
2.2	Food based strategies to overcome malnutrition	2	Chalk & Talk	Black Board
2.3	Dietary diversification, Horticulture intervention	3	Lecture	PPT
2.4	Food fortification, Nutrition & Health education	4	Lecture	Smart Board
2.5	Nutrition based strategies – Supplementation	3	Lecture	Videos
2.6	Concepts of Selecting / implementing and intervention strategy	3	Case study Discussion	Videos
UNIT -3 NUTRITION INTERVENTION PROGRAMMES - NATIONAL, INTERNATIONAL				
3.1	Genesis, objectives and operation School lunch programme	2	Chalk & Talk	Black Board
3.2	Genesis, objectives and operation CMNMP	2	Chalk & Talk	Black Board

3.3	Genesis, objectives and operation ICDS	3	Case study Chalk & Talk	Black Board
3.4	ICMR, NIN, CSWB, SSWB	3	Lecture	Smart class
3.5	NNMB, CFTRI, DFRL, NIPCCD	2	Discussion	Black Board
3.6	FAO, WHO	2	Lecture	PPT
3.7	UNICEF, KGNMT, CARE	4	Lecture	PPT
UNIT -4 NATIONAL NUTRITION POLICY, NUTRITIONAL SURVEILLANCE				
4.1	National Nutrition policy	4	Chalk & Talk	Black Board
4.2	Nutrition policy instruments and its implementation	5	Chalk & Talk	Black Board
4.3	Nutrition Surveillance System- definition, objectives, uses, infrastructure	5	Lecture	PPT
4.4	Health indicators for successful nutrition surveillance programme	4	Discussion	Black Board
UNIT -5 NUTRITION EDUCATION, ASSESSMENT OF NUTRITIONAL STATUS OF COMMUNITY				
5.1	Nutrition Education - Definition, importance	2	Chalk & Talk	Black Board
5.2	Process and components of nutrition education and communication	4	Lecture	PPT
5.3	Phases of nutrition education – conceptualization, formulation, implementation and evaluation	4	Chalk & Talk	Black Board

5.4	Methods of Nutrition education – face to face, mass media, traditional media, and criteria for selecting methods	4	Discussion	Videos
5.5	Assessment of nutritional status- Direct methods	2	Lecture	PPT
5.6	Assessment of nutritional status- Indirect methods	2	Lecture	PPT

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.
K2	4	4	-	-	-	8	-	8
K3	2	2	-	5	-	9	-	9
K4	2	2	-	-	5	9	-	9
K5	2	2	5	-	-	9	-	9
Non Scholastic	-	-	-	-	-		5	5
Total	10	10	5	5	5	35	5	40

	CIA
Scholastic	**35**
Non Scholastic	**5**
	40

All the course outcomes are to be assessed in the various CIA components.

- **The levels of CIA Assessment based on Revised Bloom's Taxonomy for PG are :**

K2-Understand, **K3**-Apply, **K4**-Analyse, **K5**-Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non – Scholastic

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Associate Nutrition and National development	K2	PSO6
CO 2	Describe the strategies to overcome malnutrition	K2	PSO6
CO 3	Identify the Nutrition intervention programs and organization	K3	PSO6
CO 4	Analyze the National nutrition policy and Nutrition surveillance system	K4	PSO6
CO 5	Explain Nutrition assessment and Nutrition education	K5	PSO6

Mapping of C0s with PSOs

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10	PSO 11	PSO 12	PSO 13	PSO 14	PSO 15
CO1	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1
CO2	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1
CO3	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1
CO4	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1
CO5	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1
CO6	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	3	2	111
CO2	3	3	2	111
CO3	3	3	2	2
1CO4	3	3	111	2
CO5	3	3	3	111
CO6	3	3	3	2

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2

¨ Weakly Correlated -1

COURSE DESIGNER:

1. Mrs. C.Helen

Forwarded By

(Dr.Vasantha Esther Rani)

II M.Sc., HUMAN NUTRITION AND NUTRACEUTICALS

SEMESTER –III

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
PSNN	19PG3N12	Community Nutrition	PG Core	6	5

COURSE DESCRIPTION

The course imparts the knowledge on various national nutritional problems and its implications, nutrition awareness among various sections of the population.

COURSE OBJECTIVES

- To understand national nutritional problems and their implications.
- To become familiar with the national and international contributions towards improvement of nutrition in India.
- To impart skills in the planning and execution of nutrition awareness programmes among various sections of the population.

UNITS

UNIT –I NUTRITION AND NATIONAL DEVELOPMENT, NATIONAL NUTRITIONAL PROBLEMS (18 HRS.)

Relation of nutrition to national development in terms of socio-economic, industrial and agricultural development.

National nutritional problems – prevalence, causes, consequences and prevention of PEM, vitamin A deficiency, anaemia, iodine deficiency, and fluorosis

UNIT –II MALNUTRITION, STRATEGIES TO OVERCOME MALNUTRITION (18 HRS.)

Malnutrition - Definition, etiology and consequences

Strategies to overcome malnutrition: Food based strategies – Dietary diversification, Horticulture intervention, Food fortification, Nutrition & Health education, Nutrition based strategies – Supplementation, Concepts of Selecting / implementing and intervention strategy.

UNIT–III NUTRITION INTERVENTION PROGRAMMES - NATIONAL,

INTERNATIONAL (18 HRS.)

Genesis, objectives and operation of nutrition intervention programmes in India – School lunch programme, CMNMP, ICDS, National programmes for prevention of Anaemia, Vitamin A deficiency, Iodine Deficiency Disorders.

National organizations – ICMR, CSWB, SSWB, NIN, NNMB, CFTRI, DFRL, NIPCCD.

International organization : FAO, WHO, UNICEF, KGNMT, CARE.

UNIT–IV NATIONAL NUTRITION POLICY, NUTRITIONAL SURVEILLANCE (18 HRS.)

National Nutrition policy – aim, nutrition policy instruments and its implementation; Health indicators.

Nutrition Surveillance System- definition, objectives, uses, infrastructure, Health indicators for successful nutrition surveillance programme.

UNIT –V NUTRITION EDUCATION, ASSESSMENT OF NUTRITIONAL STATUS OF COMMUNITY

Nutrition Education - Definition, importance, Process of nutrition education and communication – components of communication process, phases of nutrition education – conceptualization, formulation, implementation and evaluation, Methods of Nutrition education – face to face, mass media, traditional media, and criteria for selecting methods.

Assessment of nutritional status – Direct methods - Anthropometric, Biochemical & Biophysical, Clinical assessment Indirect methods - Dietary assessment and Vital Health Statistics

REFERENCES:

1. Davidson, S.S. Passmore, P. Brack, J.F. (1993) .*Human Nutrition and Dietetics, 9th Edition*, F&S, Lingstone Ltd., Edinburgh and London.

2.Gupta J.P. & Indra Murali (1989) *National Review of Immunisation Programme in India*, National Institute of Health and Family Welfare, New Delhi.

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15. Shanthi Ghossh (1997) *Nutrition and Child Care, A Practical Guide*, Jay Pee Brothers, Medical Publishers (P) Ltd., New Delhi.

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7. Journals of Nutrition Education and Behavior.
8. Asia Pacific Journal of Public Health.
9. Indian Journal of Nutrition and Dietetics
10. Journal of Nutrition and Health Sciences

WEB REFERENCES :

6. www.nutritionsociety.org
7. www.who.int
8. www.nin.res.in
9. www.publichealth.org
10. www.fda.gov

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 NUTRITION AND NATIONAL DEVELOPMENT, NATIONAL NUTRITIONAL PROBLEMS				
1.1	Relation of nutrition to national development in terms of socio-economic, industrial and agricultural development	2	Chalk & Talk	Black Board
1.2	Prevalence, causes, consequences and prevention of PEM	4	Lecture	PPT
1.3	Prevalence, causes, consequences and prevention of vitamin A deficiency	4	Lecture	PPT

1.4	Prevalence, causes, consequences and prevention of anaemia	4	Lecture	Videos
1.5	Prevalence, causes, consequences and prevention of iodine deficiency	2	Chalk & Talk	Black Board
1.6	Prevalence, causes, consequences and prevention of iodine deficiency of fluorosis	2	Lecture	PPT
UNIT -2 MALNUTRITION, STRATEGIES TO OVERCOME MALNUTRITION				
2.1	Malnutrition- - Definition, etiology and consequences	3	Chalk & Talk	Black Board
2.2	Food based strategies to overcome malnutrition	2	Chalk & Talk	Black Board
2.3	Dietary diversification, Horticulture intervention	3	Lecture	PPT
2.4	Food fortification, Nutrition & Health education	4	Lecture	Smart Board
2.5	Nutrition based strategies – Supplementation	3	Lecture	Videos
2.6	Concepts of Selecting / implementing and intervention strategy	3	Case study Discussion	Videos
UNIT -3 NUTRITION INTERVENTION PROGRAMMES - NATIONAL, INTERNATIONAL				
3.1	Genesis, objectives and operation School lunch programme	2	Chalk & Talk	Black Board
3.2	Genesis, objectives and	2	Chalk & Talk	Black Board

	operation CMNMP			
3.3	Genesis, objectives and operation ICDS	3	Case study Chalk & Talk	Black Board
3.4	ICMR, NIN, CSWB, SSWB	3	Lecture	Smart class
3.5	NNMB, CFTRI, DFRL, NIPCCD	2	Discussion	Black Board
3.6	FAO, WHO	2	Lecture	PPT
3.7	UNICEF, KGNMT, CARE	4	Lecture	PPT
UNIT -4 NATIONAL NUTRITION POLICY, NUTRITIONAL SURVEILLANCE				
4.1	National Nutrition policy	4	Chalk & Talk	Black Board
4.2	Nutrition policy instruments and its implementation	5	Chalk & Talk	Black Board
4.3	Nutrition Surveillance System- definition, objectives, uses, infrastructure	5	Lecture	PPT
4.4	Health indicators for successful nutrition surveillance programme	4	Discussion	Black Board
UNIT -5 NUTRITION EDUCATION, ASSESSMENT OF NUTRITIONAL STATUS OF COMMUNITY				
5.1	Nutrition Education - Definition, importance	2	Chalk & Talk	Black Board
5.2	Process and components of nutrition education and communication	4	Lecture	PPT
5.3	Phases of nutrition education – conceptualization, formulation, implementation and	4	Chalk & Talk	Black Board

	evaluation			
5.4	Methods of Nutrition education – face to face, mass media, traditional media, and criteria for selecting methods	4	Discussion	Videos
5.5	Assessment of nutritional status- Direct methods	2	Lecture	PPT
5.6	Assessment of nutritional status- Indirect methods	2	Lecture	PPT

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.
K2	4	4	-	-	-	8	-	8
K3	2	2	-	5	-	9	-	9
K4	2	2	-	-	5	9	-	9
K5	2	2	5	-	-	9	-	9
Non Scholastic	-	-	-	-	-		5	5
Total	10	10	5	5	5	35	5	40

	CIA
Scholastic	**35**
Non Scholastic	**5**
	40

- **All the course outcomes are to be assessed in the various CIA components.**
- **The levels of CIA Assessment based on Revised Bloom's Taxonomy for PG are :**

K2-Understand, **K3**-Apply, **K4**-Analyse, **K5**-Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non – Scholastic

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Associate Nutrition and National development	K2	PSO6
CO 2	Describe the strategies to overcome malnutrition	K2	PSO6
CO 3	Identify the Nutrition intervention programs and organization	K3	PSO6
CO 4	Analyze the National nutrition policy and Nutrition surveillance system	K4	PSO6
CO 5	Explain Nutrition assessment and Nutrition education	K5	PSO6

Mapping of C0s with PSOs

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10	PSO 11	PSO 12	PSO 13	PSO 14	PSO 15
CO1	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1
CO2	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1
CO3	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1
CO4	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1
CO5	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1
CO6	1	1	2	1	1	3	1	1	1	1	1	1	1	1	1

Mapping of COs with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	3	3	2	111
CO2	3	3	2	111
CO3	3	3	2	2
1CO4	3	3	111	2
CO5	3	3	3	111
CO6	3	3	3	2

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2

¨ Weakly Correlated -1

COURSE DESIGNER:

1. Mrs. C.Helen

Forwarded By

(Dr.Vasantha Esther Rani)

10%

II M.Sc., HUMAN NUTRITION AND NUTRACEUTICALS
SEMESTER –III

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
PSNN	19 PG3NE2	INSTITUTIONAL MANAGEMENT	Major Elective	4	4

COURSE DESCRIPTION

The course will describe the concepts of organization and management approaches of food service establishment.

COURSE OBJECTIVES

- To develop a knowledge base in key areas of institutional food administration.
- To impart necessary expertise to function as a food service manager.
- To understand the basic principles of organization and management in food service units.

UNIT –I **[12 HRS]**

INTRODUCTION TO FOOD SERVICE INSTITUTIONS

Definition of food service institutions, Evolution of food service systems, Characteristics of the various types of food service units.

Kinds of food service systems - Conventional, commissary, ready prepared, assembly/serve

UNIT –II **[12 HRS]**

INSTIUTUTIONAL MANAGEMENT

Theories - Classical, Scientific, Behavioral, Systems approach, Contingency approach, Management By Objective(MBO), Just-in- Time(JIT), Total Quality Management (TQM). Functions of management, Principles of management, management tools

UNIT –III **[12 HRS]**

PERSONNEL MANAGEMENT

Personnel management -Definition, scope, concept of personnel management, approaches of personnel management, personnel policies, Functions of personnel manager.

Selection- Definition, Steps. Induction- Definition, Methods, Check list

Staff welfare provisions- Physical needs, Physiological needs, Psychosocial Needs

Training- Need for training, Katz and Kahn point about change in an organization, Training programmes, Areas of training. Staff development- Principles of development, Process of development.

UNIT –IV **[12 HRS]**

FOOD COST MANAGEMENT

Costing-Definition of costing, Definition of Cost, Cost components, Behaviour of cost,

Cost control-Definition, Factors responsible for losses, Methods of controlling food cost

Food cost analysis. Pricing-Definition, Methods of pricing- Cost plus pricing, Rate of return pricing.

UNIT –V

LAWS GOVERNING FOOD SERVICE ESTABLISHMENTS [12 HRS]

Labour laws- The Indian Contract Act, Workmen's Compensation Act, The Trade Unions Act, Payment of Wages Act, Industrial Disputes Act, The Factories Act, The Minimum Wages Act, Employees State Insurance (ESI) Act, Employees Pension Scheme, Shops and Establishments Act, Hostel Scheme, Annapurna Scheme.

REFERENCES:

1. Knosotz, H.O Donnel C (1968) *Principles of Management,* McGraw Hill Book Company.
2. Kotas Richard & Jayawardardene.C (1994): *Profitable food and Beverage Management*, Hodder & Sloughton Publication.

3. Sethi Mohini (2000), *Catering Management An integrated Approach*, 2nd Ed Wiley Publication.
4. West, B Bessie & Wood, Levelle (1986) *Food Service in Institutions* 6th Ed, Macmillian Publication Company, New York.

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1. Journal of Foodservice Management & Education.
2. Journal of Foodservice.

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2. **https://open.umn.edu/opentextbooks/textbooks/71**
3. **https://openstax.org/details/books/principles-management**
4. **https://link.springer.com/referenceworkentry/10.1007%2F978-94-007-0929-4_80**
5. **https://digitalcommons.fiu.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1190&context=hospitalityreview**
6. **https://tygroupa.files.wordpress.com/2010/03/chapter-29-food-cost-control.pdf**
7. **https://www.oracle.com/webfolder/s/delivery_production/docs/FY16h1/doc29/Cost-Control-F-B-Report.pdf**

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 INTRODUCTION TO FOOD SERVICE INSTITUTIONS				
1.1	Definition of food service institutions, Evolution of food service systems.	4	Chalk & Talk	Black Board
1.2	Characteristics of the various types of food service units.	4	Chalk & Talk	Black Board
1.3	Kinds of food service systems - Conventional, commissary, ready prepared, assembly/serve.	4	Lecture	PPT
UNIT -2 INSTITUTIONAL MANAGEMENT				
2.1	Theories - Classical, Scientific, Behavioral, Systems approach, Contingency approach, Management By Objective(MBO), Just-in-Time(JIT), Total Quality Management (TQM).	4	Lecture	PPT
2.2	Functions and Principles of management.	4	Lecture	PPT
2.3	Management tools	4	Lecture	PPT
UNIT -3 PERSONNEL MANAGEMENT				

3.1	Personnel management -Definition, scope, concept of personnel management, approaches of personnel management.	3	Chalk & Talk	Black Board
3.2	Personnel policies, Functions of personnel manager.	2	Chalk & Talk	Black Board
3.3	Selection- Definition, Steps. Induction- Definition, Methods, Check list.	2	Chalk & Talk	Black Board
3.4	Staff welfare provisions- Physical needs, Physiological needs, Psychosocial Needs	2	Chalk & Talk	Black Board
3.5	Training- Need for training, Katz and Kahn point about change in an organization, Training programmes, Areas of training. Staff development- Principles of development, Process of development.	3	Lecture	PPT
UNIT -4 FOOD COST MANAGEMENT				
4.1	Costing-Definition of costing, Definition of Cost, Cost components, Behaviour of cost.	4	Lecture	PPT

4.2	Cost control-Definition, Factors responsible for losses, Methods of controlling food cost.	4	Chalk & Talk	Black Board
4.3	Food cost analysis. Pricing-Definition, Methods of pricing- Cost plus pricing, Rate of return pricing.	4	Chalk & Talk	Black Board
UNIT -5 LAWS GOVERNING FOOD SERVICE ESTABLISHMENTS				
5.1	Labour laws- The Indian Contract Act, Workmen's Compensation Act, The Trade Unions Act, Payment of Wages Act, Industrial Disputes Act, The Factories Act.	6	Lecture	PPT
5.2	The Minimum Wages Act, Employees State Insurance (ESI) Act, Employees Pension Scheme, Shops and Establishments Act, Hostel Scheme, Annapurna Scheme.	6	Lecture	PPT

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.
K2	4	4	-	-	-	8	-	8
K3	2	2	-	5	-	9	-	9
K4	2	2	-	-	5	9	-	9
K5	2	2	5	-	-	9	-	9
Non Scholastic	-	-	-	-	-		5	5
Total	10	10	5	5	5	35	5	40

CIA

Scholastic	**35**
Non Scholastic	**5**
	40

- **All the course outcomes are to be assessed in the various CIA components.**
- **The levels of CIA Assessment based on Revised Bloom's Taxonomy for PG are :**

K2-Understand**,** **K3**-Apply**,** **K4**-Analyse, **K5**-Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non - Scholastic

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Outline the key areas of food service institutions.	K2	PSO14
CO 2	Discuss the theories and concepts of institutional management.	K2	PSO14
CO 3	Determine the scope and theories of personnel management.	K3	PSO14
CO 4	Examine the aspects of food cost management.	K4	PSO14
CO 5	Explain the different laws governing food service establishment.	K5	PSO14

Mapping of C0s with PSOs

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10	PSO 11	PSO 12	PSO 13	PSO 14	PSO 15
CO1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1
CO2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1

CO3	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1
CO4	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1
CO5	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	2	1	1	1
CO2	2	1	1	1
CO3	2	1	1	1
CO4	2	1	1	1
CO5	2	1	1	1

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2 ¨ Weakly Correlated -1

COURSE DESIGNER:

Mrs. P.Madalene Virjini

Forwarded By

(Dr.Vasantha Esther Rani)

II M.Sc., HUMAN NUTRITION AND NUTRACEUTICALS
SEMESTER –III

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/ WEEK	CREDITS
PSNN	19 PG3NE2	INSTITUTIONAL MANAGEMENT	PG Elective	4	4

COURSE DESCRIPTION

The course will describe the concepts of organization and management approaches of food service establishment.

COURSE OBJECTIVES

- To develop a knowledge base in key areas of institutional food administration.
- To impart necessary expertise to function as a food service manager.
- To understand the basic principles of organization and management in food service units.

UNIT –I **[12 HRS]**

INTRODUCTION TO FOOD SERVICE INSTITUTIONS

Definition of food service institutions, Characteristics of the various types of food service units.

Kinds of food service systems - Conventional, commissary, Ready prepared, Assembly/serve

UNIT –II **[12 HRS]**

INSTIUTUTIONAL MANAGEMENT

Principles of management- Division of work, Authority and Responsibility, Discipline, Unitary command, Unitary Direction, Individual goal subordinate to Establishment goal, Remuneration, Hierarchy, Orderliness, Loyalty and Devotion, Work stability, Initiative, Unity, Control; Functions of management

Management tools- Tangible tools, Intangible tools

Theories - Classical, Scientific, Behavioral, Systems approach, Contingency approach, Management By Objective(MBO), Just-in- Time(JIT), Total Quality Management (TQM).

Functions of management, Principles of management, management tools

UNIT –III [12 HRS]

PERSONNEL MANAGEMENT

Personnel management -Definition, Scope, Concept of personnel management, Approaches of personnel management, Personnel policies, Functions of personnel manager.

Selection- Definition, Steps. Induction- Definition, Methods, Check list

Staff welfare provisions- Physical needs, Physiological needs, Psychosocial Needs

Training- Need for training, Katz and Kahn point about change in an organization, Training programmes, Areas of training. Staff development- Principles of development, Process of development.

UNIT –IV [12 HRS]

FOOD COST MANAGEMENT

Costing-Definition of costing, Definition of Cost, Cost components, Behaviour of cost,

Cost control-Definition, Factors responsible for losses, Methods of controlling food cost

Food cost analysis. Pricing-Definition, Methods of pricing- Cost plus pricing, Rate of return pricing.

UNIT –V

LAWS GOVERNING FOOD SERVICE ESTABLISHMENTS [12 HRS]

Labour laws- The Indian Contract Act, Workmen's Compensation Act, The Trade Unions Act, Payment of Wages Act, Industrial Disputes Act, The Factories Act, The Minimum Wages Act, Employees State Insurance (ESI) Act, Employees Pension Scheme, Shops and Establishments Act, Hostel Scheme, Annapurna Scheme.

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4. West, B Bessie & Wood, Levelle (1986) *Food Service in Institutions* 6th Ed, Macmillian Publication Company, New York.

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2. www.tutorialspoint.com
3. https://careertrend.com
4. https://www.ecpi.edu

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 INTRODUCTION TO FOOD SERVICE INSTITUTIONS				
1.1	Definition of food service institutions, Evolution of food service systems.	4	Chalk & Talk	Black Board
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1.3	Kinds of food service systems - Conventional, commissary, ready prepared, assembly/serve.	4	Lecture	PPT
UNIT -2 INSTITUTIONAL MANAGEMENT				
2.1	Theories - Classical, Scientific, Behavioral, Systems approach, Contingency approach, Management By Objective(MBO), Just-in-Time(JIT), Total Quality Management (TQM).	4	Lecture	PPT
2.2	Functions and Principles of management.	4	Lecture	PPT
2.3	Management tools	4	Lecture	PPT
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3.1	Personnel management -Definition, scope, concept of personnel management, approaches of personnel management.	3	Chalk & Talk	Black Board
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4.1	Costing-Definition of costing, Definition of Cost, Cost components, Behaviour of cost.	4	Lecture	PPT

4.2	Cost control-Definition, Factors responsible for losses, Methods of controlling food cost.	4	Chalk & Talk	Black Board
4.3	Food cost analysis. Pricing-Definition, Methods of pricing- Cost plus pricing, Rate of return pricing.	4	Chalk & Talk	Black Board
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5.1	Labour laws- The Indian Contract Act, Workmen's Compensation Act, The Trade Unions Act, Payment of Wages Act, Industrial Disputes Act, The Factories Act.	6	Lecture	PPT
5.2	The Minimum Wages Act, Employees State Insurance (ESI) Act, Employees Pension Scheme, Shops and Establishments Act, Hostel Scheme, Annapurna Scheme.	6	Lecture	PPT

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
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K4	2	2	-	-	5	9	-	9
K5	2	2	5	-	-	9	-	9
Non Scholastic	-	-	-	-	-		5	5
Total	10	10	5	5	5	35	5	40

CIA

Scholastic	**35**
Non Scholastic	**5**
	40

- **All the course outcomes are to be assessed in the various CIA components.**
- **The levels of CIA Assessment based on Revised Bloom's Taxonomy for PG are :**

K2-Understand**,** **K3**-Apply**,** **K4**-Analyse, **K5**-Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non - Scholastic

COURSE OUTCOMES

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

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED
CO 1	Outline the key areas of food service institutions.	K2	PSO14
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CO 3	Determine the scope and theories of personnel management.	K3	PSO14
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CO 5	Explain the different laws governing food service establishment.	K5	PSO14

Mapping of C0s with PSOs

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CO2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1
CO3	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1

CO4	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1
CO5	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	2	1	1	1
CO2	2	1	1	1
CO3	2	1	1	1
CO4	2	1	1	1
CO5	2	1	1	1

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2 ¨ Weakly Correlated -1

COURSE DESIGNER:

Mrs. P.Madalene Virjini

Forwarded By

(Dr.Vasantha Esther Rani)