

*Placed at the meeting of
Academic Council
held on 15.11.2023*

APPENDIX – AV

MADURAI KAMARAJ UNIVERSITY

(University with Potential for excellence)

Revised Syllabus for

B.Sc. Home Science

(Nutrition Foods Service Management and Dietetics with CA) (SEMESTER)

CHOICE BASED CREDIT SYSTEM

REGULATIONS AND SYLLABUS

(This will come into effect from the academic year 2023-2024 onwards)

- 1. Introduction to the Programme**
- 2. Eligibility for admission**
- 3. Programme Outcomes (PO) of UG Degree Programme**
- 4. Programme Specific Outcomes (PSO) of UG Degree Programme**
- 5. Highlight of the programme**
- 6. Teaching Methodologies (Common for both UG and PG)**
- 7. Template For Curriculum Design for UG Degree Programme**
- 8. Credit Distribution for UG Programme**
- 9. Consolidated Semester Wise and Component Wise Credit Distribution**
- 10. Methods of Evaluation**

1. Introduction of the programme:

Home Science : However the present papers focus on Nutrition, Food Service Management and Dietetics with Computer Application.

- ☐ Food and Nutrition
- ☐ Textiles and Clothing
- ☐ Family Resource Management
- ☐ Human Development
- ☐ Family Resource Management
- ☐ Human Development
- ☐ Extension Education

Home Science : Nutrition, Food service Management and Dietetics with Computer aims at the holistic development of the individual that equips the students to fetch jobs in various fields. The possible avenues for a Nutrition , Food Service Management and Dietetics with Computer Application are:

- ☐ Dietitians in hospitals
- ☐ Nutritionists in health centres
- ☐ Diet counselors in fitness centres
- ☐ Child development project officers
- ☐ Sanitary inspectors
- ☐ Floor supervisors in corporate hospitals
- ☐ Block Development Officers
- ☐ Front office managers
- ☐ House keepers in hotel industry

2. Eligibility for Admission

Duration of the Course : 3 Years

Medium of Instructions : English 1363

Candidates should have passed the Higher Secondary Examination conducted by the Board of Higher Secondary Education, Tamil Nādu or any other Examination accepted by Academic Council with any science group in Higher Secondary Examinations.

Programme	B.Sc. Home Science-Nutrition, Food Service Management and Dietetics with Computer Application/Clinical Nutrition/ Clinical Nutrition and Dietetics/Foods and Nutrition/Food Science and Nutrition/Interior Design and Décor
Code	
Duration	3 years [UG] On successful completion of the programme, the student:
Programme Outcomes	PO1: Disciplinary Knowledge and Skills Demonstrates theoretical and practical knowledge and understanding in subjects related to Food Science and Nutrition/ Dietetics/ Food service management /computer application and other core areas of Home science
	PO2: Effective Communicator Is capable of effective communication of subject specific scientific information through oral and written formats using ICT wherever necessary. Explores communication skill set to engage key stakeholders such as the family and community.
	PO3: Critical thinking, Analytical reasoning and problem solving Applies disciplinary knowledge, understanding and transferable skills to the given context. Is capable of identifying and analyzing problems and issues and seek solutions to real-life problems
	PO4: Research and Scientific Reasoning Demonstrates skills in research through collection of relevant qualitative and quantitative data, analysis and interpretation of data using appropriate methodologies for formulating evidence-based solutions and arguments.
	PO5: Co-operation/ Team Work Is capable of contributing significantly and working enthusiastically both independently and in a group.
	PO6: Digital Literacy Demonstrates competency in accessing relevant and authentic information and data from electronic media with a motive to learn and synthesize information for academic and extension work presentation; prepare computer aided designs and use specific software.
	PO7: Multicultural competence Recognizes and assesses societal, environmental and cultural issues related to area of study within the local and global context.
	PO8: Moral and Ethical awareness/reasoning: Displays moral responsibility and values; Has a professional approach, is objective, unbiased and truthful in all aspects of work and refrains from unethical practices such as plagiarism , fabrication, falsification, misinterpretation of the data and breaching intellectual property rights

	PO9: Leadership readiness/qualities Possesses leadership skills, takes initiative, mobilizes resources has the capacity to lead community based projects and initiatives successfully
	PO10: Lifelong learning Is capable of staying motivated to be updated consistently with content, concepts, theories, specializations, fields, technologies, books and avenues to meet professional and personal needs at any given instant.

Programme Specific Outcomes	
On successful completion of the programme, the student:	
PSO1	Acquires fundamental knowledge in the core areas Food Science and Nutrition/ Dietetics/ Food service management /computer application and other core areas of Home Science and Computer application.
PSO2	Develops competency in the application of knowledge in different settings such as family, community, Food and hospitality industry, social welfare sectors.
PSO3	Displays skills in oral and written communication for effective dissemination of knowledge gained in field of Nutrition, Dietetics, food service and other core areas of Home science to benefit society and mankind.
PSO4	Acquires skills that create professionals in different fields related to Home Science.
PSO5	Can pursue higher education, research, teaching, entrepreneurship or render service in the government, public or corporate sector.

Highlights of the Revamped Curriculum

- ☐ The curriculum focusses on meeting the demands of the Food and Hospitality industries, Healthcare, Childcare, and Social Welfare sectors.
- ☐ This student centric programme ensures knowledge and skill development by providing hands on training, on-the-job internships, projects, lab practices, experiential activities, exposure to entrepreneurial skills and training for competitive examinations.
- ☐ The course content is comparable to world class curriculum.
- ☐ The courses are updated to include recent developments in the field of Nutrition and Home Science.
- ☐ References are updated and web resources are cited.
- ☐ Each course in the curriculum carries either a practical/activity or experiential learning component to ensure skill development along with acquiring knowledge in the subject.
- ☐ Potential for employability has been enhanced through mandatory internships.
- ☐ Digital literacy and competency are ensured using ICT enabled learning environment.

TEACHING METHODOLOGIES

Teaching methods: Chalk and Board, Experiential learning, Student Centric learning and Small projects and Practical assignments; Virtual Classroom, LCD projector, Smart Class, Video Conference and Guest Lectures by eminent people.

Training students to engage in self-study without relying on faculty (for example – library and internet search, manual and handbook usage, etc.)

COURSE TEMPLATE FOR B.Sc. HOME SCIENCE- NUTRITION, FOOD SERVICE MANAGEMENT AND DIETETICS WITH COMPUTER APPLICATION

SEMESTER-I								
Part	Course Type	Course Code	Title of the Course	HRS/WK	Credits	Internal Marks	External Marks	Total
I	LC		Tamil	6	3	25	75	100
II	ELC		English	6	3	25	75	100
III	CC 1		Food Science	5	5	25	75	100
III	CC 2		Food Science Practical	3	3	25	75	100
III	GEC 1		Fundamentals of Computer and MS-office	4	4	25	75	100
III	GEC 2		Fundamentals of Computer and MS-office- Practical	2	--	--	--	--
IV	SEC 1		Fundamentals of Art and Design	2	2	25	75	100
IV	FC		Introduction to Home Science with Computer Application	2	2	25	75	100
			TOTAL	30	22			700
SEMESTER-II								
I	LC		Tamil	6	3	25	75	100
II	ELC		English	6	3	25	75	100
III	CC 3		Human Development	4	4	25	75	100
III	CC 4		Human Nutrition	4	4	25	75	100
III	GEC 2		Fundamentals of Computer and MS-Office- Practical	2	2	25	75	100
III	GEC 3		Human Physiology	4	4	25	75	100
IV	SEC 2		Food preservation	2	2	25	75	100

IV	SEC 3 / NM*		Front Office Management	2	2	25	75	100
			TOTAL	30	24			800

SEMESTER-III

Part	Course Type	Course Code	Title of the Course	HRS/W K	Credits	Internal Marks	External Marks	Total
I	LC		Tamil	6	3	25	75	100
II	ELC		English	6	3	25	75	100
III	CC 5		Nutritional biochemistry	5	4	25	75	100
III	CC 6		Nutritional biochemistry- Practical	3	3	25	75	100
III	GEC 4		Chemistry-I (Theory)	4	4	25	75	100
III	GEC 5		Chemistry- II Practical	2	--	--	--	--
IV	SEC 4		House Keeping	1	1	25	75	100
IV	SEC 5 / NM*		Family Dynamics	2	2	25	75	100
IV	EVS		Environmental Studies	1	--	--	--	--
			TOTAL	30	20			700

SEMESTER-IV

I	LC		Tamil	6	3	25	75	100
II	ELC		English	6	3	25	75	100
III	CC 7		Nutrition Through Life Cycle	4	4	25	75	100
III	CC 8		Nutrition Through Life Cycle-Practical	3	3	25	75	100
III	GEC 5		Chemistry- II Practical	2	2	25	75	100
III	GEC 6		Chemistry-III (Theory)	4	4	25	75	100
IV	SEC 6		Fibre to Fabric	2	2	25	75	100
IV	SEC 7 / NM		Preschool and Creche Management	2	2	25	75	100
IV	EVS		Environmental Studies	1	2	25	75	100
			TOTAL	30	25			900

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SEMESTER-V								
Part	Course Type	Course Code	Title of the Course	HRS/WK	Credits	Internal Marks	External Marks	Total
III	CC 9		Dietetics	5	5	25	75	100
III	CC 10		Dietetics- Practical	3	3	25	75	100
III	CC 11		Food Service Management	6	4	25	75	100
III	CC 12		Food Microbiology	5	4	25	75	100
III	DSE I		Changing Trends in Extension Education	4	4	25	75	100
III	DSE II		Internet and Web Designing	5	3	25	75	100
V	VE		Value Education	2	2	25	75	100
IV			SUMMER INTERNSHIP		2	--	100	100
			TOTAL	30	27			800
SEMESTER-VI								
III	CC 13		Quantity food production	6	4	25	75	100
III	CC 14		Quantity food production – Practical	4	3	25	75	100
III	CC 15		Public Health Nutrition	6	4	25	75	100
III	DSE III		Principles of Resource Management	6	4	25	75	100
III	DSE IV		C- Programming	6	4	25	75	100
IV			Extension Activity	--	1	--	100	100
IV	Professional Competency skill		Women's Health and Wellness	2	2	25	75	100
			TOTAL	30	22			700

Total Credits – 140
Total Marks- 4600

ABSTRACT OF COURSES FOR B.Sc. HOME SCIENCE-NFSMD WITH CA

PART	COURSES	TOTAL NO OF COURSES	HOURS	CREDITS	MARKS
I	Tamil	4	24	12	400
II	English	4	24	12	400
III	Core Courses	15	65	57	1500
III	GEC Courses (Allied)	6	24	20	600
III	Discipline Specific Elective Courses	4	22	15	400
IV	Summer Internship	1	--	2	100
IV	Skill Enhancement Courses	7	13	13	700
IV	Foundation Course	1	2	2	100
IV	E.V.S	1	2	2	100
IV	NCC/ NSS/ Extension Activity/ Sports	1	--	1	100
IV	Professional Competency Skill	1	2	2	100
V	Value Education	1	2	2	100
Total		46	180	140	4600

***Part I, II, and Part III components will be separately taken into account for CGPA calculation and classification for the under graduate programme and the other components. IV, V have to be completed during the duration of the programme as per the norms, to be eligible for obtaining the UG degree.**

Methods of Evaluation Theory and Practical		
Internal Evaluation	Continuous Internal Assessment Test	25Marks
	Assignments	
	Seminars	
	Model examination	
	Attendance and Class Participation	
External Evaluation	End Semester Examination	75Marks
	Total	100Marks

COURE COURSES FOR B.Sc N,FSM & WITH CA					
Semester	Part	Course Type	course code	Title of the course	Page No
I	III	CC 1		Food science	11 to
I	III	CC 2		Food science – practical	
II	III	CC 3		Human development	
II	III	CC 4		Human Nutrition	
III	III	CC 5		Nutritional Biochemistry	
III	III	CC 6		Nutritional Biochemistry- Practical	
IV	III	CC 7		Nutrition through life cycle	
IV	III	CC 8		Nutrition through life cycle- Practical	
V	III	CC 9		Dietetics	
V	III	CC 10		Dietetics- Practical	
V	III	CC 11		Food service Management	
V	III	CC 12		Food microbiology	
VI	III	CC 13		Quantity food production	
VI	III	CC 14		Quantity food production - Practical	
VI	III	CC 15		Public health nutrition	48
V	IV			Summer Internship	49-51

GENERIC ELECTIVE COURSES Offered for B.Sc N, FSM&D with CA					
Semester	Part	Course Type	course code	Title of the course	Page No
I	III	GEC 1		Fundamentals of computer and MS-Office	51-
I&II	III	GEC 2		Fundamentals of computer and MS-Office- Practical	
II	III	GEC 3		Human Physiology	
III	III	GEC 4		Chemistry -I	
III & IV	III	GEC 5		Chemistry -II Practical	61
SKILL ENHANCEMENT COURSE OFFERED FOR B.Sc N,FSM&D with CA					
I	IV	SEC 1		Fundamentals of arts and design	61-
II	IV	SEC 2		Food preservation	
II	IV	SEC 3		Front office management	
III	IV	SEC 4		House keeping	
III	IV	SEC 5		Family dynamics	
IV	IV	SEC 6		Fibre to fabric	
IV	IV	SEC 7		Preschool and creche management	82
DISCIPLINE SPECIFIC ELECTIVE COURSES FOR B.Sc N, FSM &D with CA					
V	III	DSE 1		Changing trends in extension education	82-

V	III	DSE 2		Internet and Web designing	
VI	III	DSE 3		Principles of resource management	
VI	III	DSE 4		C-Programming	94
FOUNDATION COURSE FOR B.Sc N,FSM&D with CA					
I	IV	FC		Introduction to Home Science with computer application	95-98
PROFESSIONAL COMPETENCY SKILL					
IV	VI			Women's Health and wellness	99-101

Title of the Course		FOOD SCIENCE								
Category	I Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Semester - I							CIA	External	Total
Core – 1		Y		Y		5	5	25	75	100

Learning Objectives
To enable the students to:
Understand the science of food and factors that affect its quality, Nutritive value and shelf life.
Understand the physical, biological and chemical characteristics of various foods and their uses.
Apply knowledge of foods in planning diets and preparing meals that are safe, nutritious and palatable.

UNIT	CONTENT	HOURS
UNIT I	Nutrient content of foods and Cooking Methods - Classification of foods according to nutrient content. Food groups for balanced diets. Study of the different cooking methods- dry heat, moist and combination methods, solar cooking, microwave cooking - merits and demerits, dishes prepared by these methods.	10
UNIT II	Cereals, Millets, Pulses, Legumes and Nuts - Classification of Cereals, Structure, nutrient composition, storage, processing, milling, parboiling, scientific methods of preparation and cooking, acceptability and palatability of rice, wheat, maize and millets Cooking of starches- Dextrinization and gelatinization, retrogradation and resistant starch. Pulses and legumes - Types, nutritive value, methods of cooking, effect of soaking and germination, judicious combination of cereals and pulses- complementary effect, soya beans, fava beans and kesari dhal- methods to inactivate /remove toxins; storage. Nuts - types, composition, market forms, roasting, steaming of nuts, nuts butters; uses in sweets, baking, and confectionery; Storage. Oilseeds - types, methods of processing, uses and shelf life	10

UNIT III	Vegetables and Fruits Vegetables: Classification, nutritive value, effect of cooking on colour, texture, flavour, appearance and nutritive value, Purchase - storage and preservation Fruits: Classification, nutritive value, changes during ripening, enzymatic browning, uses, preservation.	10
UNIT IV	Flesh foods, Eggs, and Milk Meats – structure, nutritive value, selection of meat, postmortem changes in meat, ageing, factors affecting tenderness of meat, methods of cooking and storage. Poultry-types, nutritive value, selection and cooking Fish - classification, nutritive value, selection, storage, cooking and preservation. Eggs Structure, nutritive value, methods of cooking, storage, preservation and uses in cookery; foam formation and factors affecting foam formation Milk and milk products Nutritive value, kinds of milk, pasteurization, and homogenization, coagulation of milk, fermentation of milk; milk products - whole and skimmed milk, milk powders and yogurt, ghee, butter, cheese. Storage and preservation.	15
UNIT V	Fats and oils, sugars, food adjuncts and beverages Fats and Oils: Types, sources-animal fats and vegetable fats, functions, processing-difference between cold pressed and regular cooking oils, hydrogenated fat, emulsification, rancidity, smoking point. Factors affecting absorption of oils while frying foods, harmful effects of reheated oils. Sugars: Types and market forms of sugars; stages of sugar cookery, crystallization, factors affecting crystallization, uses in confectionery. Food adjuncts and food additives Spices and condiments: classification, source, use in food preparation, Leavening agents, stabilizers, thickeners, anticaking agents, enzymes, shortenings, stabilizers, flavouring agents, colouring agents, sweeteners-use and abuse. Food adulteration Definition, common adulterants in food Beverages Classification-fruit based beverages; milk-based beverages nutritive value and uses, alcoholic beverages, coffee, tea and cocoa, malted beverages. Sources, manufacture, processing, and service; methods of preparation of coffee and tea.	15

	PRACTICAL 1. Cereal and Pulse - Experimental Cookery, gelatinization, Dextrinisation 2. Vegetable and Fruit - Experimental Cookery, enzymatic browning. 3. Meat, Egg and Milk- Experimental Cookery; whipping quality of eggs 4. Study of the smoking temperature of Fats 5. Stages of Sugar cookery, factors affecting crystallization 6. Preparation of coffee and tea by different methods. Preparation of one dish each applying the different cooking methods	15
	TOTAL	75

ACTIVITY

- A survey of processed forms of cereals, pulses, dairy/meat products available in the market Comparison of convenience foods and natural/whole foods
- Market survey of processed beverages
- Identify common adulterants in foods

COURSE OUTCOMES

After successful completion of the course the student will be able to:

CO1.Identify foods based on food groups and list their uses.

CO2. Describe classification, nutritive value, storage and preservation of foods.

CO3.Explain changes in food due to cooking, processing and factors that affect palatability, acceptability, and nutritive value.

CO4. Compare different methods of cooking and select the methods best suited for cooking different Foods.

CO5. Justify the selection, processing, storage, and cooking methods to preserve nutritive values of various foods and make them safe and acceptable.

References:

1. Manay, S. and Shadaksharaswamy, M. (1987) Foods Facts and Principles. New Age International Publishers, New Delhi.
2. Peckham, G.C. and Freeland-Graves, J.H. (1979) Foundations of Food Preparation, 4th edition, Macmillan Publishing Co. Inc., New York.
3. Shewfelt R.L. (2015) Introducing Food Science. CRC Press, Taylor and Francis Group. Boca Raton
4. Srilakshmi B (2019) Food Science, (7th Ed.) New Age International Publishers
5. Thangam E.Philip, Modern Cookery for Teaching and the Trade Volume - 1&2 (6th Revised Edition), Orient Black
6. Vaclavik, V.A. and Elizabeth, W.C. (2013) Essentials of Food Science.2nd ed. Springer Publication, New Delhi

e-Learning resources

- <https://ia801408.us.archive.org/20/items/textbookoffoodsc0000khad/textbookoffoodsc0000khad.pdf>
- <https://egyankosh.ac.in/handle/123456789/32947>
<https://unacademy.com/content/kerala-psc/study-material/basic-food-science/>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	L	S	M	S	M	M	S
CO2	S	S	S	L	S	M	S	M	M	S
CO3	S	S	S	L	S	M	S	M	M	S
CO4	S	S	S	L	S	M	S	M	M	S
CO5	S	S	S	L	S	M	S	M	M	S

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	2	3	3
CO2	3	3	2	3	3
CO3	3	3	2	3	3
CO4	3	3	2	3	3
CO5	3	2	2	3	3
Weightage	15	14	10	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	2	3	3

Title of the Course		FOOD SCIENCE PRACTICAL								
Category	I Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Semester – I							CIA	External	Total
Core – 2				Y		3	3	25	75	100

Learning Objectives

To enable the students to :

Learn the principles and scientific methods of cooking

Learn the best methods of cooking foods to preserve its nutrient content and minimize cooking time.

Apply the principles of cookery to prepare tasty and nutritious food

UNIT	CONTENT	HOURS
UNIT I	Introduction to Basic Cooking Skills Introduction to different cooking methods, cooking terminology; equipment and techniques used for pre-preparation and for different cooking methods. Methods of measuring and weighing liquids and dry ingredients. The use and care of simple kitchen equipment. Introduction to food safety, sanitation and hygiene in the kitchen, Safe practices in handling knives, sharp instruments and materials at high temperature.	10
UNIT II	Cereals, Millets and pulses Cereals and Millets: Methods of combining fine and coarse cereal with Liquid (eg. Ragi porridge, rava upma) Method of cooking cereals and factors influencing texture and nutritive value- cooking rice by boiling and straining, absorption method, steaming, pressure cooking, microwave cooking; Gelatinization and dextrinization Preparation of recipes using rice-puttu, dosai, idli/idiappam, lemon rice, curd rice, coconut rice, fried rice, tamarind rice, tomato rice, mint pulao- a few Wheat and Millet preparations - Kesari, Phulka, poori, paratha, naan, ragi adai, samai curd rice, thinai uppuma, -a few Pulses: Factors influencing texture, digestibility and nutritive value of whole gram/legumes and pulses -soaking, addition of soda bicarbonate, addition of salt, water quality- hard and soft water, pressure cooking, boiling and straining. Pulse preparations- Sundal, sambhar, sprouted green gram patchadi, Vadai, pongal, ompodi, green gram payasam, masala vadai, medhu vadai-a few	15

UNIT III	Vegetables and Fruits Vegetables: Basic cuts of vegetables-Slice and mince (onions) Shred (cabbage, spinach),dice (carrot), chop (tomato), grating (beetroot), and their uses in dishes. Changes in colour and texture of vegetables and nutritive value due to different methods of cooking, cooking medium and addition of acid/alkali. Vegetable preparations – Poriyal, Aloo methi curry, vegetable cutlet, thoran, vegetable kurma, avial, keera masala, vegetable salad, vegetable soup, vegetable sandwich, kootu, mint chutney and carrot halwa. Fruits: Enzymatic browning in fruits and methods to prevent it. Fruit preparations- stewed apple, banana fritters, fruit salad, fruit punch, fruit yoghurt and fruit smoothie, preserve/jam.	20
UNIT IV	Eggs, milk and milk products, meat and fish: Egg Cookery: Boiling of eggs-hard and soft boiled eggs. Best method of boiling eggs. Prevention of Ferrous sulphide formation on the yolk. Poaching and frying. Coagulation of egg protein-stirred and baked custard Egg preparations - egg curry, omelet, French toast, caramel custard (steamed), scrambled eggs and fried eggs- a few Factors affecting whipping quality of egg white – effect of salt, sugar, vinegar, fat and milk, type of container used and beaters, Stages of foam formation in whipped egg whites and their uses in cookery. Milk and milk products Curdling of milk using lime juice, butter milk, tomato juice, Milk preparations Cream of tomato soup, paneer masala, payasam, patchadi, thairi vada, morkulumbu, basundi, lassi, spiced buttermilk and baked macaroni and cheese. Meat and Fish Methods of tenderizing meat-Pounding, mincing addition of acids like curd/lime juice in marinade, addition of proteolytic enzymes-raw papaya Effect of different methods of cooking on flavour, texture and appearance of meat and fish. Meat preparations - mutton ball curry, mutton vindaloo, mutton keema, liver fry, chicken spring roll, chicken sweet corn soup, chicken biriyani. Sea food preparations- fish fry, fish moilee, fish cutlet, sweet and sour prawns.	15

UNIT V	Sugar cookery, Fats and oils food additives and raising agents Sugar Cookery - Stages of sugar cookery and uses. Preparations of sweets using different stages of sugar cookery Fats and oils - Effect of temperature of oil on texture and palatability of foods- Frying pooris at different temperatures Smoking point of oil - bread cube test. Emulsions- definition, Preparation of mayonnaise Food additives and Raising agents Role of MSG, sodium benzoate and KMS in food preparation and preservation., Natural versus synthetic preservatives, -Advantages and limitations Use of baking soda, baking powder, yeast in baking and food preparation- Prepare one dish with each of these Uses of herbs and spices to enhance flavour.	15
	TOTAL	75

COURSE OUTCOMES

After successful completion of the course the student will be able to:

- CO1.** Identify appropriate methods for weighing dry and wet food ingredients and for cooking different foods.
- CO2.** Select suitable methods for cooking cereals, pulses, vegetables, meat, fish and Poultry.
- CO3.** Apply the principles of cookery, cooking techniques and suitable ingredients in preparing dishes.
- CO4.** Explain the reasons behind the changes that occur during food preparation.
- CO5.** Justify the best preparation and cooking methods for acceptability and retention of nutrients in different dishes

References:

1. Martland, R.E. and Welsby, D.A. (1980) Basic Cookery, Fundamental Recipes and Variations. William Heinemann Ltd., London.
2. Krishna Arora (2008) Theory of cookery, Frank Brothers & Co.,
3. Negi J (2013) Fundamentals of Culinary Art, S.Chand and Co.

4. Peckham, G. C. and Freeland-Graves, J. H. (1987) Foundation of food preparation. 4th ed. Macmillan Publishing co, New York
5. Penfield MP and Ada Marie C (2012), Experimental Food Science, Academic Press, San Diego

e-Learning Resources:

- ☐ https://www.ihmnotes.in/assets/Docs/Books/Theory_of_Cookery.pdf
- ☐ <http://staffnew.uny.ac.id/upload/132318572/pendidikan/buku-esp.pdf>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	L	S	M	S	L	L	S	S	S
CO2	S	L	S	S	S	M	S	S	M	S
CO3	S	M	S	S	S	M	S	M	M	S
CO4	S	S	S	S	S	M	S	M	M	S
CO5	S	S	S	S	S	L	S	S	M	S

Mapping with Programme Specific Outcomes

CO/PSO	PO1	PO2	PO3	PO4	PO5
CO1	3	3	1	3	3
CO2	3	3	1	3	3
CO3	3	3	1	3	3
CO4	3	3	2	3	3
CO5	3	3	1	3	3
Weightage	15	15	6	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	1	3	3

Title of the Course		HUMAN DEVELOPMENT								
Category	Year	L	T	P	O	Credits	Inst. Hrs	Marks		
	Sem							CIA	External	Total
Core- 3	II	Y	Y			4	4	25	75	100

Learning Objectives
To enable the students to :
Familiarize with the growth process from conception to confinement.
Know the development of an individual from infancy to old age.
Understand the physical, psychological, and social development of the individual from infancy to old age.
Develop an awareness of the problems of children, adolescent, and exceptional children.

UNIT	CONTENT	HOURS
UNIT I	Growth and development Meaning - growth and development, principles of governing growth and development, developmental task of different stages. Methods of study of human development. Prenatal development-symptoms, stages ,discomforts and complications	10
	Practical - preparation of case study - observing various development-physical, motor, cognitive, creative, social, emotional, and intellectual of a particular child.	10
UNIT II	Infancy and Childhood Characteristics, physical, social, and emotional development, cognitive and language development during infancy, early childhood, and late childhood. Children's play – meaning, types, importance stages. Parental disciplinary Techniques – merits and demerits	16

	Practical - Socio-metric study of early adolescents. Analysis of various play techniques.	4
UNIT III	Adolescence Adolescence –physical and psychological changes, emotional, moral and social development, Problems of adolescence. Delinquency – causes, prevention, and rehabilitation. Educational and vocational guidance, role of family and schools and colleges in guiding adolescence	10
	Practical - A survey on Juvenile Delinquency prevalence.	5
UNIT IV	Adulthood and Old Age Adulthood - Characteristics and developmental tasks, all aspects of development and vocational adjustments. Old age - Characteristics of old age, physical changes, psychological changes. Place of the aged in Indian Society	7
	Practical - Survey on problems of old age.	3
UNIT V	Exceptional Children Introduction to Children with Special Needs and identification & Educational Rehabilitation Gifted children Orthopedically challenged Mentally retarded Hearing impaired Visually handicapped Learning disability	7
	Practical - Visit to an institution for exceptional children.	3
	TOTAL	75

CCOURSE OUTCOME

After successful completion of the course the student will be able to

- CO1.** Describe the meaning and principles of Growth & Development
- CO2.** Explain developmental aspects during infancy, early and late childhood.
- CO3.** Evaluate developmental aspects during adolescence.
- CO4.** Identify the developmental tasks during adulthood and old age.
- CO5.** Introduction to Children with Special Needs and identification & Educational Rehabilitation

References

1. Hurlock E.B., (1972). Child Development, New York: McGraw Hill Book company.
2. Hurlock, E.B., (1995): Developmental Psychology - A Life Span Approach, 5th (Ed.) New York: McGraw Hill Book Co.
3. Nanda V.K., (1998): Principles of Child Development, New Delhi: Anmol Publications Pvt. Ltd.
4. Rajammal P. Devadas and Jaya N. Muthu (2002). A Textbook of Child Development, New Delhi: Macmillan Publishers.
5. Singh, A. (2015). Foundations of Human Development: A Life Span Approach. New Delhi: Orient Black Swan.
6. Suriakanthi A., (1997). Child Development – An Introduction, Tamil Nadu: Kavitha Publishers.
7. Swaminathan, M (1998). The First Five Years: A Critical Perspective on Early Childhood Care and Education in India. New Delhi: Sage Publications.
8. Suriakanthi, A., (2009). Child Development. Kavitha publications, Tamil

e- Learning Resources

- i. http://www.wbnsou.ac.in/online_services/SLM/BED/SEM-01_A1.pdf
- ii. <https://ncert.nic.in/textbook/pdf/kepy104.pdf>
- iii. <https://egyankosh.ac.in/bitstream/123456789/17134/1/Unit-3.pdf>
- iv. https://www.cukashmir.ac.in/departmentsdocs_16/Growth%20&%20Development%20-%20Dr.%20Ismail%20Thamarasseri.pdf

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	3	2	3	2	3	3	2	3
CO2	3	3	3	2	3	2	3	3	2	3
CO3	3	3	3	2	3	2	3	3	2	3
CO4	3	3	3	2	3	2	3	3	3	3
CO5	3	3	3	2	3	2	3	3	3	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low 1

Title of the Course		HUMAN NUTRITION								
Category	Year	L	T	P	O	Credits	InstHrs	Marks		
	Sem							CIA	External	Total
CC4	II	Y		Y		4	4	25	75	100

Learning Objectives
To enable the students to:
Understand the importance of various macronutrients in relation to health.
Highlight dietary guidelines for various nutrients and contribute towards a better life style for Prevention of non-communicable diseases.

UNIT	CONTENT	HOURS
UNIT I	Introduction to nutrition History of Nutrition– Development of Nutrition as a Science Food as a source of nutrients, definition of nutrients, Balanced diets and dietary guidelines-current concepts Signs and symptoms of adequate, optimum and good nutrition, malnutrition (Undernutrition, and overnutrition), Assessment of Nutritional status-Anthropometric, Biochemical, Clinical and Dietary aspects.	7
	Activity -Plan meals based on My- Plate concepts, Record Height, Body weight, and calculate Body Mass Index (BMI) in a small sample, and categorize according to BMI.	3
UNIT II	Carbohydrates Classification, Food Sources, Requirements and Functions of carbohydrates in the body. Review of digestion, absorption and metabolism. Physiological significance of Monosaccharides, Disaccharides and Polysaccharides Glycemic Index, Glycemic load of Foods, and factors affecting it, Hormonal control of Blood sugar. Role of fibre in prevention of non-communicable diseases. Proteins Amino acids -Indispensable and dispensable amino acids. Classification, Sources, Requirements and functions of protein. Mutual supplementation of proteins. Protein deficiency-Protein Energy Malnutrition- Kwashiorkor and Marasmus–etiology, clinical features, treatment and prevention Evaluation of protein quality -PER, BV, NPU and NPR, chemical score. Protein Supplements and Novel Protein sources-Benefits and Health concerns	17
	Activity -List foods based on their GI, and Protein supplements available in the market.	3
UNIT III	Lipids Classification, Sources, Requirements and functions, Essential fatty acids-deficiency, food sources and functions, Healthy and Unhealthy Fats in the diets, Dietary lipids and Its relation to cardiovascular diseases. Energy Determination of energy value of foods using Bomb calorimeter, Physiological value of foods, relation between oxygen used and calorific	17
	value. Direct and Indirect calorimetry direct calorimetry, Respiratory quotient Components of Energy expenditure Basal metabolism, factors affecting BMR, Food related thermogenesis, Physical activity Energy requirements for different age groups, and for various types of activities.	
	Activity -List healthy and unhealthy sources of fats in one's diet. Learn to estimate BMR.	3

UNITIV	Fat Soluble Vitamins Food sources Requirements, Functions, Effects of deficiency or Toxicity (wherever applicable). Water Soluble Vitamins Food sources, Requirements, Functions, Effects of deficiency. Antioxidant role of certain Vitamins in Health promotion	10
UNITV	Macro minerals Calcium, Phosphorous, Magnesium, Potassium, Sodium and Chloride- Distribution in the body, functions, food sources, requirements, effects of deficiency and toxicity. Micro/Trace minerals Iron, Zinc, Iodine, Selenium, Manganese, Chromium, Fluoride and Copper Distribution in the body; functions, effects of deficiency, food sources and requirements, Role of Antioxidant minerals Water As a nutrient, functions, sources, requirements. Distribution of water in the body, exchange of water in the body, composition of body fluids. Water balance, factors regulating it, dehydration, water intoxication.	15
	TOTAL	75

COURSEOUTCOMES

After successful completion of the course, the student will be able to:

CO1. Define nutrients and terms related to nutrition.

CO2. Describe the sources, recommended allowances of macronutrients, micronutrients, and water.

CO3. Interpret the significance of macro and micronutrients, and water for maintenance of optimum health.

CO4. Explain the functions, deficiency or toxicity of macro and micronutrients, and water.

CO5. Evaluate the role of macro nutrients, micronutrients, and water in health and disease.

Reference:

1. Anderson J. J.B., Root M.M., Garner S.C. (2015) Human Nutrition: Healthy Options for Life. Jones & Bartlett Learning, Massachusetts, USA.
2. Guthrie, H.A. (1989) Introductory Nutrition. 7th ed. Times Mirror/Mosby College Publishing, St. Louis
3. Insel P., Ross D., McMahon K., Bernstein M. (2016) Discovering Nutrition. 5th Ed., Jones & Bartlett Learning, Massachusetts, USA.
4. Man K. and Sylvia E. Stump (2000) Krause's Food Nutrition and Diet Therapy, Saunders, USA
5. Medeiros D. M., and Wildman R. E. C. (2019) Advanced Human Nutrition. 4th Ed., Jones & Bartlett Learning, Massachusetts, USA.
6. Ross A. C., Caballero B., Cousins R. J., Tucker K. L., Ziegler T. R. (2014) Modern Nutrition in Health and Disease. 11th Ed., Wolters Kluwer | Lippincott Williams & Wilkins, Philadelphia, USA.
- 7.Sizer F. S. and Whitney E. (2014) Nutrition: Concepts & Controversies. 13th Ed., Wadsworth, Cengage Learning, USA.
8. Whitney, E.R. and Rolfes S.R. (1996) Understanding nutrition. 7th Ed., West Publishing Company, USA

e-LearningResources:

- ☐ <http://www.merck.com/mmhe/seciz/ch155/ch155a.html>
- ☐ <http://www.whereincity/medical/vitamins>

MappingwithProgrammeOutcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7		PO8	PO9	PO10
CO1	S	S	S	M	M	M	L		L	M	S
CO2	S	S	S	M	M	M	L		L	M	S
CO3	S	S	S	S	M	M	S		M	M	S
CO4	S	S	S	M	M	M	L		M	M	S
CO5	S	S	S	S	M	M	L		M	M	S

MappingwithProgrammeSpecificOutcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weightedpercentage(roundedof)of CourseContributionto Pos	3	3	3	3	3

Title of the Course		NUTRITIONAL BIOCHEMISTRY								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
Core C-5&6 (3 HRS 3 Cre)	III	Y		Y		4	6	25	75	100

Learning Objectives

To enable the students to:

Study the basic concepts of metabolism of proximate principles and others.

To learn the metabolic pathways of nutritional significance.

UNIT	CONTENT	HOURS
UNIT I	Biological oxidation and Enzymes Biological oxidation, Electron transport chain and Oxidative Phosphorylation. Enzymes – Definition, Types, Mechanism of action, Factors affecting enzyme activity, Coenzyme, Role of b vitamin as coenzyme. Free radicals – Definition, Formation in biological systems. Antioxidants – definition, Role of antioxidants in prevention of degenerative disorders	10
UNIT II	Metabolism of Carbohydrates Classification, Glycolysis, The Citric Acid Cycle Glycogenesis, Glycogenolysis, Gluconeogenesis, The Hexose Monophosphate Shunt and bioenergetics.	10
UNIT III	Metabolism of Protein Classification of amino acids, Oxidative Deamination, decarboxylation, transamination and transmethylation of amino acids, urea cycle, biosynthesis of non-essential amino acids, catabolism of essential amino acids. Protein biosynthesis.	10
UNIT IV	Metabolism of Lipids Classification of fatty acid, Biosynthesis of fatty acids, beta oxidation of saturated fatty acids, ketone bodies. Essential fatty acids – types and functions. Lipo proteins – classification and function. Biosynthesis of cholesterol.	15
UNIT V	Intermediary Metabolism, Nucleic acid & Recent concepts Overview of intermediary metabolism of carbohydrates, protein and lipid. Hormonal regulation of carbohydrate protein and fat metabolism Structural components and functions of nucleic acid, Structure of DNA, RNA types and functions. Recombinant DNA technology, Metabolism of Xenobiotics, Nutrigenomics	15

	Practicals 1. Qualitative tests for sugars-glucose, fructose, lactose, maltose and glucose. 2. Quantitative estimation of reducing sugar. 3. Qualitative tests for proteins 4. Demonstration Experiments. 5. Estimation of total nitrogen in foods (Micro or Macrokjeldahl methods) 6. Determination of Iodine value 7. Determination of fat content in food using Soxhlet method.	15
	TOTAL	75

COURSE OUTCOME

After successful completion of the course the students will be able to

- CO1.** Describe the role of enzymes and co enzymes in biological oxidation.
- CO2.** Explain metabolism and regulation of carbohydrate, lipids and proteins
- CO3.** Analyze the integration of carbohydrate, lipid and protein metabolism
- CO4.** Comprehend the significance of recent biochemical concepts namely xenobiotics, recombinant DNA technology and Nutrigenomics.
- CO5.** Discuss the structure and functions of nucleic acids.

References

1. Albanese, A. (Ed.). (2012). Newer methods of nutritional biochemistry V3: With applications and interpretations. Elsevier.
2. Bettelheim, F. A., Brown, W. H., Campbell, M. K., & Farrell, S. O. (2009). General, Organic & Biochemistry. Brooks/Cole Cengage Learning.
3. Champe, P. C., Harvey, R. A., & Ferrier, D. R. (2005). Biochemistry. Lippincott Williams & Wilkins, 6th Edition, Wolters Kluwer, London.
4. Harvey, R. and Ferrier, D., Lippincott's Illustrated Reviews: Biochemistry, 6th edition, Lippincott Williams and Wilkins, Philadelphia.
5. Lehninger, A.L. (1993) Biochemistry. 3rd ed. CBS Publishers, New Delhi.
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8. Shanmugham Ambika (1985) Fundamentals of bio-chemistry to medical students. NVA Bharat Printers, and traders 56, Peters Road, Madras-86.

e- LEARNING RESOURCES:

- ☐ <https://www.udemy.com/share/1027yA/>
- ☐ <https://www.classcentral.com/course/swayam-biochemistry-5229>
- ☐ <https://www.classcentral.com/course/edx-biochemistry-biomolecules-methods- and- mechanisms-12585>
- ☐ <https://www.classcentral.com/course/swayam-experimental-biochemistry-12909>
- ☐ <https://youtu.be/y6YGZfcAegw>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	3	2	2	2	1	1	2	3
CO2	3	3	3	2	2	2	1	1	2	3
CO3	3	3	3	3	2	2	3	2	2	3
CO4	3	3	3	3	2	2	1	2	2	3
CO5	3	3	3	3	2	2	1	2	2	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low 1

Title of the Course		NUTRITION THROUGH LIFECYCLE								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
Core -7 &8	III	Y	Y	Y		4	4	25	75	100

Learning Objectives
To enable the students to :
Understand the role of nutrition in the growth and development through the lifecycle.
Gain insight into the principles of effective meal planning.
Understand the nutritional needs of various age groups
Acquire skills to plan diets for various age groups across the lifecycle.

UNIT	CONTENT	HOURS
UNIT I	Introduction to meal planning - Balanced diet, food groups, Food Guide Pyramid (ICMR), Food plate, RDA, factors affecting RDA. Principles of meal planning – steps involved in planning a diet. Nutrition for Adult - Nutritional requirements, planning balanced diets for adult men and women, promoting healthy lifestyle through holistic approach.	10
UNIT II	Nutrition during pregnancy - Physiological changes during pregnancy, nutritional needs, effect of nutrition on pregnancy outcome, optimal weight gain, nutrition related problems in pregnancy, complications of pregnancy. Nutrition during lactation - Physiology of lactation, nutritional requirements, concerns of breast-feeding mother.	15
UNIT III	Nutrition during infancy - Growth and development, growth standards, food and nutritional requirements, breast feeding, artificial feeding, low birth weight babies, complementary feeds. Nutrition for preschool children - Growth and development, food and nutritional requirements, eating habits and food behaviors, nutrition related problems- PEM, VAD and their dietary interventions.	15
UNIT IV	Nutrition for school children - Growth pattern, nutritional requirement, importance of healthy snacks, factors affecting eating habits, school lunch programmes. Nutrition during adolescence - Growth and development, nutritional requirements, food habits, nutritional problems – obesity, underweight, anaemia and eating disorders.	15

UNIT V	Nutrition for old age- Physiological changes in elderly, food and nutritional requirements, nutritional and health concerns in old age and their management, healthy lifestyle modifications in the elderly, feeding old people	5
	PRACTICAL - Preparation of Complementary feed. - Planning and preparation of diets for different activity levels and income group. - Pre-school child - School going children - Adolescents - Adult - Expectant mother - Nursing mother - Old age - Planning and preparation of diets (low and medium cost) for deficiency diseases- - PEM - Vitamin A deficiency - Nutritional anemia - Packed lunch for school	15
	TOTAL	75

COURSE OUTCOMES

After successful completion of the course the student will be able to

- CO1.** Explain the physiological basis for nutritional needs through the human lifecycle
- CO2.** Identify nutrition related concerns and deficiency disorders at every stage of lifecycle
- CO3.** Discuss appropriate dietary guidelines for various age groups
- CO4.** Develop indigenous, value added and low cost complementary feeds.
- CO5.** Demonstrate skills to plan and prepare appropriate and sustainable diets for deficiency diseases

REFERENCE BOOKS

1. Abraham S, Nutrition through Lifecycle. (2016) 1st edition, New age international publishers, New Delhi.
2. Cataldo, DeBruyne and Whitney, Nutrition and Diet therapy– Principles and Practice. (1999) 5th edition, West/ Wadsworth, London.
3. Gopalan, C., Ramanathan, P.V. Balasubramanian, S.C. (2001) Nutritive value of Indian foods, NIN, Hyderabad.
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5. Longvah T, Ananthan R, Bhaskar K, Venkaiah K. (2017) Indian Food Composition Tables, National Institute of Nutrition.
6. Srilakshmi B. (2011) Dietetics, sixth edition, New age Publishing Press, New Delhi.
7. Stacy N, William's Basic Nutrition and Diet Therapy. (2005) 12th edition, Elsevier publications, United Kingdom.
8. Whitney EN and Rolfes SR, Understanding Nutrition. (2002) 9th edition West/Wadsworth, London.

e-LEARNING RESOURCES

- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=21435>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=21479>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=21504>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=21520>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=21544>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=21590>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=21607>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=21617>

Title of the Course		DIETETICS								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
Core CC- 9	IV	Y				4	4	25	75	100

Learning Objectives
To enable the students to :
Understand the causes and symptoms and dietary management of various disease conditions.
Gain comprehensive knowledge on principles and planning of therapeutic diets
Acquire knowledge on nutritional needs of sick persons and develop aptitude and skills for taking up dietetics as a profession

UNIT	CONTENT	HOURS
UNIT I	Concept of diet therapy and role of dietitian Principles of therapeutic diets, modification of normal diet, classification of therapeutic diets. Different feeding techniques -entreat and parenteral feeding. – Indications, contraindications and complications, Dietitian- Definition, role and code of ethics, classification of dieticians in nutritional care	20
UNITII	Diseases of Gastrointestinal tract Etiology, symptoms, dietary management of: Diarrhoea, dysentery, and constipation Peptic ulcer, irritable bowel syndrome & inflammatory bowel disease (ulcerative colitis), Crohn's disease and celiac disease	20

UNIT III	Diseases of liver, gall bladder & febrile conditions Etiology, symptoms, dietary management of: Disease of liver & Gall bladder- Hepatitis, cirrhosis, gall stones Febrile conditions - Acute & Chronic fevers (Typhoid, influenza, malaria, tuberculosis, COVID)	10
UNIT IV	Metabolic disorders Etiology, symptoms, and dietary management of: Obesity and PCOS Diabetes mellitus- types, symptoms and metabolic changes, treatment with diet and insulin, GI, GL, carbohydrate counting, artificial sweeteners and complications Cardiovascular diseases – hypertension, atherosclerosis.	10
UNIT V	Diseases of excretory system and cancer Etiology, symptoms, dietary management of: Glomerular nephritis Nephrotic syndrome, urinary calculi, renal failure. Cancer – Risk factors, modification of diet in cancer, nutritional problems of cancer therapy Role of antioxidants in prevention of degenerative diseases.	15
	SELF STUDY/EXPERIENTIAL LEARNING Conduct a group discussion to understand various diseases and presentation of case-studies. Planning of various low-cost recipes using locally available ingredients for dietetics practical Conducting a nutrition exhibition to display sample menus for various disease conditions for different sections of society.	
	Suggested Activity Internship in dietary unit of a hospital	
	TOTAL	75

COURSE OUTCOMES:

After successful completion of the course the student will be able to:

CO1. Explain concepts of diet therapy and role of dietitian.

CO2. Identify the etiology symptoms and principles of dietary management for various diseases.

CO3. Apply the principles of dietetics to plan therapeutic diets for various

disease conditions.

CO4. Examine the physiological condition of the individual and explain the role of food and diet in treating that condition.

CO5. Summarize the causes, symptoms of a disease/ disorder and design a suitable diet plan using principles of nutritional management and recommended dietary allowances.

References:

1. Antia F. P. (2002), Clinical Dietetics and Nutrition, 4th edition, Oxford University Press, Chennai.
2. Guthrie H. A, Picciano M. F (1995) Human Nutrition, Mosby, St. Louis Missouri.
3. Joshi. S.A. (2005), Nutrition and Dietetics, Tata Mc Graw-Hill Publishing Company Limited, New Delhi
4. Passmore R. and Davidson S. (1986) Human nutrition and Dietetics. Liming Stone Publishers
5. Sharma.A.(2017), Principles of Therapeutic Nutrition and Dietetics, CBS Publishers & Distributors Pvt Ltd, New Delhi.
6. Srilakshmi B, Dietetics (2019), 8th edition, New Age International Publishing Ltd, New Delhi
7. Williams S.R, (2000) Basic Nutrition and Diet Therapy, Mosby publication.

e-learning resources:

- ☐ https://www.cdss.ca.gov/agedblinddisabled/res/VPTC2/9%20Food%20Nutrition%20and%20Preparation/Types_of_Therapeutic_Diets.pdf
- ☐ <http://www.differencebetween.net/science/health/difference-between-enteral-and-parenteral-nutrition/>
- ☐ https://www.medicinenet.com/difference_between_diarrhea_and_dysentery/article.html
- ☐ <https://my.clevelandclinic.org/health/diseases/15587-inflammatory-bowel-disease-overview>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	2	1	1	2	2	2	1	3
CO2	3	2	3	2	1	3	2	3	2	3
CO3	3	3	3	2	1	3	2	3	1	3
CO4	3	3	3	3	2	3	3	3	3	3
CO5	3	3	3	2	2	3	3	2	3	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	2	3	3
CO2	3	3	2	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	13	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Title of the Course		DIETETICS PRACTICAL								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CI A	External	Total
CC -10	IV			Y		3	3	25	75	100

****The students are expected to undergo an internship for a minimum of 15 days at any one of the following: Hospital / Health care facility / Fitness Centre / Food Industry / Catering Establishment .**

Learning Objectives
To enable the students to :
Gain knowledge and develop skills and techniques in planning and preparation of therapeutic diets.
Plan diets based on the medical history of the patients and nutritional assessments – anthropometric measurements
Calculate the nutrient content of diets
The internship is committed to preparing graduates in Home Science to join as entry level Dietitians/Nutritionists/Food Analysts/ Catering Staff

UNIT	CONTENT	HOURS
UNIT I	Planning, Calculation of nutrient content, Preparation and Service of diets for: Tube feeds for special conditions Fevers – Typhoid and Tuberculosis	20
UNIT II	Planning, Calculation of nutrient content, Preparation and Service of diets for: Peptic Ulcer Diarrhoea and constipation	10
UNIT III	Planning, Calculation of nutrient content, Preparation and Service of diets for: Viral hepatitis Cirrhosis of liver	20
UNIT IV	Planning, Calculation of nutrient content, Preparation and Service of diets for: Obesity Diabetes Mellitus; Atherosclerosis	10

UNIT V	Planning, Calculation of nutrient content, Preparation and Service of diets for: Hypertension Chronic kidney disease	15
	TOTAL	75

On completing the internship, the student:

- Learns the functions of the Dietary Department / Health care facility/ Fitness Centre
- Gets acquainted with the role and responsibilities of a Dietitian/ Nutritionist in the respective facility
- Develops skills in nutrition screening and assessment of patient/ client
- Acquires training in nutritional diagnoses of each patient/client
- Demonstrates the ability to implement nutrition care plans; document nutrition care provided, maintain internship logbook and monitor outcomes of the nutrition plan

SELF STUDY/EXPERIENTIAL LEARNING

1. Initiate a diet counseling center in the institution for students, teaching, and non-teaching faculty.
2. Conduct exhibitions to display diets for various disease conditions.
3. Prepare a pamphlet indicating foods to be included / avoided/ restricted in different disease conditions.
4. Commemorate days such a World Diabetes Day, World Heart Day and organize Seminars and awareness programs.

COURSE OUTCOMES:

After successful completion of the course the student will be able to:

- CO1.** List the principles of dietary management for various conditions.
- CO2.** Calculate the nutrient content of the diet for various conditions and compare it. with the recommended allowances
- CO3.** Apply the principles of dietary management in planning diets for various conditions.
- CO4.** Justify choice of foods, preparation methods, content, and consistency for different

disease conditions

CO5. Plan and prepare diets for various disease conditions.

REFERENCES:

1. Antia, F.B. (2010), Clinical Nutrition and Dietetics, Oxford University Press, London.
2. IDA. (2018), Clinical Dietetic Manual, 2nd edition, Elite Publishing House, New Delhi
3. Sri Lakshmi. B.,(2019) Dietetics, 8th Ed,New Age International Pub. Co, Chennai.
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5. Williams S.R, (2000) Basic Nutrition and Diet Therapy, Mosby publication.
6. Sharma.A.(2017), Principles of Therapeutic Nutrition and Dietetics, CBS Publishers & Distributors Pvt Ltd, New Delhi.
7. Bajaj .M (2019) Diet Metrics: Handbook of Food Exchanges, Norton Press, Chennai.

Mapping with Programme Outcomes

	PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10
CO1	3	3	3	1	1	1	2	1	1	3
CO2	3	3	3	3	3	3	2	2	2	3
CO3	3	3	3	3	3	3	3	3	1	3
CO4	3	3	3	3	2	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	2	2	3
CO2	3	3	3	3	3
CO3	3	3	2	3	3
CO4	3	3	3	3	3

CO5	3	3	3	3	3
Weightage	15	15	13	14	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low

Title of the Course		FOOD SERVICE MANAGEMENT								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
Core-11	V	Y		Y		4	6	25	75	100

Learning Objectives
To enable the students to :
Gain basic understanding of organizing and managing a food service institution.
Impart knowledge regarding purchase and storage of food to ensure quality service.
Familiarize with the layout of food service outlet and food service equipment.

	CONTENT	HOURS
UNIT I	Organisation Management Types of Organisation, Management - definition, principles, functions and toolsof management-Tangible tools-organization chart, job description, job specification, job analysis, work schedule, Intangible tools-budget, leadership styles, decision making, and communication skills.	15
UNIT II	Personnel Management Definition, functions of personnel department, Recruitment-sources, Selection- steps, Induction - definition, methods, uses, Training- advantages, methods, supervision, performance appraisal, promotion, demotion, transfer, retirement, termination and dismissal of employees. Labor laws pertaining to the food service establishment.	15

UNIT III	Food Management Food purchase – purchasing process, functions of food buyer, methods of buying openmarket, formal, negotiated, wholesale, blanket order, contract. Storage in food service – types of stores, storeroom management, purchase, stores records- Physical and perpetual inventory order form, requisition slip, invoice, goodsreceived book, stock book, bin card, stores ledger.	15
UNIT IV	Plant and equipment management Planning of food service unit - Layout of a food service, planning of storage, production and service areas, concepts of workflow and work simplification technique. Environmental hygiene-pest control-types of pests and pest control methods; garbage disposal method. Safety in food service institution - Accidents - causes and prevention. Equipment in food service - Classification of equipment, factors affecting selection of equipment.	15
UNIT V	Financial Management Book- keeping – definition, advantages of double entry system, books of accounts– an introduction. Costing and Cost control: Basic cost concepts – elements of cost (material, labour,overheads), behavior of cost (fixed, variable, semi-fixed / semi-variable), methodsof costing (Dish, meal, menu costing & costing for events), cost control, concept ofbreak-even, break-even point. Pricing - factors affecting pricing, pricing methods (cost plus, factor, rate of return,subsidy, discount).	15
	Total	75

SELF STUDY/EXPERIENTIAL LEARNING

1. Group discussion and power point presentation, job descriptions, recruitment advertisements in print media / online sites.
2. Prepare resumes for job interview and conducting of mock interview.
3. Role plays of different leadership skills.

COURSE OUTCOMES

After successful completion of the course the student will be able to:

CO1. Apply the principles, tools of management to ensure for effective functioning of organization.

CO2. Develop the managerial skills to select, train, appraise human resources.

CO3. Recognize the use and operation of equipment and acquire skills in the selection of equipment, sketch sample lay out of the food service units.

CO4. Evaluate and implement food safety and environmental sanitation in the workspace.

CO5. Use the basic concept of bookkeeping and elements of cost to assess the financial viability of the organization.

References:

1. Andrews and Sudhir. (2000). Introduction to Hospitality Industry, Tata-McGraw Hill Pub. Co., New Delhi.
2. Dhawan and Vijay. (2001). Food and Beverage Service, Frank Boss and Co, New Delhi.
3. Foskett David. (2011). The Theory of Hospitality and Catering, Hodder Education, London.
4. Lillicarp, D.R. and Cousins, J. (2010). Food and beverage Service, 8th edition, Hodder Education, London.
5. Sethi, Mohini, Malhan, Surjeet. (2015). Catering Management – An Integrated Approach, 3rd ed, New Age International Publishers, New Delhi.

Title of the Course		FOOD MICROBIOLOGY								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
Core-12	V	Y		Y		4	5	25	75	100

Learning Objectives
To enable the students to :
Gain knowledge on the characteristics of micro-organisms in food and environment.
Understand the role of microorganisms in food spoilage, health and illness.
Familiarize with the methods of controlling microorganisms.

UNIT	CONTENT	HOURS
UNIT I	Introduction to Microbes in Foods History and Development of Food Microbiology Classification of microorganisms. General morphological characteristics of bacteria, yeast, algae, mold, virus. Characteristics of predominant microorganisms in food, sources of microorganisms in foods.	15
UNIT II	Microbial spoilage and contamination of common food Factors affecting growth of microorganisms- intrinsic and extrinsic. Sources of contamination and spoilage of common foods -Cereal and cereal products, fruits and vegetables, egg, meat and fish, milk and milk products.	15
UNIT III	Beneficial uses of microorganisms in food and health Microorganisms used in fermented products - Alcoholic drinks, Dairy products, Bread, Vinegar, Pickled foods. Single-cell protein Food Bio preservatives of microbial origin. Intestinal Bacteria and Probiotics.	10
UNIT IV	Food poisoning and Food borne disease Food poisoning/ intoxication and food infection- definition. Bacterial food poisoning – Staphylococcus aureus, Clostridium botulinum, Clostridium perfringens, Bacillus cereus Food Infection- Salmonellosis, Shigellosis, Cholera, Gastroenteritis. Measures to prevent food poisoning and food borne infection.	15
UNIT V	Microorganisms found in water, soil, air and sewage- List of microorganisms and diseases caused; Test for sanitary quality of water, Purification of water Control of Microorganisms in food Control of Access of Microorganisms: sanitation, sterilization and disinfection Control by Heat (Thermal Processing), Low Temperature, Reduced Water Activity and Drying, Low pH and Organic Acids, Modified Atmosphere, Reducing O-R Potential) Antimicrobial Preservatives and Bacterio phages Irradiation, Novel Processing Technologies, Combination of Methods (Hurdle Concept)	20
	TOTAL	75

COURSE OUTCOMES

After successful completion of the course the student will be able to

CO1. Comprehend the characteristics of microorganisms in food and its environment and apply the knowledge to control them.

CO2. Differentiate between organisms that are beneficial from those causing spoilage.

CO3. Explain the causes and prevention of food poisoning and food borne infections.

CO4. Identify the microscopic structure of algae, molds, yeast, virus and bacteria.

CO5. Perform appropriate tests to identify the size, shape, arrangement and motility of organisms.

References

1. Parija SC. (2012) Textbook of Microbiology and Immunology, 2nd edition, Elsevier India.
2. Garbutt J. (1997) Essentials of Food Microbiology, 2nd edition, Arnold publication, New York, 1997
3. Adams M.R, Moss M.O and Peter.M (2016). Food Microbiology. 4th edition. Royal Society of Chemistry, United Kingdom.
4. Frazier W.C and Westhoff D.C. (1995). Food Microbiology. 5th edition. Tata Mc Graw Hill Publishing Company Ltd, New Delhi.
5. Jay J.M, Loessner MJ and Golden D.A. (2005). Modern Food Microbiology. 7th edition, CBS Publishers and Distributors, New Delhi.
6. Ananthanarayan and Paniker. (2017). Text book of Microbiology, Tenth Edition, Orient Longman Limited, Hyderabad.
7. Ramesh. V. (2007). Food Microbiology, MJP publishers, Chennai.
8. Gerald McDonell. (2020). Block's Disinfection, Sterilization and Preservation. 6th edition. Lippincott Williams and Wilkins, Philadelphia

e-learning resources

- ☐ <http://people.uleth.ca/~selibl/Biol3200/CourseNotes/MicroTaxonomyCh10.pdf>
- ☐ <https://www.cdc.gov/vaccines/hcp/conversations/downloads/vacsa-fe-understand-color-office.pdf>
- ☐ <https://www.who.int/news-room/fact-sheets/detail/food-safety>
- ☐ <https://epi.dph.ncdhhs.gov/cd/diseases/food.html>
- ☐ <http://vikaspedia.in/health/nutrition/food-borne-diseases-or-food-poisoning>
- ☐ <https://www.microrao.com/micronotes/sterilization.pdf>
- ☐ <https://ehs.colorado.edu/resources/disinfectants-and-sterilization-methods/>

PRACTICAL

1. Study of different equipments in a microbiology lab.
2. Safety practices in microbiology laboratory.
3. Microscopy- principles, parts, function and operation.
4. Microscopic structure of algae, molds, yeast, virus and bacteria.
5. Examination of organisms using simple staining technique.
6. Examination of organisms using gram staining technique.
7. Examination of motility of bacteria using hanging drop technique.
8. Demonstration of sterilization of glassware using hot air oven, autoclave.
9. Demonstration of media preparation-Broth, deep, slant and plates.
10. Demonstration of culture techniques-streak, pour plate.
11. Visit (at least one) to food processing units or any other organization dealing with advanced methods in food microbiology.

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	3	3	3	2	3	2	2	3
CO2	3	3	3	3	1	3	2	2	2	3
CO3	3	3	3	3	2	3	2	2	2	3
CO4	3	3	3	3	2	3	2	2	2	3
CO5	3	3	3	3	M	2	2	2	2	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low 1

Title of the Course		QUANTITY FOOD PRODUCTION AND SERVICE								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
Core - 13&14	III	Y		Y		4	5	25	75	100

Learning Objectives
To enable the students to :
Acquaint with the type and operation of food service establishments.
Familiarise with the different types of menus and styles of service.
Foster entrepreneurship skills.

UNIT	CONTENT	HOURS
UNIT I	Food Service Industry History of development of food service institution in India. Classification of food service establishments – Commercial -Transport catering, Hotels, Restaurants, Outdoor catering and Non-commercial / Welfare - Hospital, Institutional -School / College, Orphanage / Old age homes, prisons, Industrial catering. Food Service systems - conventional, ready-prepared, commissary, assembly-serve.	10
UNIT II	Quantity food production Production forecasting, planning, production scheduling; Standardization of recipes definition, need, uses, methods of enlargement of recipes. Portion control, effective use of left-overs.	10
UNIT III	Menu Planning Menu – origin, definition and functions of menu, importance of planning menus, factors affecting menu planning, French classical menu. Types of menu - A la carte, Table d' hote, Du jour, static, cyclic, single use, construction and writing menu, menu display. Basic terminologies in food service relating to stocks, soups, sauces, salads and beverages - alcoholic and non-alcoholic.	10

UNIT IV	Food and Beverage Service Table Setting - Mise-en-scene, Mise-en-place, Basic rules for laying a table, Cover – definition, A la Carte cover and Table d’ hote cover. Food service personnel: basic technical skills, inter-personal skills, attributes of food and beverage personnel. Duties of a waiter- before guests arrive, when guests arrive, during the meal and after guests leave, rules for waiting at table. Styles of Service - Table Service - Waiter – Silver / English, Family, American, French, Russian, Gueridon; Bar Counter, Assisted- Carvery, Buffet, Self-service-Cafeteria - Counter, Free-flow, Echelon, Supermarket, Single-point Service- Takeaway, Drive-thru, Fast food;	15
	Vending; Kiosks; Food court , In- situ Service- Tray, Trolley, Home delivery, Lounge, Room, Drive-in.	
UNIT V	Entrepreneurship in catering Entrepreneurship–concept and significance Entrepreneur-definition, characteristics and classification. Food start up, Start -up process, steps, opportunities and challenges, problems faced by women entrepreneurs.	10
	PRACTICAL 1. Plan menu for different types of food service institutions- commercial and non- commercial food service institution 2. Preparation of menus for different types of events. 3. Preparation and standardisation of dishes of different cuisines (one portion). 4. Quantity production and service of meals - stepping up of recipe to 50 portions. 5. Table Setting – Cover- A la carte and Table d’ hote covers. 6. Napkin folding. 7. Visit to food service units – commercial and non- commercial. 8. Organise food sales. 9. Internship in food service establishment for a month.	20
	TOTAL	75

COURSE OUTCOMES

After successful completion of the course the student will be able to

CO1. Identify and differentiate the types of food service sectors.

CO2. Develop skills to formulate and standardize recipes from various cuisines.

CO3. Demonstrate skills in quantity food production.

CO4. Distinguish various styles of service and identify the basic technical skills, and interpersonal skills required for food service.

CO5. Identify the entrepreneurial ventures in food production and service.

References

1. Andrews and Sudhir. (2000). Introduction to Hospitality Industry, Tata-McGraw Hill Pub. Co., New Delhi.
2. Dhawan and Vijay. (2001). Food and Beverage Service, Frank Boss and Co, New Delhi.
3. Foskett David. (2011). The Theory of Hospitality and Catering, Hodder Education, London.
4. Gupta, CB and Srinivasan, NP. (2002) Entrepreneurial Development, Sultan Chand & Sons, New Delhi.
5. Jagmohan. N. (2013). Food and Beverage Service Operation, S. Chand & Co. Ltd., New Delhi.
6. June Payne-Palacio, Monica Theis, Introduction to Foodservice (2009), 11th illustrated, Published by Pearson/Prentice Hall.
7. Sethi, Mohini, Malhan, Surjeet. (2015). Catering Management – An Integrated Approach, 3rd ed, New Age International Publishers, New Delhi.
8. Suganthi, V and Premakumari, C. (2017). Food Service Management, Dipti Press (OPC) Pvt. Ltd, Chennai.

e- Learning Resources

- ☐ <https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=8x0nJkh/R0vHkX1U70Z/CQ==>
- ☐ <https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=8x0nJkh/R0vHkX1U70Z/CQ==>
- ☐ <https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=8x0nJkh/R0vHkX1U70Z/CQ==>
- ☐ <https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=8x0nJkh/R0vHkX1U70Z/CQ==>
- ☐ <https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=8x0nJkh/R0vHkX1U70Z/CQ==>

Title of the Course		PUBLIC HEALTH NUTRITION								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
CC-15	VI	Y		Y		4	6	25	75	100

Learning Objectives
To enable the students to :
Gain knowledge about nutritional policies, programs and agencies involved in combating malnutrition.
Acquire knowledge and skills in assessment of nutritional status.
Create awareness on improving health and nutrition of the community

UNIT	CONTENT	HOURS
UNIT I	Concept and scope of public nutrition Definition, concept, scope and multidisciplinary nature of public nutrition Nutritional problems affecting the community. Etiology, prevalence, clinical features and preventive strategies for malnutrition related problems and deficiency disorders - Under nutrition (Protein energy malnutrition, Wasting, Stunting), Over nutrition (obesity and related risks), Nutritional anemia, Vitamin A deficiency, Iodine deficiency disorders, Fluorosis.	15
UNIT II	Assessment of nutritional status Objectives and importance, Methods of assessment: Direct (Clinical signs, Anthropometry, Biochemical tests); Indirect (Diet surveys, vital statistics)	10
UNIT III	Nutrition policy and programs National nutritional policy; Integrated child development scheme (ICDS), Midday Meal Program-State and National (Poshan Abhyan), National programs for the prevention of anemia, Vitamin A deficiency, Iodine deficiency disorders, Fortification of Foods and Public Distribution System as a preventive approach.	15
UNIT IV	Nutrition education Objectives, principles and scope of nutrition and health education, creating awareness on current public health issues and devising strategies for prevention and management.	10

UNIT V	Role of National and International agencies in combating malnutrition WHO, FAO, UNICEF; National: FSSAI, ICAR, ICMR, NIN, FNB, CFTRI, NNMB- Role, Target groups (if specified), Policies and Programs.	10
Practical	Practical/experiential learning Planning low- cost nutritious recipes for infants, pre-schoolers, pregnant/lactating mothers for nutrition education. Assessment of nutritional status - Anthropometry: Weight and height measurements - Plotting and interpretation of growth charts for children below 5 years - Identification of clinical signs of common nutritional disorders - Dietary assessment: 24-hour recall, Food Frequency Questionnaire, Diet Diversity Score Planning a Nutrition Education Program, and imparting nutrition education to the community	15
	TOTAL	75

COURSE OUTCOME

After successful completion of the course, the student will be

able to: CO1. Define terms related to Public Health nutrition.

CO2. Describe the nutritional problems prevalent in the community.

CO3. Explain the significance of assessment of nutritional status.

CO4. Assess the role of various organizations in combating nutritional problems.

CO5. Conduct nutrition education programs to create awareness on improving health and nutrition of the community at large.

Reference:

1. Gupta, MC. and Mahajan BK. (2003) Textbook of Preventive and Social Medicine 3rd Ed Jaypee brothers, Medical Publishers (p) Ltd.
2. Jelliffe DB, Jelliffe ERP, Zervas A and Neumann CG (1989). Community nutritional assessment with special reference to less technically developed countries. Oxford University Press. Oxford.
3. Park K (2011). Park's Textbook of Preventive and Social Medicine, 21st Edition. M/s Banarasidas Bhanot Publishers, Jabalpur, India.
4. Wadhwa A and Sharma S (2003). Nutrition in the Community- A textbook. ElitePublishing House Pvt. Ltd. New Delhi.
5. WHO (2006). Child Growth Standards: Methods and development: height- for- age, weight-for-age, weight-for-length, weight-for-height and body mass index- for-age (<http://www.who.int/childgrowth/standards/en/>).

e-LEARNING RESOURCES

- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=18819>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=18942>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=18959>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=18999>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=19008>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=19027>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=19054>

Title of the Course		INTERNSHIP IN HOSPITALS/FOOD INDUSTRY/CATERING ESTABLISHMENT/HEALTH CARE FACILITY/FITNESS CENTRE/NGO/INTERIOR DESIGN FIRM								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
Internship	V				Y	2		25	75	100

****The students are expected to undergo an internship for a minimum of 15 days at any one of the following: Hospital / Health care facility / Fitness Centre / Food Industry / Catering Establishment / NGO / Interior Design Firm.**

Learning Objectives
To enable the students to :
The internship is committed to preparing graduates in Home Science to join as entry level Dietitians/Nutritionists/Food Analysts/ Catering Staff/ Interior Designer

**EXPECTED OUTCOME OF INTERNSHIP AT HOSPITAL/
HEALTH CARE FACILITY/ FITNESS CENTRE**

On completing the internship, the student:

- Learns the functions of the Dietary Department / Health care facility/ Fitness Centre
- Gets acquainted with the role and responsibilities of a Dietitian/ Nutritionist in the respective facility
- Develops skills in nutrition screening and assessment of patient/ client
- Acquires training in nutritional diagnoses of each patient/client
- Demonstrates the ability to implement nutrition care plans; document nutrition care provided, maintain internship logbook and monitor outcomes of the nutrition plan

EXPECTED OUTCOME OF INTERNSHIP AT CATERING ESTABLISHMENT

On completing the internship, the student:

- Gains knowledge about the functions and operations of a catering establishment
- Develops managerial skills in the areas of managing kitchen, organizing stock, cooking schedules and customer service.
- Learns the strategies used in cost control
- Is trained in menu management and recipe development
- Learns the culinary art of planning, preparing and serving food that is delicious and appealing.
- Is familiar with the standards of safety and hygiene followed in the industry/company

EXPECTED OUTCOME OF INTERNSHIP AT FOOD INDUSTRY/NUTRACEUTICAL COMPANY

On completing the internship, the student:

- Learns the organizational setup and the process flow in manufacturing goods/ delivering services
- Gets hands on experience in serving in the various departments from procurement to end delivery of finished product
- Develops managerial skills to maintain stock, ensure smooth flow in production/services rendered
- Acquires the ability to work in a team
- Learns the quality standards laid by the industry/company and efforts taken to meet these standards

EXPECTED OUTCOME OF THE INTERNSHIP AT INTERIOR DESIGN FIRM

On completing the internship, the student:

- Gains knowledge about industry/company process.
- Develops skills in 2D and 3D software.
- Analyze cost estimation of building materials and finishes.
- Learns the methods and strategies used in cost control.
- Develops managerial skills in the areas of managing works required by the client.
- Adapts to working in a team and contributes to needs as they arise.
- Demonstrates competency in professional presentation, communication and writing skills.

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	3	2	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	2	3	3	3	3	3	3
CO5	3	3	3	2	3	3	3	3	3	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low

Title of the Course		FUNDAMENTALS OF COMPUTER AND MS OFFICE								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
GEC-I	I	Y		Y		4	4	25	75	100

Learning Objectives
To enable the students to :
This paper is designed for the students to know the uses and types of computers.
To enable students to create a presentation of various slides in power point.
Apply skills learnt to develop MS excel and MS power point.

UNIT	CONTENT	HOURS
UNIT I	Computer an Introduction, Uses of Computers in Modern Society, Characteristic of Computer, Types of Computers, Block Diagram.	10

UNIT II	Data Representation in. Computers, Computer Peripherals, Application Software, Computer Capabilities and Limitations. Introduction to Operating System, Functions of Operating System, Classification of Operating System.	15
UNIT III	MS Word 2002 — Creating Documents in Word — Proofing your Documents, Printing Icons, Selecting, Moving, Sizing, Windows — Menus, Drawing Tools in Word 2002, Mail Merge.	10
UNIT IV	MS Excel 2002: Working with Ranges, Range Names, Filling a Range, Creating, Copying, Moving, Inserting and Deleting, Cleaning. Manipulating Formulas and Functions, Working with Charts in Excel. MS Power Point - Creation. Modifying, Presentation Insert Images.	15
UNIT V	MS Access: Introduction to database , creating, tables, updating tables.	10

COURSE OUTCOMES

After successful completion of the course the student will be able to:

CO1. Explain the types, uses and characteristics of computer.

CO2. Identify the application software, functions and classification of operating system.

CO3. Apply the techniques of MS-Word 2002, creating documents, drawing tools and mail merge.

CO4. Justify the MS Excel 2002, Working with Ranges, Range Names, Filling a Range, working

With charts in excel and creation of MS power point.

CO5. Explain introduction to database creating tables and updating tables.

REFERENCES

- Raja Raman V. (1999), Fundamental of Computer 3rd Edition, Prentice Hall of India. New Delhi.
- Alexis Leon and Mathew Leon, (1999), Fundamentals of Information Technology, Leon Tech World, Chennai.
- NellaiKannan C, (2008) MS-Office, Nel Publication, Tirunelveli.
- Sanjay Saxena, (2000). MS-Office 2000 for Everyone, 2nd Edition, Vikas Publishing House Pvt. Ltd., Noida.
- Guy Hart Davis. (1997), The ABCs Microsoft Office, 1st Edition. BPB Publications, New Delhi.

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	3	3	3	2	3	2	3	3
CO2	3	3	3	3	3	3	3	2	3	3
CO3	3	3	3	3	3	3	3	2	3	3
CO4	3	3	3	3	3	3	3	2	3	3
CO5	3	3	3	3	3	3	3	2	3	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low 1

FUNDAMENTALS OF COMPUTER AND MS OFFICE- PRACTICAL

GEC- 2

2Hrs- 2 Credits

MS-OFFICE

MS-WORD

I. Using MS word perform the following

1. Change the font size to 20
2. Change the font type to Garamond

3. Align the text to left, right, justify, center
4. Underline the text
5. Table manipulation

II. Illustrate the mail merge a concept to apply for a suitable job for at least 5 companies.

III. MS-EXCEL

1. Statistical function
2. Depreciation table
3. Worksheet of marks. Total, average of 10 students
4. Inserting a chart in the worksheet
5. Calculation of nutritive value

IV. POWERPOINT

Create a presentation of various slides in power point.

V. MS-ACCESS

Creating a table related to the maintenance of hospital records.

Title of the Course		HUMAN PHYSIOLOGY								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
GEC 3	II	Y	Y			4	4	25	75	100

Learning Objectives

To enable the students to : Gain basic understanding of human anatomy and physiology

Learn the integrated functioning of cells, tissues, organs and systems.
Apply the principles of nutrition and dietetics on the basis of thorough understanding of human physiology.

UNIT	CONTENT	HOURS
UNIT I	Cell and tissues - Structure of Cell and functions of different of different organelles. Classification, structure and functions of tissues. Blood - Constituents of blood- RBC, WBC and Platelets and its functions. Erythropoiesis, Blood clotting, Blood groups and histocompatibility Immune system - Antigen, Antibody, Cellular and Humoral Immunity (in brief)	12
	Practical Microscopic study of different tissues: epithelial, connective, muscular and nervous tissue Blood Experiments- Blood Smear, Blood Count and Blood Grouping	6
UNIT II	Nervous system General anatomy of nervous system, functions of the different parts Sense organs Structure and functions of Eye, Ear, Skin. Physiology of Taste and Smell- in Brief,	12
	Practical Study of the Structure of Brain using model/ specimen and structure of Eye and Ear using models/charts	2
UNIT III	Heart and circulation Anatomy of the heart and blood vessels, properties of cardiac muscle, origin and conduction of heartbeat, cardiac cycle, cardiac output, blood pressure - definition and factors affecting blood pressure, and description of ECG. Respiratory system Anatomy and physiology of respiratory organs. Gaseous exchange in the lungs and tissues, Mechanism of respiration.	10
	Practical Recording of Blood Pressure Study of the structure of Heart Lung using specimen, model/charts/ videos	5
UNIT IV	Digestive system Anatomy of Gastro-intestinal tract, Structure and functions of Liver and Pancreas. Digestion and absorption of carbohydrates, proteins and fats. Excretory system Structure of kidney, functions of Nephron	12

	Practical Study of the Structure of Liver, Pancreas, Stomach using model /charts /specimen/ videos	2
UNIT V	Endocrine system Functions of hormones secreted by Pancreas, Pituitary gland, thyroid, parathyroid and adrenal glands. Effects of hypo and hypersecretion of these glands. Reproductive system Anatomy of male and female reproductive organs, Ovarian and Uterine cycle, Influence of hormones on pregnancy and lactation.	12
	Practical Microscopic study of tissues of the Pituitary, Thyroid, Ovary and Testis Study of the structure of the male and female reproductive organs using models/charts/videos	2
	TOTAL	75

COURSE OUTCOMES

After successful completion of the course the student will be able to:

CO1. Describe the structure and functions of a cell, various tissues, primary organs and systems in the body.

CO2. Explain the interrelationship between systems for maintenance of equilibrium. **CO3.** Evaluate the role of the nervous and endocrine system in regulating the activities of other systems.

CO4. Identify the microscopic structure of basic tissues, label the parts of primary physiological systems in the body such as nervous, respiratory, digestive, endocrine and reproductive systems.

CO5. Perform hematological study of blood such as blood smear, blood count and blood grouping, record pulse, blood pressure and interpret a normal ECG.

Reference:

1. Beck, W.S. (1971) Human Design. Harcourt Brace Jovanovich Inc., New York.
2. Best, C. H. and Taylor, N. B. (1980) Living Body. 4th ed. BIP, Bombay.
3. Creager, J. G. (1992) Human Anatomy and Physiology. 2nd ed. WMC Brown Publishers, England.
4. Guyton, A.C. (1979) Physiology of the Human Body. 5th ed. Saunders College of Publishing, Philadelphia.
5. Subramaniam, S. and Madhavan Kutty, K. (1971) The Text Book of Physiology. Orient Longman Ltd., Madras.
6. Tortora G. J. Anagnostakos N.P. (1984) Principles of Anatomy and Physiology, 4th edition, Harper and Row Publishers, New York.
7. Waugh A and Grant A. (2012) Ross and Wilson Anatomy and Physiology in Health and Illness. 11th ed. Churchill and Livingstone, Elsevier
8. Wilson, K. J. W. (1987) Anatomy and Physiology in Health and Illness. 6th ed. ELBS, Churchill Livingstone, London.

f- learning resources

- ☐ <https://youtu.be/uFf0zxQ3rBU>
- ☐ <http://epgp.inflibnet.ac.in/Home/Download>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	3	2	2	2	1	2	2	3
CO2	3	3	3	2	2	2	1	2	2	3
CO3	3	3	3	2	2	2	1	2	2	3
CO4	3	3	3	2	2	2	1	2	2	3
CO5	3	3	3	2	2	2	1	2	2	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low 1

Semester -III					
GEC-4					
Course code		CHEMISTRY – I	T/P	Credits	Hours
			T	4	4
Objectives	☐ The objective of this paper is to introduce the basic concepts of the atomic structure, periodic table, chemical bonding, adsorption and catalysis. Students will get an idea about the types of organic reactions, intermediates formed and some important polymer products.				
Unit-I	Atomic Structure 1.1 Definition of atom, atomic number, atomic mass, Bohr’s model of an atom. 1.2 Orbit -Orbitals –Quantum numbers. 1.3 Heisenberg uncertainty principle, De Broglie equation, Einstein equation. 1.4 Filling up of orbitals – Aufbau principle, Hund’s rule, Pauli’s exclusion principle, electronic configuration of elements.				

Unit-II	Periodic Table 2.1 Mendeleff's periodic law, characteristics of Mendeleff's periodic table, Merits and demerits. 2.2 Long form of the periodic table and its characteristics. 2.3 Periodic variation on properties – Atomic radius, ionization potential, electron affinity, electronegativity. 2.4 Classification of elements based on electronic configuration. 2.5
Unit-III	Chemical Bonding 3.1 Valence Bond theory – s-s, s-p, p-p overlap sigma and pi bond. 3.2 Hybridization – sp, sp ² , sp ³ with suitable example. 3.3 VSEPR theory – Molecules with regular and irregular geometry. 3.4 Molecular Orbital theory, bonding and antibonding orbital – MO diagram of N ₂ , O ₂ – bond order
Unit-IV	Adsorption and Catalysis 4.1 Definition of the various terms – adsorbate, adsorbent, adsorption, absorption. Adsorption of gases on solids. 4.2 Physical adsorption – Chemical adsorption, factors influencing adsorption, application of adsorption. 4.3 Catalysis – classification of catalysis, characteristics of catalysis, Theories of catalysis. 4.4 Promoters and poison – enzyme catalysis, acid-base catalysis and autocatalysis with suitable example – applications.
Unit-V	5.1 Homolytic fission – Heterolytic fission of a bond. Nucleophiles and electrophiles and their classification. 5.2 Reaction intermediates: Carbanion, carbonium ion, free radicals and their stability. 5.3 Types of organic reactions, substitution, addition, elimination, rearrangement, polymerization. 5.4 Preparation and uses of Nylon 6, Nylon 66, Terylene, Viscose rayon, cellulose acetate and cellulose nitrate.

Reference and Text Books:-

Arun Bahl, & Bahl, B.S. *Text Book of Organic Chemistry*.

Puri, Sharma & Pathania. *Advanced Physical Chemistry*.

Sathya Prakash. *Advanced Inorganic Chemistry*.

Soni, P.L. *Text Book of Organic Chemistry*.

Soni, PL. *Text book of Inorganic Chemistry*.

Outcomes	☐ Students can be able to understand the fundamentals of the atomic structure, periodic table, chemical bonding, adsorption and catalysis. They become familiar with the types of organic reactions, intermediates formed and also the use of important polymer products in daily life.
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Semester – III &IV					
GEC- 5					
Course code		CHEMISTRY -II PRACTICAL	T/P	Credits	Hours
			P	2	2
S. No	Standard	Link	Estimation		
Acid – Base neutralization					
1	Sodium carbonate	Hydrochloric acid	Sodium hydroxide		
2	Oxalic acid	Sodium hydroxide	Oxalic acid		
3	Sodium carbonate	Hydrochloric acid	Sodium Carbonate		
Redox – Permanganometry					
4	Oxalic acid	Permanganate	Ferrous sulphate		
5	Ferrous ammonium sulphate	Permanganate	Ferrous sulphate		
6	Oxalic acid	Permanganate	Oxalic acid		
7	Ferrous ammonium sulphate	Permanganate	Oxalic acid		
Dichrometry					
8	Ferrous ammonium sulphate	Potassium dichromate	Ferrous sulphate		
Iodimetry					
9	Potassium dichromate	Sodium thiosulphate	Potassium dichromate		
10	Potassium dichromate	Sodium thiosulphate	Copper sulphate		
11	Potassium dichromate	Sodium thiosulphate	Permanganate		

Course code:	GEC-6	T/P	C	H
	CHEMISTRY - II	T	4	4
OBJECTIVES	Students can gain knowledge about the hydrides and oxides, to study the gas laws, physical properties of liquids and solids and the types of nuclear reactions. Students can understand about stereochemistry and the applications of organic compounds.			
UNIT - I	1.1 Hydrides: Classification of hydrides with suitable example. Preparation, properties, and uses of LiAH4, NaBH4. 1.2 Oxides – Classification based on chemical behaviour and oxygen content. 1.3 Hydrogen peroxide: Preparation, oxidizing and reducing properties, uses. 1.4 Ozone: Preparation, oxidizing and reducing properties, uses.			

UNIT - II	2.1 Postulates of kinetic theory of gases – Derivation of expression for pressure of gas on the basis of kinetic theory, deducing basic gas laws. 2.2 Ideal gases and real gases – deviations of real gases from ideal behaviour – reason for the deviation. 2.3 Derivation of Vander Waals equation. Law of corresponding state - equation of state and its significance. 2.4 Average, RMS and most probable velocities (Equation only No Derivation).
UNIT - III	3.1 Liquid state : Surface tension – Viscosity – Trouton’s rule and its significances. 3.2 Solid state – types of solids, crystals, unit cell 3.3 Crystallographic system – Bravais lattice, simple, body centred, face centred, cubic lattice. 3.4 Conductors, semiconductors (intrinsic and extrinsic semiconductor) - Insulators.
UNIT – IV	4.1 Nuclear chemistry: Composition of the nucleus – mass defect – binding energy – Radioactivity – half-life period Radioactive series – Soddy’s group displacement law – illustration. 4.2 Nuclear fission – Definition - theories of fission -application of fission – the principle of atom bomb. 4.3 Nuclear fusion – Definition – emission of energy – stellar energy – Principle of Hydrogen bomb. Differences between nuclear fission nuclear fusion. 4.4 Application of radioactivity – in medicine, agriculture, tracer technique and carbon dating.
UNIT V	5.1 Stereochemistry-geometrical isomerism-definition-malic and fumaric acid, Cis Butene and Trans Butene 5.2 Optical isomerism-definition-optical activity-asymmetric carbon-dextrorotatory and laevorotatory-optical isomerism in tartaric acid.Racemic mixture-enantiomers and diastere isomers. 5.3 Synthetic application of Grignard reagent 5.4 Important compounds used as solvents and pesticides-preparation and uses of chloroform, carbon tetrachloride, DDT, BHC and Freon.

REFERENCES:

Arun Bahl and B.S.Bahl, Textbook of Organic Chemistry

Puri,Sharma &Pathania, Advanced Physical Chemistry

Sathyaprakash, Advanced Inorganic Chemistry.

Title of the Course		FUNDAMENTALS OF ART AND DESIGN								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
SEC-I	I	Y	Y			2	2	25	75	100

Learning Objectives

To enable the students to:

Understand the elements, principles of design and principles of housing.

Learn the concepts of colour and create colour scheme for interiors.
Learn the application of art principles, elements of design, colour schemes and housing principles in creating aesthetic interiors.

UNIT	CONTENT	HOURS
UNIT I	Introduction to art and design - Importance of design, Application of good taste and Role of good designer. Types of design- Structural and Decorative design. Classification of Decorative Design - Naturalistic, Stylized, Abstract and Geometrical Design.	8
	Practical: Sketching different types of designs.	2
UNIT II	Elements of design - Line and its types – horizontal, vertical, diagonal, curved, zigzag; Shape; Form – 2D&3D, Size, Texture- tactile and visual; light, pattern, Space- positive & negative and Colour-warm and cool. Application of elements to form design.	8
	Practical: Creating Optical illusion in Interiors.	2
UNIT III	Principles of Design - Harmony – harmony of line, shape, size, texture and ideas. Balance – symmetrical, asymmetrical and radial. Proportion – proportional relationships, Greek oblong and Scale. Emphasis – emphasis through grouping of objects, use of contrast color, decoration, plain background space, unusual lines, shapes, and sizes. Rhythm – achieving rhythm through repetition of shapes, progression of size, continuous line movement, radiation, and gradation.	15
	Practical: Application of Art Principles in arranging areas in interiors	5
UNIT IV	Colour - Definition, Qualities of colour, Hue, Value, Intensity. Tints and Shades. The colour wheel/systems - Prang colour system, Physicist's Theory, Psychologist's Theory, Harmonies of related colors- Monochromatic, Analogous and Accented Neutral; Harmonies of contrasting colours – Direct, double, split and triad.	8
	Practical: Painting different rooms with various colour harmonies.	2
UNIT V	Housing - Selection of site and functions of house. Basic principles of planning a life space - Orientation, Grouping, Roominess, Lighting, Circulation, Storage Facilities and Privacy. Creating a life space- Factors in planning different rooms – Living Room, Bedroom, Dressing Room, Dining, Kitchen, Study Room, Store room, Bathroom, Utility space, Staircase and Verandah.	8
	Practical: Planning layout for different areas in interiors.	2
	Total	60

COURSE OUTCOMES

After successful completion of the course the student will be able to: CO1:

Classify design types like structural and decorative design

CO5: Explain the principles in planning a life space

CO2: Use different elements of design appropriately in creating design objects.

CO3: Apply the Art principles in Interior Design.

CO4: Apply colour harmonies in various rooms.

References:

1. Andal. A and Parimalam.P, (2008), “A Text Book of Interior Decoration”, Satish SerialPublishing House.
2. Chaudhari, S.N. (2006), “Interior Design”, Aavishkar Publishers, Jaipur.
3. Goldstein, (1976), “Art in Every Day Life”, Oxford and IBH Publishing House.
4. Kasu, A.A. 2005, “Interior Design”, Ashish Book centre Delhi.
5. P.C. Varghese (2013), “Building Construction”, PHI Learning Private Limited.
6. Premavathy Seetharaman and Parveen Pannu, (2009), “Interior Design and Decoration”, CBSPublishers and Distributors Pvt Ltd. New Delhi

e-Learning Resources:

- ☐ https://www.google.co.in/?gfe_rd=cr&ei=oJE8VvucFMOl8wfe0ZnICw#tbm=vid&q=principles+of+design+in+interior+design
- ☐ <http://www.docstoc.com/docs/108663367/The-Munsell-and-Prang-Color-Systems>
- ☐ <https://www.decorilla.com/online-decorating/transitional-interior-design/>
- ☐ <https://www.apartmenttherapy.com/modern-vs-contemporary-vs-minimalist-design-261783>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	1	3	3	3	3	3	2	2	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	2	3	3	2	3	3	2	3	3
CO4	3	3	3	3	3	3	2	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low

Title of the Course		FOOD PRESERVATION								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
SEC-2	II	Y		Y		2	2	25	75	100

Learning Objectives
To enable the students to :
Gain knowledge on principles of food preservation of foods
Understand the techniques used in processing foods to preserve their shelf life
Apply skills learnt to develop preserved food product

UNIT	CONTENT	HOURS
UNIT I	Food Spoilage - Definition, causes, microorganisms involved in spoilage of bread, fruits and vegetables, meat, fish, egg, milk, juices and pickles. Food preservation - Definition, principles and importance, classification – bactericidal and bacterio static methods.	6

UNIT II	Processing by high temperature Processing and preservation by high temperature: blanching, pasteurization, sterilization and UHT processing, canning, extraction cooking, dielectric heating, Dehydration.	6
UNIT III	Processing by low temperature Processing and preservation by low temperature – refrigeration, freezing, dehydro-freezing.	6
UNIT IV	Preservation by drying Processing and preservation by drying, concentration and evaporation: various methods sun – drying, tray or tunnel drying, spray drying, drum drying freeze drying, fluidized bed drying, advantages and disadvantages.	6
UNIT V	Preservation by non - thermal treatments and food packaging Processing and preservation by non – thermal methods: salt, sugar, chemicals, smoking. Irradiation Food additives: Definition, types and functions, permissible limits and safety aspects. Food packaging- its types and uses	6
	Practical - Preparation of jams, jellies and squashes using seasonal fruits and vegetables. Preparation of pickles using fruits and vegetables. Preparation of sauce and ketchup.	6
	TOTAL	30

COURSE OUTCOMES

After successful completion of the course the student will be able to:

- CO1.** Define and explain the principles of food preservation and relate the role of microorganisms in food spoilage.
- CO2.** Explain the causes of food spoilage, need and principles of food preservation. **CO3.** Apply the various techniques of food preservation to preserve different foods so as to increase the shelf life of foods.
- CO4.** compare the principles and techniques of various food preservation methods and explain the role of packaging in food processing.
- CO5.** Justify the use of various preservation techniques, and packaging materials describe the terms related to food preservation and classify foods based on the shelf life.

Reference:

1. Arthey, D and Ashurst, P.R (1996), Fruit processing, Blackie academic and professional. London.
2. Fellows, P.J (2016): Food Processing Technology: Principles and Practice, second edition, CRC Wood head publishing Ltd, Cambridge.
3. Gould. G.W (1995), New methods of food preservation. Blackie academic and professional. London.
4. Rahman M S (2020) Handbook of Food Preservation CRC Press, USA
5. Srilakshmi B (2017) Food Science, New Age International Publications, New Delhi.
6. Suganthi.V and Subaratinam.R (2021) Textbook on Food preservation, Dipti Press(OPC) Pvt. Ltd, Chennai.

e- learning resources

- ☐ [https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/food-spoilage.](https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/food-spoilage)
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=111436>
- ☐ <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=111435>
- ☐ <http://www.homepreservingbible.com/2247-an-introduction-to-the-drying-food-preservation-method/>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	3	2	2	2	1	2	2	3
CO2	3	3	3	2	2	2	2	2	2	3
CO3	3	3	2	3	2	2	2	2	2	3
CO4	3	3	3	2	2	2	2	2	2	3
CO5	3	3	2	2	2	2	3	2	2	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low 1

Title of the Course		FRONT OFFICE MANAGEMENT								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
SEC-3	II	Y		Y		2	2	25	75	100

Learning Objectives
To enable the students to :
1.Understand the varied dimensions of the food service industry with special reference to front Office
2.Study the concepts of organization, communication and operational procedures in front office
3.Develop skills to effectively manage the front department food serve institutions

UNIT	CONTENT	HOURS
UNIT I	Classification of hotels Classification of hotels based on star category, size, ownership and other categories. Types of rooms	15
UNIT II	Hotel organization and functions Organization pattern in a large, medium and small sized hotel. Functions of receptionist, job description of front office manager, assistant front office manager, assistant manager, reservation manager, lobby manager, front office assistants, night manager, night clerk, bell captain and bellboy.	15
UNIT III	Tariff, basis of charging, tariff fixation, room tariff card- group rate, volume rate, executive business service rates, tour group wholesale rate, discounted rate, crib rate, extra bed rate, family rate, crew rate corporate rate and student faculty programme	10
UNIT IV	Front office and guest handling Stages of guest contact with the hotel-the guest arrival, preparing, and receiving, registration procedure-systems of registration, rooming of guest, group arrival, VVIP guest arrival and greeting. Activities of front desk during stay- mail and message handling, safe deposit boxes.	10
UNIT V	Guest accounting Basics of keeping accounts, guest ledger, city ledger- accounting entries, front office cashiering, guest accounting process, night auditing- night audit duties, night audit process, night audit report and departure procedure	10
	Total	60

COURSE OUTCOMES

After successful completion of the course the student will be able to:

CO1.Classify hotels and rooms based on star category, ownership, location etc.

CO2. Describe the organization chart of a front office department and duties and Functions of front office staff

CO3. Explain the basis of tariff fixation and guest registration process

CO4. Evaluate the role of front office in ensuring customer comfort and satisfaction from check -in to check out at the hotel

CO5. Summarize the role of the guest accounting process and each of the front officestaff.

Reference:

1. Ahmed Ismail (2004). Front office operations and management, Delmar Publications
2. Andrews.S (1982) , Hotel Front office training manual , Tata mc Graw Hill publishing company Ltd, New Delhi
3. Chon K and Raymond. T S (2001) . Welcome to hospitality- An introduction- IInd Edition, Delamar publication
4. Raghubalan G, Raghubalan .S(2001). Hotel housekeeping operations and management, Oxford University Press

e- learning resources

- ☐ <http://paramjamwal.blogspot.in/2013/11/duties-and-responsibilities-of.html>
- ☐ <http://www.hotelhousekeeping.org/Hotel-Housekeeping-Duties.html>
- ☐ <http://hotel-industry.learnhub.com/lesson/7885-importance-of-housekeeping>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	2	2	2	2	1	2	2	2
CO2	3	3	3	2	2	2	2	2	3	2
CO3	3	3	3	2	2	2	2	2	2	2
CO4	3	3	3	3	2	2	2	2	2	2
CO5	3	3	3	2	2	2	3	2	2	2

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low 1

Title of the Course		HOUSE KEEPING								
Category		L	T	P	O	Credits	Inst Hrs	Marks		
								CIA	External	Total
SEC-4	SEM-III	Y		Y		1	1	25	75	100

Learning Objectives

To enable the students to:

Gain theoretical knowledge and practical applications of housekeeping

Learn the layout and functions of guest room.

Get acquainted with the attributes, qualities and skills required for proper functioning of the housekeeping department.

UNIT	CONTENT	HOURS
UNIT I	Housekeeping Department - Importance of housekeeping, Duties and Responsibilities of Housekeeping Department. Organizational Structure, types of lodging establishments. Job Description and Job Specification of staff in the department. Layout of the department, Personal Attributes. Qualities of the Housekeeping staff - skills of a good Housekeeper.	8
	Activity: Prepare working schedule for a hotel 10 suites.	2

UNIT II	Housekeeping co-ordination and Procedures Briefing, Debriefing, Gate pass, Inter departmental Co-ordination with more emphasis on Front office and the Maintenance department. Indenting from stores- Inventory of Housekeeping Items, Housekeeping control desk, Importance, Role, Co-ordination, check list, key control, Handling Lost and Found, Forms, Formats and registers used in the Control Desk, Paging systems and methods, Handling of Guest queries, problem, request. General operations of control desk, Role of control desk during Emergency.	8
	Activity: Maintaining various house keeping records and documents.	2
UNIT III	Hotel Guest room - Importance of the Guestroom to a Guest, Types of guest rooms, Guest Supplies/Amenities in a guest room, Bed making procedures and types. Different types and importance of keys – section key, master key, floor key and grand master key. Key of executive offices and public areas and computerized key. Pest control and eradication – with special reference to rats, cockroaches, furniture beetle, clothes moth, etc. Dealing with emergency like fire, death, theft, accidents, safety security control.	15
	Activity: Prepare layout diagram containing furniture and decorative items arrangement in front office, restaurants and guestrooms.	5
UNIT IV	Linen/ Uniform / Sewing Room Its importance in hotels, selection and buying of linen, inspecting, Storage Facilities, receiving used linen. Linen stock for any establishment, Layout, Types of Linen, sizes and Linen exchange procedure, and conditions, Linen Inventory system. Uniform designing: Importance, selection, characteristics, and types.	8
	Activity: Practice of Ironing, storing, cleaning and discarding of linen.	2
UNIT V	Housekeeping Inventories Introduction, Cleaning equipment – Selection of equipment. Manual Equipment - brooms and brushes, protective equipment, cloths used in cleaning and box sweeper. Mechanical equipment - electric equipment, vacuum cleaner, floor scrubbing and polishing machine, floor shampooing machine, containers trolley, chambermaid's trolley, etc. Cleaning Agents – Water, Detergents, Abrasives, Reagents, Organic Solvents, Disinfectants and Bleaches, Glass Cleaners, Laundry Aids, Toilet Cleaners, Polishes, Floor sealers and Carpet Cleaners, characteristics of a good cleaning agent. Selection, Storage and Issuing of Cleaning Agents.	8

	Activity: Demonstrate Cleaning and polishing of various surfaces, hardflooring, semi-hard floorings, and wooden flooring.	2
	Total	60

COURSE OUTCOME

After successful completion of the course the student will be

able to: **CO1.** Describe the Qualities, Skills, and responsibility of good housekeeper.

CO2. Explain the procedure and services provided by the housekeeping department.

CO3. Identify different types of guest rooms and list the common pest control methods used in hotels.

CO4. Choose appropriate storage procedures for linen and uniforms.

CO5. Evaluate suitability of cleaning agents to clean different surfaces.

References:

1. Aleta Nitschke (2008) “Managing Housekeeping Operations” Educational Inst Of The Amer Hotel; Revised Edition, Isbn-13 : 978-0866123365
2. G. Raghubalan (2015) “Hotel Housekeeping: Operations and Management” 3e Oxford University Press India, Isbn-13 978-0199451746
3. Jatashankar Tewari (2016), “Hotel Front Office 2E: Operations and Management” Oxford University Press; Third Edition
4. Nishant Pal (2022) “Accommodation Operations: Introduction to Housekeeping and Hotel Guest Room, Guest Services, Housekeeping Control Desk, Linen Room” Kindle Edition.
5. [Reeta Pal](#) and [Nishant Pal](#) (2022), Housekeeping - Housekeeping Procedures, Hotel Guest Room, Housekeeping Manpower Planning, Cleaning Science and Managing Quality Service, Kindle Edition.

e-Learning Resources:

- ☐ <https://www.ihmnotes.in/assets/Docs/Books/9780199451746.pdf>
- ☐ <https://www.slideshare.net/SatyajitRoy21/personal-attributes-of-housekeeping-staff-62900148>
- ☐ [https://www.slideshare.net/96vidya/duties-and-responsibilities-of-an-executive housekeeper](https://www.slideshare.net/96vidya/duties-and-responsibilities-of-an-executive-housekeeper)
- ☐ [https://www.ihmnotes.in/assets/Docs/Sem-3&4/Accommodation/Ch- 1,%20Linen%20Room.pdf](https://www.ihmnotes.in/assets/Docs/Sem-3&4/Accommodation/Ch-1,%20Linen%20Room.pdf)
- ☐ <http://kubershah.blogspot.com/2017/04/uniform-room.html>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	M	S	L	S	S	S	S
CO2	S	S	M	L	S	L	M	S	M	S
CO3	S	L	M	S	M	L	S	M	S	M
CO4	S	S	M	L	M	L	M	S	S	S
CO5	S	L	L	M	L	L	S	M	M	M

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	2	3	3	2
CO4	3	3	3	3	2
CO5	3	3	3	3	2
Weightage	15	14	15	15	12
Weighted percentage (rounded of) of Contribution to Pos	3	3	3	3	2

FAMILY DYNAMICS

SEC- 5

Credits: 2

COURSE OBJECTIVES

To enable the students to

1. Get acquainted with the dynamics of contemporary marriage and its alternatives.
2. Grasp the dynamics of family systems in India.
3. Gain awareness on contemporary issues that affect the quality of life of individual families and community.

COURSE OUTCOMES

After successful completion of the course the student will be able to

- CO1.** Describe key elements of family dynamics across a range of family issues
- CO2.** Understand the main content and concepts of marriage
- CO3.** Identify family roles and explain theoretical perspectives and ecology of parent child relations
- CO4.** Explain Family Patterns and Relationships
- CO5.** Demonstrate skills in counseling family members to resolve family issues.

UNIT I

Family

Meaning, family as the basic social institution, significance of family, types, characteristics of family Types of family with reference to India Family Dynamics – Meaning and Significance. The place of the individual, man, woman and child in the family and their roles in society Changing trends in India regarding family pattern – structural, functional alternate family lifestyles

Activity

Analysis of various types of family

UNIT II

Contemporary Alternative Family Patterns and Relationships

Family life cycle – stages and substages

Singlehood: Historical and contemporary perspectives, reasons, successful singles, loneliness, fulfillment Cohabitation: Types, cohabitation and stability of relationship, legal issues The Child-Free family: Voluntary childlessness. Single-parent Families: Divorce, binuclear family, custody of children (mothers, fathers, split, joint) Stepfamilies: Phases Individual roles, rights, and responsibilities within the family Areas of adjustment within the family at different stages of life cycle Ways of dealing with adjustment.

UNIT III

Marriage - Concepts of marital behavior

Selection of a life partner, Meaning, preparation, motives, functions, and types of marriage , Characteristics of high-quality marital relationships Factors affecting marriage relationship – religion, socio economic status, careers, Social and emotional issues, financial concerns Marital adjustments – physiological, domestic, social, in-laws relationship, Marital satisfaction and marital stability Changes and challenges in marriage.

Activity

A survey on preferences of adolescents in choosing a life partner.

UNIT IV

Parent's Nurturance of Children over the Life Course

Parent-Child Relationships in Diverse Contexts –Planned parenthood and duties styles of parenting child rearing techniques small family norms Family process and relationship variables- Reciprocity between parents and children Parental attitudes & behavior and their influence on their children Parental support, parental psychological and behavioral control autonomy granting.

Activity

Prepare case studies on parent – child relationships in concern with parenting style.

UNIT V

Family Crisis - Significant contemporary issues and concerns

Families with marital disharmony crisis casual factor responsible for stress and violence in family Family conflict: Parent-child conflict, inter-parental conflict Intergenerational Family Problems children, women, and elderly Interventions for families in trouble scope Needs and assessment Counseling – premarital and marital Help lines and welfare programs

Activity

Conduct counselling session for family issues and marital problems

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Title of the Course		FIBRE TO FABRIC								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
SEC-6	IV	Y		Y		2	2	25	75	100

Learning Objectives

To enable the students to :

Understand the concepts in textiles, the properties of textile fibre, yarn and fabric.

Acquire knowledge about different types of fabric, make wise selection of textiles and its contribution to clothing and interior.

UNIT	CONTENT	HOURS
UNIT I	Introduction to Textile - Introduction, Terms and definition related to textiles, importance of textiles.	10
UNIT II	Textile fibres - Properties of fibers- primary and secondary properties - Classification of fibres – natural and man-made fibres. - Manufacturing processes/Cultivation, properties and uses of Cotton, Silk, Wool, Polyester, Rayon and Nylon.	15
	Practical - Identification of fibres.	
UNIT III	Yarns - Definition of yarn - Spinning process- Conventional yarn spinning - Cotton system and Unconventional yarn spinning. - Types of yarn- spun yarns, filament yarns, sewing threads, simple and complex yarns. - Properties of yarn-Yarn twist, Yarn count/ number (definition, unit of yarn count), - Texturization - types	10
	Practical - Identification of yarns	

UNIT IV	Woven Fabric Construction a) Weaving- Warp and weft yarns, grain line, selvedge and Fabric count. b) Parts of a simple loom and basic weaving operations. c) Types of weaves- Basic weaves (Plain weave, variations in plain weave, Twill weave, variations in Twill weave, Satin weave and Sateen weave) Decorative weaves (Dobby weave, Jacquard weave, Leno weave, Surface figure weave, Pile, Double weave)	10
	Practical - Identification of weaves – Collection of samples for basic weaves.	
UNIT V	Other fabric construction a) Knitted fabric- warp and weft knitting b) Non-Woven fabric- method of manufacture – web formation-parallel laid, cross laid, random laid, high velocity sprayed. Types-bonded fabrics, felts and care of non-woven .Other fabric construction process- Braided fabric, Net, Laces, Film fabric, tufted fabric.	10
	Practical - Field visits to various textiles units	
	Total	60

COURSE OUTCOMES

After successful completion of the course the student will be able to:

- CO1.** Describe the essential properties of textile fibres, yarns and the basic fabric construction techniques
- CO2.** Explain the manufacturing process of man-made fibres, yarn construction and fabric construction.
- CO3.** Classify textile fibres, yarns and fabrics.
- CO4.** Categorize the fibres, yarns and fabrics for its appropriate end use.
- CO5.** Assess the sequence of developing fibres into yarns and fabric

Reference:

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3. <http://www.fibersource.com/f-tutor/nylon.htm>
4. http://www.ehow.com/facts/5016460_parts-loom.html
5. <http://www.fabrics-manufacturers.com/>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	3	2	2	1	1	2	2	3
CO2	3	3	3	2	2	1	1	2	2	3
CO3	3	3	3	2	2	1	1	2	2	3
CO4	3	3	3	2	2	1	1	2	2	3
CO5	3	3	3	2	2	1	1	2	2	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low 1

Title of the Course		PRE-SCHOOL AND CRECHE MANAGEMENT								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
SEC-7	IV	Y		Y		2	2	25	75	100

Learning Objectives
To enable the students to:
To familiarize the students with the significance of managing the crèche and preschool
Understand the elements involved in organization and management of creche and Preschool.
Create awareness of functions of various authorities dealing with crèche and preschool.

UNIT	CONTENT	HOURS
UNIT I	Concept and organization of Creche and Preschool Crèche and preschool -Meaning, types of preschools, need, importance of organization, Elements of organization and administration. Difference between crèche and preschool, Preschool Programme -Principles of preschool programme, Framing of preschool curriculum –types of curriculum, planning activities for children, audio-visual aids for children and its importance, Activities for children: Audio-visual aid for children and its importance.	4
	Practical - Planning the layout of Creche and Preschool, Planning cyclic menu for a preschool and crèche	1
UNIT II	Resource Management Location, site and building, Types of rooms, Storage facilities, arrangement of room (activity centers), ventilation, lighting and safety, Provision of safe drinking water and sanitary facilities, Playground and safety aspects – indoor and outdoor games, Play equipment – types, criteria for selection, Maintenance of building-store, furniture, equipment Suggestive Low-Cost Educational Material-Teaching Aids	4
	Practical -Analyzing the availability and suitability of play materials Preparation of First Aid Box.	1
UNIT III	Records and registers Need, importance and maintenance of records and registers. Types of records (Important records) Admission, Progress, Financial, Equipment, Correspondence, Health - sickness of child and immunization. Types of register - Attendance (Staff, children), Accounts, Stock, Staff Profile, services for children and daily diary. Methods of maintaining record of children– Cumulative and Anecdotal.	6

	Practical -Case study of a child-Socio-economic profile, Demographic details, maintaining an activity diary, Diet-meal pattern, health status Preparation and maintaining a health record file.	3
UNITIV	Planning of Preschool Education Activities Skills & qualities of preschool children Introductory Games/activities for Rapport Building with Children Physical & Motor Development Gross Motor & Fine Motor Skills Essentials of Optimum Physical Development Activities/Games for Gross and Fine Motor Skills Cognitive Development Essentials for Cognitive Development Development of Basic Skills -Activities for Sensory Development, Mental Skills and Concept Development Language Development– Essentials for Language Development Games/Exercises for Language Development Activities for Language Development - Listening Skills, Reading Skills and Writing Skills Development of Science Experience & Creative Expression Areas of Creative Expression Science Experience Activities Social & Emotional Development Essentials for Social & Emotional Development Activities and games for Social-Emotional Development Games for Socio-Emotional Development	7
	Practical -Planning activities for children based on the curriculum of the preschool and crèche	1
UNITV	Personnel Management Role and qualities of teacher and care - taker and other staff involved in welfare and care of children, Teacher-child ratio, Need for and importance of in-service training.	2
	Practical - Organization chart for Creche and Preschool, Collection of different records and registers to be maintained in a preschool and crèche	1
	TOTAL	30

COURSE OUTCOME

After successful completion of the course the student will be able to

CO1. Describe key Concept and organization of Creche and Preschool

CO2. Explain Resource Management for creche and preschools

CO3. Understand the criteria for Records and registers maintenance

CO4. Identify importance and Planning of Preschool Education Activities

CO5. Introduction to Personnel Management required for creche and preschools

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Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	M	S	M	S	S	M	S
CO2	S	S	S	M	S	M	S	S	M	S
CO3	S	S	S	M	S	M	S	S	M	S
CO4	S	S	S	M	S	M	S	S	S	S
CO5	S	S	S	M	S	M	S	S	S	S

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded off) of Course Contribution to Pos	3	3	3	3	3

Title of the Course		CHANGING TRENDS IN EXTENSION EDUCATION								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
DSE-1		Y		Y		4	4	25	75	100

Learning Objectives

To impart knowledge to the students on concept, objectives, philosophy and principles of extension education as well as pioneering extension efforts and analysis of the extension system of ICAR and SAU. Course also gives exposure to the student on current approaches in extension as well as various development programmes

To understand the changing concept of extension

To get acquainted with the trends in extension approaches and models

To identify the support system development for extension education.

UNIT	CONTENT	HOURS
UNIT I	Home Science Extension Education Extension education – meaning, scope, characteristics, objectives, need, principles, process, models and philosophy Emergence of Home Science Extension Education in India Extension Education as a profession – adult education and distance education. Leadership – role, styles and management grid, Qualities of a good extension manager: Changing role of extension managers caused by globalization in Home Science.	10
	Practical - Exercises on presentation skills, listening skills, writing skills, exercises on distortion of communication message.	5
UNIT II	Diffusion and Adoption of Innovations Predicting innovativeness: Simulation of innovation, innovation decision process - Types of innovation decision, consequence on innovations, desirable or undesirable, direct or indirect anticipated or unanticipated consequence. Concept of homophily and heterophony and their influence on flow of innovation, Concept of Diffusion and its elements. Adoption Process - concept of stage, shade of agreement, neglected element. Adopter categories - Innovativeness and adopter categories, adopter categories as idea types, characteristics of adopter categories. Diffusion - perceived attributes of innovation and their rate of adoption.	15
	Practical Designing and Preparation of low-cost charts, posters, flash cards, pamphlet, leaflet etc	4
UNIT III	Communication process Communication process – concept, elements and their characteristics Models and theories of communication communication skills – fidelity of communication, communication competence and empathy, communication effectiveness and credibility, feedback in communication, social networks and Development communication – Barriers in communication Message – Meaning, dimensions of a message, characteristics of a good message, Message treatment and effectiveness, distortion of message.	10
	Practical - Generating computer-aided presentation	5
UNIT IV	Teaching and Learning Concept of teaching and learning Classification of Extension teaching methods Various extension teaching aids – selection of appropriate methods, features, advantage, limitation of various methods of teaching (mass, group, individual) Audio visual aids – planning, selection and types of visual, audio and audio – visual aids Contribution of AV Aids in Extension education.	10

	Practical Report writing and Analysis of (Any 2) - - Choose any one programme like Pulse Polio Immunization (PPI) or Kanyashree Prakalpa or Swachh Bharat Mission to write a report on their agencies of implementation, purpose, target group and their probable effectiveness in a particular chosen area or population. - A survey report on any one rural institution: village school, mahila mandal, youth clubs, NGO/Co-operative/ Mahila Mandal/ Health- Centre in mass media, Poverty alleviation programmes, employment generating programmes of GOI. Critical analysis report of any one development programmes for women or children in India.	4
UNIT V	Current approaches in extension education Farming situation-based extension, market – led – extension, farm field school, ATIC, Kissan Call Centers, and NAIP. Problems in Rural Development. Need for Volunteerism in Rural Development, Role of NGO's Assistance available to Voluntary agencies from different ministries/Departments of Govt. of India. - Details of function in to Central/State Social Welfare Board and CAPART Employments Generation Programmes – NREGP, Women Development Programmes – ICDS, Self Help Groups, MSY, RMK	10
	Practical Applications of Extension education –Methods and Techniques(Any - 3) - Design and conduct of training modules for target groups and follow up of training conducted. Preparation of a suitable Audio-visual aid for community extension work. - Visit training and development institutions (KVKs, FTCs, TICs EELs, MANAGE, MAARM etc.) to share their experience on different aspects of training. - Visit to Gram Panchayat to study on-going rural development programmes, visit to KVK, NGO and extension centers of State Agricultural University and State Departments, bottom-up planning, report preparation and presentations. - Conducting socio-economic diet survey. Preparation of plans, projects programme proposals. Exercises on participatory methods - RRA,PRA, PLA etc. evaluation of plans, Exercises of PERT, Visit to development organizations and NGOs	2
	TOTAL	75

COURSE OUTCOME

After successful completion of the course the student will be able to

CO1. Describe key Concept of Home Science Extension Education

CO2. Explain Diffusion and Adoption of Innovations

CO3. Understand the criteria for Communication process

CO4. Identify importance and Planning teaching and learning

CO5. Introduction to Current approaches in extension education

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2. Chaubey, B.K. (1979): A Hand Book of Education Extension, Jyoti Prakashan, Allahabad.
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- https://onlinecourses.swayam2.ac.in/cec19_mg32/preview

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	3	2	3	2	3	3	2	3
CO2	3	3	3	2	3	2	3	3	2	3
CO3	3	3	3	2	3	3	3	3	2	3
CO4	3	3	3	2	3	3	3	3	3	3
CO5	3	3	3	2	3	2	3	3	3	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low

Suganthi, V and Premakumari, C. (2017). Food Service Management, Dipti Press (OPC) Pvt. Ltd, Chennai.

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Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	3	2	3	2	2	2	2	3
CO2	3	3	3	3	3	2	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3
CO4	3	3	3	3	3	2	3	2	2	3
CO5	3	3	3	3	3	2	2	2	2	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low 1

Title of the Course		INTERNET AND WEBDESIGNING								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total
DSE-2	V	Y				3	5	25	75	100

Learning Objectives
To enable the students to:
Gain basic understand the knowledge of internet.
Understand the techniques used for working internet protocols.
Summarize the working mechanism of image format, graphics and HTML.

UNIT	CONTENT	HOURS
UNIT I	Internet- An Introduction. Internet access dial up connection. Internet service features, getting connection, internet addressing, IP- Address, domain name, uniform resource location.	10
UNIT II	Introduction of internet protocols – TCP/IP, File transfer, protocol (FTP), HTTP, Telnet, gopher, wais, web browsing.	10
UNIT III	Electronic mail, email messages, finding and email address, mailing lists, smiley, advantages and disadvantages yahoo, Rediff, introduction to computer virus, attach files.	10

UNIT IV	HTML- Basic components, formatting the text HTML, linking to other HTML Documents, list in HTML. Displaying text in lists, ordered list, using order list, unordered lists, using (UI) TAG, directory lists, definition lists, combining list, types and web pages.	10
UNIT V	Image format & browser, graphics & HTML, documents, image hyperlink anchors, HTML, tables aligning, table elements, row and column spanning, frames in HTML, frame set container, HTML Frames. The <in out> tag, background graphics and color, Microsoft internet extension, font enhancement, scrolling marquees.	10
	WEB DESIGNING PRACTICALS 1. Write a HTML program using basic components. 2. Write a HTML program using order list. 3. Write a HTML program using LINKS. 4. Write a HTML program using frames. 5. Write a HTML program using table components. 6. Designing a form using HTML simple tags. 7. Create a time table using table tags in HTML. 8. Create website of our college using HTML tags. 9. Create an application form using HTML tags.	10
	TOTAL	60

COURSE OUTCOMES

After successful completion of the course the student will be able to:

CO 1: understand the internet access, service features and IP address.

CO 2: Explain introduction of internet protocol.

CO 3: Summarize the electronic mail, email messages, mailing lists merits and demerits of mails, introduction to
Computer virus.

CO 4: Outline the basic components, formatting the Text HTML, list in HTML, using order list, TAG, definition
lists, combining and types of lists.

CO 5: Examine the image format and browser, graphics, tables, background graphics and color and scrolling
marquees

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Title of the Course		PRINCIPLES OF RESOURCE MANAGEMENT								
Category	Year	L	T	P	O	Credits	InstHrs	Marks		
	Sem							CIA	External	Total
DSE-III	VI	Y				4	6	25	75	100

Learning Objectives
To enable students to:
Recognize and use appropriate resources to achieve one's goal.
Develop skills in utilizing the available resources in day-to-day life.
Gain knowledge about work simplification and effective management of Time, Energy and Money

UNIT	CONTENT	HOURS
UNIT I	Introduction to Management - Management Concepts - Definition, Concept, Micro and Macro environment. Principles of Management Process-Planning, Controlling, Evaluating. Qualities of a Good Manager. Motivational factors-Values, Goals and Standards.	15
	Activity: Identification of personal and family values and goals—their interrelationship.	
UNIT II	Resources -Meaning and classification, optimizing the use of family resources, Factors affecting the use of resources. Decision making -Meaning and its importance, Types of decisions, Decision making process, Methods of resolving conflicts.	10
	Activity: List out the resources optimizing the goal.	
UNIT III	Time Management - Tools in time management - Time norms, Peak loads, Work Curves and rest periods, Time management process-Planning-Steps in making time plans-Controlling the planning action -Evaluation. Energy-Management- The efforts required In home-making activities; Energy required for household activities.	10
	Activity: Preparation of a time schedule and Evaluate time schedule Using Gantt chart.	

UNITIV	Work Simplification - Definition, Importance, Techniques – Formal and Informal Techniques-Mundel's Classes of change – Planning efficient work areas in kitchen. Body Mechanics - Posture, Gravity, Rhythmic movement, Proper use of Muscle and to take advantage of Momentum. Fatigue -Concepts, Types-Physiological and Psychological fatigue And Managerial process applied to energy.	17
	Activity: Study on work heights based on anthropometric measurement On vertical and horizontal planes.	3
UNITV	Money-Management -Family Income-Types, sources and methods of augmenting family income. Family Expenditure -Budget-Meaning-Types of budgets, Planning a budget for a family of a fixed income, Hotel / Restaurant, advantages of budgeting, Factors affecting family budget. Engel'slaw of consumption, methods of handling money-Family financial records, Savings-Importance and types.	15
	Activity: Preparation of family budget. Study of a saving institution and Its scheme.	5
	Total	75

COURSEOUTCOMES

After successful completion of the course the student will be able to

CO1: Apply the principles of management process in day-to-day life

CO2: Identify and analyze the need for resources

CO3: Utilize tools of time management effectively in day-to-day life.

CO4: Apply work simplification techniques while managing work.

CO5: Develop good decision-making skills and plan a budget within the available income and to maintain accounts.

References:

1. Bela Bhargava (2005), "Family Resource Management & Interior Decoration", university book house Pvt Ltd, ISBN-13: 978-8187339229
2. Marion Giordan (2016), "Consumer Education: A handbook for Teachers", Routledge; 1st edition, ISBN-13: 978-1138839151
3. Nickell & Dorsey (2002), "Management in Family Living", CBS; 4th edition, ISBN-13: 978-8123908519
4. Pushpa Chakravorty (2007), Home Management, New Delhi: Pointer Publishers.
5. Rao (2020), "Taxmann's Human Resource Management", Taxmann Publications Pvt. Ltd.; 2nd edition, ISBN-13: 978-9390128396
6. Ready GB (2021), "EBC consumer Protection Act", LAW BOOKS, ASIN: B097TQ64QV
7. Steven, D.S. (2016). Consumer Economics: A Practical Overview", New York: Routledge Taylor and Francis group.
- e- Sudhir Dixit (2018), "Time Management", Manjul Publishing House, ISBN-13: 978-9388241106

Learning Resources:

- ☐ [http://www.yourarticlelibrary.com/decision-making/decision-making-in-management-](http://www.yourarticlelibrary.com/decision-making/decision-making-in-management-definition-and-features-explained/25657/)
- ☐ [definition-and-features-explained/25657/](http://www.yourarticlelibrary.com/decision-making/decision-making-in-management-definition-and-features-explained/25657/)
- ☐ <http://www.familyresourcemanagement.org/services/goals/>
- ☐ <http://www.familyresourcemanagement.org/services/standards/>
- ☐ [http://www.nios.ac.in/media/documents/sechmscicour/english/home%20science%20\(eng\)%20ch-15.pdf](http://www.nios.ac.in/media/documents/sechmscicour/english/home%20science%20(eng)%20ch-15.pdf)
- ☐ [https://books.google.co.in/books?id=NJkrzK3CgisC&pg=PA149&lpg=PA149&d](https://books.google.co.in/books?id=NJkrzK3CgisC&pg=PA149&lpg=PA149&dq=ti)
- ☐ [q=ti](https://books.google.co.in/books?id=NJkrzK3CgisC&pg=PA149&lpg=PA149&dq=ti)
- ☐ [me,+energy,+money+as+resource+in+management&source=bl&ots=xmSp-](https://books.google.co.in/books?id=NJkrzK3CgisC&pg=PA149&lpg=PA149&dq=ti)
- ☐ [LDkia&sig=57qLKHx2UX3sxnBIJhm](https://books.google.co.in/books?id=NJkrzK3CgisC&pg=PA149&lpg=PA149&dq=ti)

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	M	S	S	S	L	M	S	S	M
CO2	S	L	S	S	M	L	L	M	S	S
CO3	S	M	S	S	S	L	S	S	S	M
CO4	S	S	S	S	S	L	M	S	S	M
CO5	S	S	S	S	S	M	S	S	S	S

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage(roundedof) of Course Contribution to Pos	3	3	3	3	3

Objectives:

This paper is designed for the students to get the knowledge in language

UNIT-I

Overview of C: Introduction- Importance of C sample C programs – Basic structure of C programs ,
Programming style -Executing a C program.

UNIT-II

Constants, Variables and Data types : Introduction character set --- C Tokens ---
Keywords and

Identifiers --- constant variables --- Defining symbolic constants

UNIT-III

Operators and Expression: Introduction- Arithmetic of Operators, Relational Operators --- Operators --- Assignment operators --- Increment and Decrement operators, conditional operators --- bitwise operators special operators—Arithmetic expressions. Evaluation of expression, precedence of arithmetic operators --- some computational problems. Type conversion in expression --- Operators precedence and associability --- Mathematical functions.

UNIT- IV

Managing Input and Output Operators - Decision making and Branching --Decision Making and Looping-Arrays-Handling of Character strings-User defined functions.

UNIT-V

Structures are Unions Introduction, Structure initialization Comparison of Structure Variables- Arrays of structures-File management in C-Defining and Opening a file Closing a file Input Output operations on files- Error handling during I/O operation. Random access to files command line arguments.

Text Books

1. Programming in ANSI C (Chapter 1 to 13) E Balagurusamy 3d EditionTata MC Graw Hill Publishing 2004

Title of the Course		INTRODUCTON TO HOME SCIENCE WITH COMPUTER APPLICATION								
Category	I Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Semester – I							CIA	External	Total
Foundation Course		Y		Y		2	2	25	75	100

Learning Objectives

The course is designed to enable the students to:-

1. Understand the concept, scope and philosophy of Home Science.
2. Appreciate the role of Home Science in Nation building.
3. Get acquainted with the attributes, qualities and skills required for proper functioning of the housekeeping department.
4. Cultivate human values through learning Home Science

UNIT	CONTENT	HOURS
UNIT I	Basics of Home Science - Definition, meaning, branches and scope of Home Science, History and Philosophy of Home Science. Development of Home Science as a discipline. Linkages of Home Science with other related subjects- Psychology, Sociology, Economics and Agriculture.	8
	Activity: Prepare a module for a branches and scope of Home Science	2
UNIT II	Job Opportunities in Home Science - Home Science Education at various levels-School/College/ University / Research. Job oriented courses: Nutrition, Dietetics, Food Preservation, Housing. Textiles and Clothing, Interior Design, Pre-School education and extension. Vocations in Non-Governmental Organisations. Qualities of a good Home Science student.	8
	Activity: A Report on visit to Preschools/Food Preservation Centers / Interior designers/NGO's /Dietitians /Fashion Houses & Women entrepreneurs.	2
UNIT III	Managerial Activities in Home Science – Concepts and perceptions - Goals, Values, Standards. Steps in Management Process. Resources – Human and Non-Human resources, Decision Making process, Study of Ergonomics. Stages of Life cycle.	15
	Activity: Visit to ICDS to know the services provided for the community.	5

UNIT IV	Public Health Nutrition – Menu Planning ; Factors influencing menu planning, Functions of Macro and Micro Nutrients (Iron, Calcium, Vitamin A, Vitamin C and Vitamin D). Dietetics and Diet Counseling ; Therapeutic diets, basic concepts of normal diet, Routine hospital diets, patient care and counseling. Properties of fibres ; processing and manufacturing fibres, yarn – weaving, finishing and dyeing, selection procedures of clothing, care and maintenance of Textiles. Community Development Programmes ; ICDS, TINP, ANP, IRDP, DWCRA and TRYSEM –objectives, beneficiaries and Activities.	8
	Activity: Survey to know different marriage patterns in the Indian society.	2
UNIT V	Introduction to Computers - - Relevance of computers to Home Science - Basics of Computer, Model of computer, Characteristics of computer, problem solving using computers. Input/output units Description of computer input/output units, other input method, Computer output units. Security and safety of Data; Secondary storage devices. Computer Memory--computer languages. Introduction to operating system-MS Windows, exploring desktop, Windows, exploring desktop, accessories, control panel, managing documents and folders.	8
	Activity: Basics of computer operation and care.	2
Total		60

COURSE OUTCOME

After successful completion of the course the student

will be able to: **CO1.** Describe the Qualities, Skills, and responsibility of good housekeeper.

CO2. Explain the procedure and services provided by the house keeping department.

CO3. Identify different types of guest rooms and list the common pest control methods used in hotels.

CO4. Choose appropriate storage procedures for linen and uniforms.

CO5. Evaluate suitability of cleaning agents to clean different surfaces.

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	M	M	S	L	S	S	S	S
CO2	S	S	M	L	S	L	M	S	M	S
CO3	S	L	M	S	M	L	S	M	S	M
CO4	S	S	M	L	M	L	M	S	S	S
CO5	S	L	L	M	L	L	S	M	M	M

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	2	3	3	2

CO4	3	3	3	3	2
CO5	3	3	3	3	2
Weightage	15	14	15	15	12
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	2

REFERENCES:

1. Devdas, Rajmal, P. (1968) Textbook of Home-Science, Farm Information Unit, Directorate of Extension, Ministry of Agriculture, New Delhi.
2. Devdas, Rajmal, P. The Meaning of Home Science, Sri Avinashillingam Home-Science College, Coimbatore (1968)
3. The Family and Integrated Rural Development, FAO, 1976.
4. Devdas, Rajmal, P. Methods of Teaching Home Science. National Council of Education Research and Training, Delhi, 1977.
5. Chandra A. Shah, A Joshi U. "Fundamental of teaching. Home Science", Sterling Publishers, Private Limited, 1989.
6. Paraliker, Kalpana, R, "The Art of Teaching Home Science", Evira Publication, Baroda, 1990.
7. Paralika, Kalpana R, "What is Home Science, Evira Publication, Baroda, 1989.
8. V. Raja Raman, Fundamentals of Computers, Prentice Hall of India, New Delhi, 1996.
9. Subramenian, S. Introduction to Computers.
10. Nagpal, O.P Mastering M.S. Office 2000.
11. Chander A. Introduction to Home Science, Metropolitan, New Delhi, 1995

Title of the Course		WOMENS HEALTH AND WELLNESS								
Category	Year	L	T	P	O	Credits	Inst Hrs	Marks		
	Sem							CIA	External	Total

Professional competency	VI	Y				2	2	25	75	100
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Learning Objectives
To enable the students to:
Understand the diverse factors that has a bearing on women's health.
Highlight different aspects of health that contributes to a good lifestyle for women across the globe.

UNIT	CONTENT	HOURS
UNIT I	Nutrition for Women - Dietary Guidelines for a healthy lifestyle, Current concepts pertaining to BalancedDiets, Nutrient requirements for young and older women with special focus on Protein, Iron, Vitamin D and Calcium, Factors affecting nutrient intake in women- Socioeconomic, Environmental conditions, Health conditions; Consequences of Eating disorders in young women.	6
UNIT II	Physical Health - Significance of Body weight and Body composition parameters, Benefits of Aerobic, Flexibility and Strength training exercises- on General health, Bone health, and risksassociated with NCD's.	6
UNIT III	Reproductive Health - Menstrual Health, Pregnancy and Lactation, Pre- and Post-Menopausal concerns- preventive measures, sexually transmitted diseases- an overview.	6
UNIT IV	Mental Health - Common mental health problems - Trends and issues relating to women, Depression, Anxiety and coping with Stress, Strategies to improve mental health- learning new skills and hobbies, Relaxation techniques such as yoga and meditation.	6
UNIT V	Social Health - Balancing home and career, strengthening relationships, enhancing communication skills and Personality Development, technological advancements and its impact, Dealing with domestic violence, and harassment issues.	6
	TOTAL	30

Activity:

- Preparation of simple healthy recipes, Planning Meals based on Balanced diets,
- Workshop on Fitness, Yoga and Meditation,
- Seminars pertaining to Reproductive Health, Communication Skills, Personality Development

COURSE OUTCOMES

After successful completion of the course, the student will be able to:

CO1. Define terms related to nutrition, physical, reproductive, mental and social health. **CO2.** Discuss the need for right nutrition, exercises and skills needed for the overall well-being of women.

CO3. Explain the significance of maintaining physical, reproductive, mental and social health for the overall well-being of women.

CO4. Devise strategies to improve women's health in a holistic manner.

CO5. Recommend simple measures for a healthy lifestyle.

References:

1. Lanza di Scalea T, Matthews KA, Avis NE, et al. (2012) Role stress, role reward, and mental health in a multiethnic sample of midlife women: results from the Study of Women's Health Across the Nation (SWAN). J Women's Health; 21(5):481-489.
2. Mahan K and Sylvia E. Stump (2000) Krause's Food Nutrition and Diet Therapy, Saunders, USA.
3. Minkin M. J. and Wright C. V. (2003) The Yale Guide to Women's Reproductive Health from menarche to menopause. Yale University Press, London
- 4.Sizer F. S. and Whitney E. (2014) Nutrition: Concepts & Controversies. 13th Ed., Wadsworth, Cengage Learning, USA.
5. Sperry L. (2016) Mental Health and Mental Disorders. ABC-Clio, Californi
6. Williams M.H., Anderson D.E., Rawson E.S. (2013) Nutrition for Health, Fitness and Sport. McGraw Hill, New York.
7. Wrzus C, Hänel M, Wagner J, Neyer FJ. (2013) Social network changes and life events across the life span: a meta-analysis. Psychol Bull;139(1):53-80.

e-Learning Resources:

- ☐ https://www.nhp.gov.in/social-health_pg
- ☐ <https://ncert.nic.in/textbook/pdf/jehp112.pdf>
- ☐ <https://ncert.nic.in/textbook/pdf/iehp113.pdf>
- ☐ <https://ncert.nic.in/textbook/pdf/lebo104.pdf>
- ☐ <https://www.nih.gov/health-information/social-wellness-toolkit>
- ☐ <https://www.cdc.gov/reproductivehealth/womensrh/index.htm>
- ☐ <https://www.nimh.nih.gov/health/topics/caring-for-your-mental-health>
- ☐ <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>
- ☐ <https://www.cdc.gov/mentalhealth/learn/index.htm>

Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	3	2	2	2	1	3	1	1	3
CO2	3	3	3	2	2	2	3	1	2	3
CO3	3	3	2	3	2	2	3	3	2	3
CO4	3	3	2	3	3	3	3	3	3	3
CO5	3	3	2	2	3	3	3	3	3	3

Strong 3 Medium 2 Low 1

Mapping with Programme Specific Outcomes

CO/PSO	PSO1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	3	3
CO2	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
CO5	3	3	3	3	3
Weightage	15	15	15	15	15
Weighted percentage (rounded of) of Course Contribution to Pos	3	3	3	3	3

Strong 3 Medium 2 Low 1

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