CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)

NATIONALLY ACCREDITED (IIICYCLE) WITH"A"GRADEBYNAAC
ISO9001:2015Certified
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DEPARTMENTOF FOOD SERVICE MANAGEMENT AND DIETETICS

M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

Syllabus

2022-2023Onwards

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS)
DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS

VISION

To strengthen and integrate academic excellence, ethical values and social responsibility to develop a healthy nation by imparting skill based knowledge, professional competency and entrepreneurial skills.

MISSION

- To have a breath of knowledge across the subject areas of Nutrition and Dietetics.
- To professionally enrich the students for successful career in Academia, Industry and Research.
- To promote and inculcate self-reliance, social relevance, sound value system and code of professional practice among students.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEOs	Statements
PEO1	**LEARNING ENVIRONMENT** To facilitate value-based holistic and comprehensive learning by integrating innovative learning practices to match the highest quality standards and train the students to be effective leaders in their chosen fields.
PEO2	**ACADEMIC EXCELLENCE** To provide a conducive environment to unleash their hidden talents and to nurture the spirit of critical thinking and encourage them to achieve their goal.
PEO3	**EMPLOYABILITY** To equip students with the required skills in order to adapt to the changing global scenario and gain access to versatile career opportunities in multidisciplinary domains.
PEO4	**PROFESSIONAL ETHICS AND SOCIAL RESPONSIBILITY** To develop a sense of social responsibility by formulating ethics and equity to transform students into committed professionals with a strong attitude towards the development of the nation.
PEO5	**GREEN SUSTAINABILITY** To understand the impact of professional solutions in societal and environmental contexts and demonstrate the knowledge for an overall sustainable development.

PROGRAMME OUTCOMES FOR
M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS PROGRAMME

PO NO	On completion of M .Sc., Programme, the students will be able to
PO1	**SCIENTIFIC MANAGEMENT AND CAREER OPPORTUNITIES** Master the scientific and applied aspects of the subject for employment opportunities.
PO2	**EXPLORE CREATIVITY AND INTELLIGENCE** Employ novel ideas with conceptual thinking to secure self-discipline and independence to foster scientific attitude by exploration of Science.
PO3	**TEAM BUILDING AND SCIENTIFIC TEMPERAMENT** Inculcate training, internships and team spirit with leadership skills through academic projects and transmit complex scientific and technical information and contribute to the scientific community.
PO4	**INNOVATIVE LEARNING AND TECHNOLOGICAL ADVANCEMENT** Perceive research in the specialized areas and to engage in life-long learning to keep pace with emerging trends in academics, research and technology.
PO5	**PERSONALITY DEVELOPMENT WITH SOCIAL RESPONSIBILITY** Achieve ethical, social and holistic values with social responsibility to develop a healthy life.

PROGRAMME SPECIFIC OUTCOMES FOR
M.Sc., FOOD SERVICE MANAGEMENT AND DIETETICS

PSO NO	The Students of M.Sc., Food Service Management & Dietetics will be able to	POs Addressed
PSO1	Analyze scientific concepts in the area of Nutrition, Food Service Management and Dietetics.	PO1
PSO2	Apply critical thinking, technical skills and collaborative approach in food and nutrition, dietetics and managerial practices.	PO2, PO3
PSO3	Develop core competency skills through experimental work, internship and projects to support actions that promote social development	PO3, PO5
PSO4	Utilize local, national and global trends, emerging techniques and changes of legislation to enhance work performance.	PO4
PSO5	Establish entrepreneurial skills in designing innovative healthy food products and facility planning.	PO2, PO5

CAUVERY COLLEGE FOR WOMEN (AUTONOMOUS), TRICHY-18
DEPARTMENT OF FOOD SERVICE MANAGEMENT AND DIETETICS
M.SC FOOD SERVICE MANAGEMENT AND DIETETICS

LEARNING OUTCOME BASED CURRICULUM FRAMEWORK (CBCS-LOCF)

(For the Candidates admitted from the Academic year 2022-2023 onwards)

Semester	Course	Course Title	Course Code	Inst. Hrs. / week	Credits	Exam			Total
						Hrs.	Marks		
							Int.	Ext.	
I	Core Course - I (CC)	Advanced Food Science	22PFS1CC1	6	5	3	25	75	100
	Core Course – II(CC)	Human Nutrition and Public Health	22PFS1CC2	6	5	3	25	75	100
	Core Course –III(CC)	Advanced Dietetics I	22PFS1CC3	6	5	3	25	75	100
	Core Practical - I (CP)	Advanced Dietetics I (P)	22PFS1CC1P	6	5	3	40	60	100
	Discipline Specific Elective Course-I (DSE)	A. Applied Physiology	22PFS1DSE1A	6	3	3	25	75	100
		B. Nutrition for Fitness	22PFS1DSE1B						
		C. Nutrition in Clinical Critical Care	22PFS1DSE1C						
	Total			**30**	**23**				**500**

INTERNSHIP during Semester Holidays

II	Core Course– IV (CC)	Management in Food Service Operations	22PFS2CC4	6	5	3	25	75	100
	Core Course – V (CC)	Advanced Dietetics II	22PFS2CC5	6	5	3	25	75	100
	Core Choice Course– I (CCC)	A. Biochemistry and Metabolic Disorders	22PFS2CCC1A	6	4	3	25	75	100
		B. Food Quality Control and Regulations	22PFS2CCC1B						
		C. Front Office Operations	22PFS2CCC1C						
	Core Practical - II (CP)	Advanced Dietetics II (P)	22PFS2CC2P	6	5	3	40	60	100
	Discipline Specific Elective Course-II (DSE)	A. Functional Foods, Nutraceuticals and Nutrigenomics	22PFS2DSE2A	6	3	3	25	75	100
		B. Housekeeping and Interior Designing	22PFS2DSE2B						
		C. Food Packaging	22PFS2DSE2C						
	Internship	Internship	22PFS2INT	-	2	-	40	60	100
	Extra Credit Course	SWAYAM ONLINE COURSE	As per UGC Recommendation						
	Total			**30**	**24**				**600**

III	Core Course -VI(CC)	Food Product Development and Entrepreneurship	22PFS3CC6	6	5	3	-	100	100
	Core Course – VII (CC)	Research Methods, Statistical Techniques and Computer Applications	22PFS3CC7	6	5	3	25	75	100
	Core Choice Course– II (CCC)	A. Cyber Security	22PGCS3CCC2A	5	4	3	25	75	100
		B. Food Microbiology and Sanitation	22PFS3CCC2B						
		C. Food Service Facilities	22PFS3CCC2C						
	Core Practical - III (CP)	Research Methods, Statistical Techniques and Computer Applications (P)	22PFS3CC3P	5	5	3	40	60	100
	Discipline Specific Elective Course-III (DSE)	A. Competitive Examinations in Home Science for Professional Development	22PFS3DSE3A	5	3	2	-	100	100
		B. Waste Management in Food Industries	22PFS3DSE3B			3	25	75	
		C. Child Development	22PFS3DSE3C						
	Generic Elective Course-I (GEC)	Fundamentals of Nutrition	22PFS3GEC1	3	2	3	25	75	100
	Extra Credit Course	SWAYAM ONLINE COURSE	As per UGC Recommendation						
	Total			**30**	**24**				**600**

IV	Core Course– VIII (CC)	Quantity Food Production and Service	22PFS4CC8	6	5	3	25	75	100
	Core Choice Course– III (CCC)	A. Management and Accounting in Hospitality Industry	22PFS4CCC3A	6	4	3	25	75	100
		B. Techniques in Food Analysis	22PFS4CCC3B						
		C. Dietary Guidance and Counselling Skills	22PFS4CCC3C						
	Core Practical - IV (CP)	Quantity Food Production and Service (P)	22PFS4CC4P	6	5	3	40	60	100
	Generic Elective Course-II (GEC))	Community Nutrition	22PFS4GEC2	3	2	3	25	75	100
	Project	Project Work	22PFS4PW	9	5	-	-	100	100
	Total			30	21				**500**
	Grand Total			**120**	**92**				**2200**

Courses & Credits for G Science Programmes

Sl.No.	Courses	No of Courses	No of Credits	Marks
1.	Core Course -(CC)	8	40	800
2.	Core Choice Course- (CCC)	3	12	300
3.	Core Practical - (CP)	4	20	400
4.	Discipline Specific Elective- (DSE)	3	9	300
5.	Generic Elective Course- (GEC)	2	4	200
6.	Project	1	5	100
7.	Internship	1	2	100
	Total	**22**	**92**	**2200**

SEMESTER I	INTERNAL MARKS: 25			EXTERNALMARKS:75
COURSECODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS1CC1	**ADVANCED FOOD SCIENCE**	**CORE**	**6**	**5**

Course Objective

- To gain knowledge on nutritional composition and properties of food.
- To study the factors affecting the cooking quality of different foods.
- To develop skills to judge the quality of food.

Pre requisites

- Basic knowledge about food groups and nutritional composition.
- Fundamentals of food chemistry.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Estimate the nutritional composition of food groups	K1,K2,K3,K4,K5
CO2	Relate properties of food with processing and preparation techniques	K1,K2,K3,K4,K5
CO3	Analyze the changes that take place during cookery and factors affecting cooking quality	K1,K2,K3,K4,K5
CO4	Evaluate role of subjective and objective methods on food quality evaluation	K1,K2,K3,K4,K5
CO5	Assess importance of food additives	K1,K2,K3,K4,K5

Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2	3	3	2	2	2
CO2	3	3	3	2	2	3	3	2	2	2
CO3	3	3	3	2	2	3	3	2	2	2
CO4	3	3	3	2	2	3	3	2	2	2
CO5	3	3	3	2	2	3	3	2	2	2

"1" – Slight (Low) Correlation ¬ "2" – Moderate (Medium) Correlation ¬
"3" – Substantial (High) Correlation ¬ "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	**a. CEREALS** Structure, nutritional composition- Rice, Wheat, Millets. Gluten formation, factors affecting gluten formation. Gelatinization, gelation, retrogradation, syneresis, dextrinisation. Role of cereals in cookery, problems encountered in cereal cookery. Starch – components, types of starches, modified starch. **b. PULSES AND LEGUMES** Nutritional composition, processing of pulses – soaking, germination, decortication, fermentation. Factors affecting cooking quality of pulses. Toxins in pulses. **c. NUTS AND OILSEEDS** Classification, nutritional composition, uses in cookery.	18	CO1, CO2, CO3.	K1, K2, K3, K4, K5.
II	**a.MILK AND MILK PRODUCTS** Nutritional composition, effect of physical and chemical factors on milk components, processing methods-clarification, pasteurization, homogenization. Types of milk, types of milk products- concentrated dairy products, dried dairy products, fermented milk products. **b.SUGAR** Types of sugar, physical and chemical properties of sugar, stages of sugar cookery, crystallization, factors affecting crystallization. **c.FATS AND OILS** Physical and chemical properties of fats and oils, hydrogenation, winterization, rancidity- types, prevention, flavor reversion, smoking point, thermal changes in fat, role in cookery. Absorption of fat, factors affecting absorption of fat, fat replacers.	18	CO1, CO2, CO3.	K1, K2, K3, K4, K5.
III	**a.MEAT, POULTRY, FISH** Meat-structure, types, nutritional composition, post-mortem changes, ageing, tenderization, cuts of meat, meat cookery, effect of cooking. Poultry - classification, nutritive value, selection and storage, methods of cooking. Fish- classification, nutritive value, selection and storage, methods of cooking. **b.EGG** Structure and nutritional composition, selection, storage, quality check, foam formation, factors affecting foam formation.	18	CO1, CO2, CO3.	K1, K2, K3, K4, K5.
IV	**a.FRUITS** Classification, composition, selection, storage, ripening, enzymatic browning and preventive measures.	18	CO1, CO2, CO3.	K1, K2, K3, K4, K5.

	b.VEGETABLES Classification, composition, selection, storage, changes during cooking, loss of nutrients while cooking, changes in plant pigments while cooking. **c.SPICES AND CONDIMENTS** Types, role in cookery, volatile compounds.			
V	**a.EVALUATION OF QUALITY OF FOODS** Sensory characteristics of food –appearance, colour, flavor, odour, taste, mouth feel. Methods of sensory analysis- Difference test, Rating test, Sensitivity test, Descriptive profile method. Requirements for conducting sensory tests. Objective methods- chemical methods, physio-chemical methods, microscopic examination, physical methods. **b.COLLOIDAL SYSTEM** Types of colloidal dispersion, properties of colloidal system, emulsion-types, stability of emulsion, emulsifiers. **c.FOOD ADDITIVES** Types - Preservatives, antioxidants, sequestrants, humectants, bleaching and maturing agents, starch modifiers, emulsifiers, stabilizers, gelling agents, thickeners and surface active agents, anti-caking agents, anti foaming agents, colouring agents, flavour enhancer, acids, bases and buffers, glazing agents.	18	CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
VI	**SELF STUDY FOR ENRICHMENT (Not to be included for External Examination)** Benefits of germination. Role of sugar in cookery. Coagulation of egg protein. Uses of spices and condiments in Indian cookery. Role of food additives in food industry.		CO2, CO3, CO5.	K1, K2, K3, K4, K5.

PRACTICALS

1. **Starch cookery:** Microscopic examination of different starches, gelatinization of starch.
2. **Pulse cookery:** Factors affecting the cooking quality of pulses.
3. **Milk Cookery:** Effect of heat, acid, curdling of milk.
4. **Sugar cookery:** Stages of sugar cookery
5. **Fats and Oils:** Smoking temperature, factors affecting absorption of fat.
6. **Meat, fish and poultry Cookery:** Effect of cooking methods on meat, fish, poultry.
7. **Egg Cookery:** Testing the quality of egg. Coagulation of egg white and egg yolk.
8. **Fruits:** Measures for the prevention of enzymatic browning.
9. **Vegetables:** Effect of acid , alkali and heat on pigments in vegetables.
10. **Sensory evaluation of food:** Preparation of score card and Sensory analysis.

Text Books

1. Avantina Sharma., (2012), *Textbook of Food Science and Technology*, CBS Publishers and Distributors Pvt.Ltd.
2. Singh, S. K., (2019), *Essentials of Food Science*, Ishwar Books, New Delhi, India.
3. Mohini Sethi., (2019), *Food Science Experiments and Applications*, (2nd ed.), CBS Publishers and Distributors Pvt.Ltd.
4. S.M.Reddy., (2015), *Basic Food Science and Technology*, New Age International(P) Limited, Publishers, New Delhi, India .
5. B.Srilakshmi., (2018), *Food Science*(7thed.).New Age International (P) Limited, Publishers, New Delhi, India. Edition VII.

Reference Books

1. Norman N. Potter, (2007), *Food Science*, CBS Publishers and Distributors Pvt.Ltd. Edition V
2. H.K.Chopra., (2015), *Food Chemistry*, Narosa Publishing House Pvt.Ltd.

Web References

1. **https://starch.eu/ingredients/**
2. **https://www.britannica.com/science/fat-processing**
3. **http://www.yourarticlelibrary.com/home-science/eggs/egg-**
4. **https://www.who.int/news-room/fact-sheets/detail/food-additives**
5. **http://samples.jbpub.com/9781449694777/9781449603441_CH03.pdf**

Journals

1. Food Chemistry, Elsevier Sci. Ltd, England.
2. Food Science and Technology, Soc Brasileira Ciencia Tecnologia Alimentos, Brazil.
3. Food Research International, Elsevier Science Bv, United States.
4. Journal of Food and Agriculture, Wiley-Blackwell, England.
5. Journal of Food Science and Technology, Scientific Publishers, India

Pedagogy

Chalk and talk, PPT, e-content, Discussion, Assignment, Demo, Quiz, Seminar, Industrial visit.

CourseDesigners

1. Ms. B.THANUJA
2. MS.S.AGALYA

SEMESTER I	INTERNAL MARKS: 25		EXTERNAL MARKS:75	
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS1CC2	**HUMAN NUTRITION AND PUBLIC HEALTH**	**CORE**	**6**	**5**

Course Objective

- To understand the importance of meal planning.
- To comprehend the nutritional needs pertaining to different stages of life.
- To plan menu for various age groups.

Pre requisites

- Principles of nutrition and application of meal planning guidelines throughout life cycle.
- Fundamentals of community nutrition.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Infer basic sciences relevant to nutrition and apply public health principles to current public health related issues	K1,K2,K3,K4, K5
CO2	Assess the nutritional status of the population making use of the different evidence- based scientific assessment methods and protocols	K1,K2,K3,K4, K5
CO3	Interpret the impact of Nutrition policies on the health of individual as well as population	K1,K2,K3,K4, K5
CO4	Compare and contrast the health and nutritional challenges encountered in different regions and understand the various strategies employed to address them	K1,K2,K3,K4, K5
CO5	Design Nutrition Education programs for a target population using appropriate aids	K1,K2,K3,K4, K5

Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	-	3	2	3	3	3
CO2	2	3	3	1	-	2	2	3	3	3
CO3	2	3	2	3	-	-	2	3	3	3
CO4	3	3	3	3	-	2	2	3	3	2
CO5	3	3	3	3	2	3	3	3	3	3

"1" – Slight (Low) Correlation ¬ "2" – Moderate (Medium) Correlation ¬
"3" – Substantial (High) Correlation ¬ "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	**a. NUTRITION AND HEALTH** Inter relationship between nutrition and health. Meaning of adequate nutrition, undernutrition, and malnutrition. Principles of meal planning, Recommended Dietary Allowances (RDA)-Indian Council of Medical Research (ICMR-2010), Factors affecting RDA. Recommended Dietary Allowances and diet plan for pregnancy, lactation, infant, children's, adolescents, adults and geriatrics. **b.PREGNANCY AND LACTATION** Stages of gestation, physiological changes, weight gain, complications, factors influencing the outcome of pregnancy. Physiology of lactation - Hormonal control and reflex action, Importance of colostrum, composition of breast milk, advantages of breastfeeding, Difference between breast milk and cow's milk.	18	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5.
II	**a. INFANCY, PRE-SCHOOL, SCHOOL-GOING CHILDREN AND ADOLESCENTS** Growth and development of infants, preschool children, school- going children and adolescence. Artificial feeding, Breastfeeding vs. bottle feeding, Weaning and Supplementary foods, Feeding of premature infants. Factors influencing food habits of preschoolers. **b. ADULT AND GERIATRICS** Reference Man and Reference Woman**,** Symptoms in Menopausal and post-menopausal women. Socio-economic and psychological factors in geriatrics, Physiological changes in geriatrics, Feeding old age people. Dietary guidelines for adults and menopausal women.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
III	**a.EPIDEMIOLOGY** Definition, aim, components, measurement in Epidemiology - IMR, NMR, MMR and tools of measurement, approach, Relation of nutrition to national development - socio-economic, industrial and agricultural development.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.

	b.NUTRITIONAL PROBLEMS PEM, Vitamin A Deficiency Diseases, Anaemia, Iodine Deficiency Disorders and Fluorosis, Synergism between malnutrition and infection. **c. MALNUTRITION** Definition, Ecological factors leading to malnutrition - income, size of families, dietary pattern, occupation, customs food fads, fallacies, ignorance and other factors, Classification according to grades of malnutrition**.**			
IV	**a. NUTRITION INTERVENTION PROGRAMMES IN INDIA** School Lunch Programme (SLP), Chief Minister's Nutritious Noon Meal Program (CMNNMP), National Nutrition Mission- POSHAN Abhiyaan, Integrated Child Development Services (ICDS). National Nutritional Anaemia Prophylaxis Programme, National Prophylaxis Programme against Vitamin A Deficiency Diseases, Goitre Control Programme. National Nutrition policy- National food security, National nutrition policy- thrust areas and implementation at national level, Impact of National Nutrition policy, Sustainable Development Goals (WHO). **b. NATIONAL AGENCIES** Indian Council of Medical Research (ICMR), National Institute of Nutrition (NIN), National Nutrition Monitoring Bureau (NNMB), Central Food Technological Research Institute (CFTRI), Defence Food Research Laboratory (DFRL), and National Institute of Public Cooperation and Child Development (NIPCCD). **c.I NTERNATIONAL AGENCIES** Concerned with Food and Nutrition- Food and Agricultural Organization (FAO), World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), World Bank.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.

V	**a.NUTRITIONAL ASSESSMENT** Assessing the food and nutritional problems in the community, Methods available for individual and community, Anthropometric - Measurement of height, weight, head and chest circumferences, mid upper arm circumference, skin fold thickness, interpretation of measurements and comparison with standards (NCHS, ICMR), Biochemical assessment of nutritional deficiencies, Clinical assessment of nutritional disorders and Dietary surveys-Family diet survey, individual diet survey, Quantitative diet survey, and food balance sheet. **b.NUTRITION EDUCATION** Meaning, nature and importance of Nutrition education to the community and lessons to be taught. Methods of education- use of audio-visual aids, Use of computers to impart nutrition education - PowerPoint presentation, E-learning, Organization of Nutrition education programmes: Nutrition intervention theories – Behavioural theory, Social Cognitive Theory, Health Belief Model and Meaningful learning model. Principles of planning, executing and evaluating nutrition education programmes.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
VI	**SELF STUDY FOR ENRICHMENT (Not to be included for External Examination)** Galactagogues. Eating disorders – Bulimia nervosa, Binge eating and Anorexia nervosa in adolescence. Vicious Cycle of malnutrition. Activities of World Health Organization (WHO). Problems of nutrition education programme .	-	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.

PRACTICALS

1. Menu planning, nutritive value calculation and preparation of meals for pregnancy and lactation.
2. Menu planning, nutritive value calculation and preparation of meals for infancy, pre-school, school-going children, adolescents, adults and geriatrics.
3. Menu planning, nutritive value calculation and preparation of meals for PEM, Vitamin A, Iron and iodine deficiency.
4. Nutrition Education for pre- school and school going children.
5. Assessment of nutritional status.

Text Books

1. Brown Judith, E.(2008) *Nutrition*.(3rd ed.)Thomson Wadsworth USA.
2. Park, K. (2008) *Essentials of Community Health Nursing*(5th ed.).M/s Banarsidas Bhanot Publishers.Jabalpur.
3. Josephine Martin and Charlotte Beckett Oakley, (2008)**.***Managing Child Nutrition Programs*.(2nd ed.) Jones& Bartlett Publishers.
4. Seema Sonkar and Doreas L. Essiamah, (2008) *Food and Nutrition Security challenges towards combating malnutrition*.Chandralok Prakashan. Kanpur.
5. Bamji M.S, PrahladRao N, Reddy. (2016)*Textbook of Human Nutrition*.(4th ed.).Oxford and PBH Publishing Co. Pvt. Ltd. New Delhi.

Reference Books

1. Prakash Shetty,(2002).*Nutrition through the life cycle*.(1st ed.). Leatherhead publishing. Leather head International Ltd. UK.
2. Gibney, M.J.,Margetts, B.M.,Kearney, J.M.,Arab, L., (2004).*Public Health Nutrition. (*2nd ed.).UK.Blackwell PublishingCo.
3. Carolyn D. Berdanice., (2009), *Advanced Nutrition*, (2nd ed.). CRC Press.
4. M.Swaminathan., (2012), *Advanced Textbook on Food and Nutrition*. (2nd ed). Bangalore Printing and Publishing Co. Ltd., Bangalore,
5. Raheena Begum. M., (2015), *A textbook of Foods, Nutrition and Dietetics*.(3rd ed.).Sterling Publishers Pvt. Ltd., New Delhi.
6. Park K.,(2021), *Park's Textbook of Preventive and Social*.(26th ed.). M/S Banarasidas, Bharat Publishers, Jabalpur, India.

Web References

https://www.who.int/
https://www.encyclopedia.com/food/encyclopedias-almanacs-transcripts-and-maps/assessment-nutritional-status
https://www.fao.org/about/en/
https://www.nin.res.in/downloads/NNMBREPORT2001-web.pdf
https://www.icmr.gov.in/

Journals

1. Society for Nutrition Education and Behavior, Elsevier Sci. Ltd, England
2. Journal of the Academy of Nutrition and Dietetics, Elsevier Science Inc publishing, United States.
3. Public Health Nutrition, Cambridge University, England
4. Food Research International, Elsevier Science Inc, United States.
5. Journal of Food and Agriculture, Wiley-Blackwell, England

Pedagogy

Chalk and talk, PPT, Discussion, Assignment, Demo, Quiz, Seminar, Visit to ICDS

Course Designers

1. Ms. M. VINOTHINI
2. Ms. K.S. MITHILA

SEMESTER I	INTERNAL MARKS: 25			EXTERNAL MARKS: 75
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS1CC3	**ADVANCED DIETETICS I**	**CORE**	**6**	**5**

Course Objective

- To plan therapeutic diets.
- To analyze the underlying causes, pathophysiology and complications of diseases.
- To outline the focus of nutrition and dietetics in the prevention of diseases.

Pre requisites

- Principles of menu planning.
- Basics of therapeutic nutrition.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Role of dietitian in the hospitals and interpret the importance of computer in nutrition practice	K1,K2,K3,K4, K5
CO2	Describe the principles of dietary counseling for various diseases.	K1,K2,K3,K4, K5
CO3	Predict the nutritional requirements and menu plans for therapeutic conditions	K1,K2,K3,K4, K5
CO4	Diagnose symptoms, causes and complications of various diseases and apply dietary modifications of therapeutic conditions	K1,K2,K3,K4, K5
CO5	Evaluate special feeding methods and psychology of the patients	K1,K2,K3,K4, K5

Mapping of CO with PO and PSO

COs	PSO1	PSO 2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	2	3	3	3	3	3
CO5	3	3	3	3	2	3	3	3	3	3

"1" – Slight (Low) Correlation ¬ "2" – Moderate (Medium) Correlation ¬
"3" – Substantial (High) Correlation ¬ "-" indicates there is no correlation.

SYLLABUS

UNIT I	CONTENT	HOURS	COS	COGNITIVE LEVEL
I	**a. DIETITIAN** Definition and types of dietitians, role of dietitian in the hospital and community. **b. COUNSELING** Definition, counsellor and Client, techniques of counseling and classification of counseling. **c. COMPUTERS IN NUTRITION PRACTICE** General information – data input, data output, data analysis, data communication, clinical care – communication in patient care, Nutritional therapy.	18	CO1, CO2, CO4, CO5	K1, K2, K3, K4, K5
II	**a. ROUTINE HOSPITAL DIETS** Clear fluid diet, full fluid diet, soft diet, Regular diet **b. FEEDING THE PATIENTS** Assessment of patient needs. **c. SPECIAL FEEDING METHODS** Enteral nutrition and Parenteral nutrition. **d. DRUG NUTRIENT INTERACTION** Diet effects on drug disposition, Interactions of drugs and nutrients, Effect of drugs on food intake and absorption, Effect of nutrients on drug metabolism.	18	CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
III	**a. DIET IN FEBRILE CONDITIONS** Meaning, Pathogenesis, etiology, types, symptoms, treatment and dietary modification for febrile condition - acute, chronic and recurrent fevers- typhoid, influenza, rheumatic fever, tuberculosis, malaria and poliomyelitis. **b. DIET CARE IN HIV** Pathophysiology, stages of HIV infection, ART, opportunistic infections, women and HIV nutritional management	18	CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
IV	**a. DIET IN DISEASE OF GASTRO INTESTINAL TRACT** Meaning, Pathogenesis, etiology, types, symptoms, treatment and dietary modification for gastro intestinal disorders – Gastritis, peptic ulcer, diarrhea, dysentery, constipation, malabsorption syndrome, and carcinoma of the stomach. **b. DIET IN BILIARY TRACT DISORDERS**	18	CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5

	Meaning, Pathogenesis, etiology, types, symptoms and clinical findings and dietary modification for Liver disorders - Fatty liver, Hepatitis and Cirrhosis, Gall bladder disorders - Cholecystitis and Cholelithiasis. **c. DIET IN PANCREATIC DISORDERS** Meaning, Pathogenesis, etiology, types, symptoms and clinical findings and dietary modification for Pancreatitis			
V	**a. DIET IN METABOLIC DISORDERS- DIABETES MELLITUS** Meaning, types, screening and diagnostic criteria, pathogenesis, etiology, symptoms, complications, Dietary management of Diabetes Mellitus – Food Exchange system, Glycemic Index, Glycemic Load, nutritive and non-nutritive sweeteners. Lifestyle recommendations, drugs and insulin. **b. OBESITY** Etiology, energy balance**,** clinical manifestation, complications, dietary and lifestyle modifications and surgical management.	18	CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
VI	**SELF STUDY FOR ENRICHMENT (Not to be included for External Examination)** Professional ethics and obligations of dietitian. Psychology of feeding the patient. Aetiology of HIV. Types of jaundice. Theories of Obesity.	-	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5

Text Books

1. Mahan, Kathleen, L., Krause's, (2004).*Food,Nutrition and Diet Therapy*(11th ed.)., Pennsylvania; Saunders.
2. Antia, F . P., (2005).*Clinical Dietetics and Nutrition*,(5th ed.).Oxford University Press, New Delhi,
3. Prakash Lohar, S., (2007).*Endocrinology –Hormones and Human Health*, MJP publishers, Chennai.
4. Srilakshmi, B., (2009).*Dietetics*,(2nd ed.)New Age International Publications, New Delhi.
5. Shubhangini Joshi, A., (2014), *Nutrition and Dietetics*,(5th ed.). McGraw Hill, Education Private Limited, New Delhi.
6. Swaminathan, M., (2012). *Essentials of Food and Nutrition*, Ganesh and Company, Madras.

Maity, S . P., *Pharmacology for Second Professional Students*, (6th ed.)Books & AlliedPvt. Ltd.

Reference Books

1. Robinson, Corrine, H., (1982). *Normal and Therapeutic Nutrition*,(16th ed.). Macmillan McGraw Hill School Division, New York.
2. Udai Veer, (2007). *Elements of Food Science*, Anmol Publications Pvt Ltd, New Delhi.
3. Srilakshmi, B., (2008). *Nutrition Science*,(3rd ed.).New Age International Publications, New Delhi.
4. Indrani, T.K., (2008). *Nursing Manual of Nutrition and Therapeutic Diet*,(2nd ed.). Jaypee Brothers medical publishers (P) Ltd.
5. Mary Marian, (2008). *Clinical Nutrition for surgical patients.* Jones and Barletta Publishers.
6. Sangeetha Karnik, (2010). *Nutrition and Dietetics Therapy*, Biotech PharmaPublications, Hyderabad.

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https://gpadampur.files.wordpress.com/2015/08/caft-complete-vedpal.pdf
https://sfsurgery.com/wp-content/uploads/2014/06/Pancreatitis.pdf
https://my.clevelandclinic.org/health/treatments/21098-tube-feeding--enteral-nutrition
https://my.clevelandclinic.org/health/diseases/7104-diabetes-mellitus-an-overview
https://www.mayoclinic.org/diseases-conditions/cancer/symptoms-causes/syc-20370588

Journals

1. Food and Nutrition Bulletin, Sage Publications Inc, Japan.
2. Food and Nutrition Research, Co-Action Publishing, Sweden.
3. Food Digestion, Springer Verlag, Germany.
4. Nutrition and Cancer, Lawrence Erlbaum Associates Inc. United States
5. Nutritional Therapy and Metabolism, Wichtig Publishing, Italy.
6. Nutrition in Clinical Practice, Sage Publications Inc, United States

Pedagogy

Lecture, assignment, PowerPoint presentation, quiz, seminar, visit to hospital dietaryunits

Course Designers

1. Ms. S. AGALYA
2. Ms. E. AGALYA

SEMESTER I	INTERNAL MARKS: 40			EXTERNAL MARKS: 60
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS1CC1P	**ADVANCED DIETETICS I (P)**	**CORE PRACTICAL**	**6**	**5**

Course Objective

- To understand the modification of normal diet for therapeutic purpose.
- To acquire the skills of preparing diet for various disease conditions.
- To study the importance of dietitian in hospitals.

Pre requisites

- Application of dietary principles.
- Planning and preparation of modified diet.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Describe nutrient composition of clear fluid, full fluid and soft diet	K1,K2,K3, K4,K5
CO2	Classify foods to be included and avoided in the treatment of diseases	K1,K2,K3, K4,K5
CO3	Determine importance of dietary principles in the management of diseases	K1,K2,K3, K4,K5
CO4	Evaluate the nutritive value and plan menu for therapeutic conditions	K1,K2,K3, K4,K5
CO5	Assess various routine hospital diets	K1,K2,K3, K4,K5

Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	2	3	3	3	3	3
CO4	3	3	3	3	2	3	3	3	3	3
CO5	3	3	3	3	2	3	3	3	3	3

"1" – Slight (Low) Correlation ¬ "2" – Moderate (Medium) Correlation ¬
"3" – Substantial (High) Correlation ¬ "-" indicates there is no correlation.

SYLLABUS

UNIT I	CONTENT	HOURS	COS	COGNITIVE LEVEL
1	**PLANNING AND PREPARATION OF ROUTINE HOSPITAL DIETS** Clear liquid diet, Full liquid diet, soft diet and blenderized, mechanically altered diet.	12	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
2	**PLANNING AND PREPARING DIETS FOR FEBRILE CONDITIONS** Acute, Intermittent and Chronic.	12	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
3	**PLANNING AND PREPARING DIETS FOR GASTROINTESTINAL DISORDERS** Peptic ulcer, Diarrhea and Constipation.	18	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
4	**PLANNING AND PREPARING DIETS FOR LIVER DISORDERS** Hepatitis and Cirrhosis	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
5	**PLANNING AND PREPARING DIETS FOR GALL BLADDER DISORDERS** Cholecystitis and Cholelithiasis.	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
6	**PLANNING AND PREPARING DIETS FOR METABOLIC DISORDERS** Diabetes mellitus and Obesity.	18	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5

Text Books

1. Mahan, Kathleen, L., Krause's, (2004).*Food, Nutrition and Diet Therapy*, (11th ed.)Pennsylvania; Saunders.
2. Antia, F . P., (2005). *Clinical Dietetics and Nutrition*,(5th ed.)Oxford University Press, New Delhi.
3. Prakash Lohar, S., (2007). *Endocrinology –Hormones and Human Health*, MJP publishers, Chennai.
4. Srilakshmi, B., (2009). *Dietetics*, (2nd ed.).New Age International Publications, New Delhi.
5. Shubhangini Joshi, A., (2014),*Nutrition and Dietetics*,(5th ed.). McGraw Hill, Education Private Limited, New Delhi.
6. Gopalan, C., & etal., (2018). *Nutritive Value of Indian Foods*, National Institute of Nutrition Hydrabad.

Reference Books

1. Joshi, Y. K., (2003). *Basics of Clinical Nutrition*, (2nd ed.).Jaypee Brothers,Medical Publishers, New Delhi.
2. Indrani, T.K., (2008). *Nursing Manual of Nutrition and Therapeutic Diet*, (2nd ed.).Jaypee Brothers medical publishers (P) Ltd.
3. Mary Marian, (2008). *Clinical Nutrition for surgical patients*, Jones and Barletta Publishers.

Web References

https://sfsurgery.com/wp-content/uploads/2014/06/Pancreatitis.pdf
https://my.clevelandclinic.org/health/treatments/21098-tube-feeding--enteral-nutrition
https://my.clevelandclinic.org/health/diseases/7104-diabetes-mellitus-an-overview

Journals

1. Food and Nutrition Research, Co-Action Publishing, Sweden.
2. Food Digestion, Springer Verlag, Germany.
3. Nutritional Therapy and Metabolism, Wichtig Publishing, Italy.
4. Nutrition in Clinical Practice, Sage Publications Inc, United States

Pedagogy

Lecture, Demonstration, Practical

Course Designers

1. Ms. S. AGALYA
2. Ms. E. AGALYA

SEMESTER I	INTERNAL MARKS: 25			EXTERNALMARKS:75
COURSECODE	**COURSETITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS1DSE1A	**APPLIED PHYSIOLOGY**	**ELECTIVE**	**6**	**3**

Course Objective

- To acquire core knowledge about Cellular adaptation.
- To understand about functioning abnormality of various human systems.
- To study about the symptoms and signs of abnormal physiological functions.

Pre – requisites

- Exposure to human cell structure and function.
- Prior knowledge on human physiology

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On Successful Completion of the course, students will be able to	Cognitive Level
CO1	Illustrate adaptation of human body to maintain homeostasis	K1,K2,K3,K4, K5
CO2	Predict physiological abnormality in different system of human body.	K1,K2,K3,K4, K5
CO3	Ascertain disease conditions associated with organs present in human body.	K1,K2,K3,K4, K5
CO4	Evaluate disease prognosis of physiological functions	K1,K2,K3,K4, K5
CO5	Conceive severity of degeneration prevalent in various organs	K1,K2,K3,K4, K5

Mapping of CO with PO and PSO

Os	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	2	2	2	3	2	2	3	2
CO2	3	3	2	2	2	3	2	2	3	2
CO3	3	3	2	2	2	3	2	2	3	2
CO4	3	3	2	2	2	3	2	2	3	2
CO5	3	3	2	2	2	3	2	2	3	2

“1” – Slight (Low) Correlation ¬ “2” – Moderate (Medium) Correlation ¬
“3” – Substantial (High) Correlation ¬ “-” indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COS	COGNITIVE
I	**GENERAL PHYSIOLOGY OF CELL AND BODY FLUIDS** a. **Cell –** Action potential of cell, Cell adaptation – Atrophy, Hypertrophy, Hyperplasia, Dysplasia, Metaplasia, Cell Junction – Herditary deafness, itchthyosis, Sclerosing Cholangitis, hereditary hypomagnesmia, synovial sarcoma, Transport of membranes- Abnormalities of sodium potassium pump, ion channel disease, Mechanism of homeostatic system – Negative feed back, Positive feed back. Cell death -Autophagy, apoptosis, necrosis. **b. Body fluids –** Variation in plasma protein level, Anemia, Abnormal haemoglobin abnormal leukocytes, autoimmune disease, allergy and immunological hypersensitivity, Abnormal thrombocytes, bleeding disorders, blood volume – hypervolemia, hypovolemia**.** Tissue fluid- Intracellular edema, Extracellular edema, Elephantiasis.	18	CO1, CO2, CO3, CO4	K1,K2,K3,K4 ,K5
II	**CARDIOVASCULAR AND RESPIRATORY SYSTEM** **a.Heart and Circulation** –Abnormal pulse-pulses deficit, pulsusalternans, anacrotic pulse, threadypulse, pulsusparadoxus, water hammer pulse, abnormal pulse in patient ductus arterioses, abnormal pulse in aortic regurgitation, abnormal venous pulse, Arterial Blood Pressure- Hypertension, hypotension coronary artery disease, Stroke, varicose vein, thrombophlebitis, heart failure. **b.RespiratorySystem-**Apnea hyperventilation, hypoventilation, hypoxia, oxygen toxicity, hypercapnia, asphyxia, dyspnea, bronchial asthma; Infectious Diseases of Lungs-tuberculosis, pneumonia.	18	CO1, CO2, CO3, CO4	K1,K2,K3,K4 ,K5
III	**NERVOUS SYSTEM AND SENSE ORGANS** **a.Nervous System** –. Diseases of spinal cord-Syringomyelia, tabesdorsalis, multiple sclerosis, disk prolapse, effects of motor neuron lesion, paralysis, thalamic lesion, thalamic syndrome. Disorders of basal ganglia - parkinson disease, Wilson disease, chorea, athetosis, choreathetosis, Huntington chorea, hemiballisms, kernicterus. Frontal lobe syndrome, temporal lobe syndrome. Sleep Disorder, epilepsy.	18	CO1, CO2, CO3, CO4	K1,K2,K3,K4 ,K5

	b.Sense Organs – Eye- Glaucoma, cataract, colour blindness Conduction deafness and nerve deafness Abnormalities of taste sensation- Ageusia, hypogeusia, taste blindness, dysgeusia. Abnormalities of olfactory sensation – Anosmia, hyposmia, hypersomia			
IV	**DIGESTIVE SYSTEM AND EXCRETORY SYSTEM** **a.Digestive system -** Disorders of Upper Gastro Intestinal Tract-Hyposalivation, hypersalivation, esophageal, achalaria, gastroesophageal reflux disease(GERD), gastritis, gastric atrophy. Disorders of Lower Gastro Intestinal Tract-peptic ulcer, zollinger -Ellison syndrome, malabsorption, crohn's disease, celiac disease, diarrhea, constipation, appendicts, ulcerative colitis, dysphagia, gastric dumping syndrome, vomiting. Pancreatitis, jaundice, hepatitis, cirrohosis and gallstones. **b.Excretory system** – Osmotic diuresis, polyuria, hypersecretion of Anti Diuretic Hormone, Nephrogenic diabetes insipidus, Bartter's syndrome, renal failure, Abnormalities of micturition – Atonic bladder, Automatic bladder, unihbited neurogenic bladder, nocturnal micturition.	18	CO1, CO2, CO3, CO4	K1,K2,K3,K4 ,K5
V	**a.Muscular and Skeletal System -** Disorders of Skeletal Mucsle- Myopathy-Sprain and strain, Muscular Dystrophy. Diseases involving muscle tone, Tetany Osteoporosis Arthritis, Spondylitis, Osteomalacia, Rickets, fractures **b.Reproductive system** – Effects of extirpation of testis, hypergonadism in males, hypogonadism in males, enlargement of prostrate gland, azoospermia, oligozoospermia, teratozoospermia, aspermia, oligospermia, hematospermia. Abnormal menstruation – menstrual symptoms, premenstrual syndrome, anovulatory cycle, amenorrhea, hypomenorrhea, menorrheagia, oligomenorrhea, polymenorrhea, dysmenorrhea and metrorrhagia	18	CO1, CO2, CO3, CO4, CO5	K1,K2,K3,K4 ,K5
VI	**SELF STUDY FOR ENRICHMENT (Not to be included for External Examination)** Symptoms of Anemia. Types of Hypertension. Errors of refraction. Structure and functions of Liver, gall bladder, Pancreas. Phases of Menstrual cycle.	-	CO1, CO2, CO3, CO4, CO5	K1,K2,K3,K4 ,K5

Text books

2. WilsonandRoss, (2014).*Anatomy and Physiology in Health and illness:*New Delhi Reed Elsevier India Private Limited
3. Sembulingam. K..(2016).*Essentials of Medical Physiology*:New Delhi Health Sciences Publisher.
4. Subramanyam,Sarada.(2018).*Text book of Human Physiology*: New Delhi S Chand & Company Ltd.

Referencebooks

1. Waugh,Anne Ross andWilson.(2018*). AnatomyandPhysiology inHealthandIllness*,(13th ed).NewYorkChurchill, Livingston.
2. Murugesh N.(2011).*Basic Anatomy and Physiology*:Madurai Sathya Publishers.
3. InduKhurana.(2013).*Textbook of Human Physiology*, Elsevier.
5. Wilson and Ross.(2014).*AnatomyandPhysiology inHealthandIllness*:New Delhi, Reed Elsevier India Private Limited.
6. Sembulingam. K. (2016).*Essentials of Medical Physiology*:New Delhi Health Sciences Publisher.

Web Link:

- https://ncdc.gov.in/https://www.cdc.gov/globalhealth/countries/india/default.htm
- https://www.egyankosh.ac.in/handle/123456789/32973
- https://www.google.co.in/books/edition/Applied_Physiology_Of_Exercise_Laborator/VWFEEAAAQBAJ?hl=en&gbpv=1&dq=on+line+course+material+on+applied+physiolo
- https://www.sciencedirect.com/topics/medicine-and-dentistry/menstrual-irregularity
- https://ce.napnap.org/system/files/14-Musck%20Stevenson.pdf

Journals:

- Applied Physiology, Nutrition and Metabolism, National Research Council Canada.
- JournalofAppliedPhysiology,AmericanPhysiologicalSociety,UnitedStates.
- European Journal of Applied Physiology, Springer ,Germany.

Pedagogy: E-content, Lecture, Power point presentation, Seminar, Assignment.

Course Designers:

- Ms.S.FATHIMA
- Ms.C.NIVETHA

SEMESTER I	INTERNAL MARKS: 25			EXTERNAL MARKS: 75
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDIT**
22PFS1DSE1B	**NUTRITION FOR FITNESS**	**ELECTIVE**	**6**	**3**

Course Objective

- To enable students to understand the interaction between exercise and nutrient metabolism.
- To enlighten the students to understand the various physiological aspects for sportspersons.
- To help the students to understand the role of ergogenic aids to enhance sports performance.

Pre requisites

- Basic knowledge on nutrition
- Fundamentals of physiological functions of human body

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Knowledge Level
CO1.	Describe the role of nutrition in fitness.	K1,K2,K3, K4,K5
CO2.	Apply the nutritional assessment techniques among individuals.	K1,K2,K3, K4,K5
CO3.	Determine the nutritional requirements for pre and post event of athletes.	K1,K2,K3, K4,K5
CO4.	Assess the ergogenic foods for sports individuals.	K1,K2,K3, K4,K5
CO5.	Appraise effect of exercise on physiological and biochemical functions.	K1,K2,K3, K4,K5

Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO 3	PSO 4	PSO 5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	3	3	3	3	2	3	3	3
CO2	3	2	3	3	3	2	2	2	3	3
CO3	3	2	3	3	3	2	2	2	3	3
CO4	3	2	3	3	3	2	2	2	3	3
CO5	3	2	3	3	3	2	2	2	3	3

"1" – Slight (Low) Correlation "2" – Moderate (Medium) Correlation
"3" – Substantial (High) Correlation "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COS	COGNITIVE
I	**INTRODUCTION TO FITNESS** **a. Understanding Fitness** Definition of fitness, health and related terms, approaches for keeping fit, alternative forms of fitness- yoga, pilates, kickboxing, boot camps, **b. Importance of Physical Activity** Importance and benefits of physical activity, physical activity – frequency, intensity, time and type with example, physical activity pyramid.	18	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5
II	**EFFECT OF PHYSICAL FITNESS ON HEALTH STATUS** **a. Physiological and Biochemical Effect of Exercise** Aerobic and anaerobic exercises, muscle contraction, weight and body composition of athletes, adaptation of muscle and body physiology to exercise. **b. Effect of Physical Exercise on Various Systems** Circulatory- Cardiovascular regulation and integration, muscular, skeletal and neural control, endocrines and exercise, respiratory systems.	18	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5
III	**COMPONENTS OF ASSESSMENT** **a. Assessment of Fitness** Anthropometry, assessment of Cardio Respiratory Vo2 max, assessment of physical and functional capacity, hydration assessment and recommendation. Assessment of muscular fitness, muscle strength, endurance and flexibility exercise-Bench	18	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5

	jumps, pushups, sit and reach test. **b. Nutritional Assessment** Measurement of body composition, Somato typing, dietary assessment, biochemical assessment, clinical assessment, body composition and sports performance.			
IV	**EFFECT OF FITNESS ON NUTRITION** **a. Importance of Nutrition** Need and scope of nutrition in fitness, nutritional guidelines for health and fitness, goals of optimal nutrition for athletes, nutritional supplement. **b. Nutritional Problems** Nutritional problems in physically active persons - mineral malnutrition, athletic triad, vitamin malnutrition, eating disorders, weight concerns. The female athlete triad, eating disorders, amenorrhea, osteoporosis, travelling athletes, diabetic athletes, GI stress and athletes, cramps and stitches.	18	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5
V	**NUTRITIONAL GUIDELINES** **a. Nutritional Requirements** Role of macronutrient on exercise and sports performance, Role of micronutrient on exercise and sports performance, sources of energy, Energy balance, Body mass and composition, Fuel needs for training and recovery, weight loss energy calculation. **b. Principles of Diet Planning** Principles of diet planning for different exercise/sports conditions, Pre game meals, Post Game meals, During meals, On-season and Off-season meals,	18	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5

	Ergogenic aids-nutritional and non-nutritional ergogenic aids. Nutritional standards – dietary reference intake, probiotics, exercise and weight management.			
VI	**SELF STUDY FOR ENRICHMENT** **(Not to be included for External Examination)** Basics of Physical Activity Guidelines.Effect of physical exercise on digestive system. Methods of measuring energy expenditure during exercise. Government andNon-Governmental organization for sports nutrition. Role of Probiotics in Sports Nutrition.	-	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5

Text Books

1. Shubhangini Joshi, A.(2014). *Nutrition and Dietetics*. 5th Edition.. McGraw Hill. Education Private Limited, New Delhi.
2. Srilakshmi, B. et.al., (2017), *Exercise physiology fitness and sports nutrition*. New Age International Publishers.

Reference Books

1. Kathleen Mahan, L. (2008*). Krause's Food & Nutrition Therapy.* Sauder's Elsevier.. Canada.
2. Jose Antonio, et al., *Essentials of Sports Nutrition and Supplements*: Humana Press.
3. Wener,W.K., et al. (2009). *Lifetime Physical Fitness and Wellness: A Personalized Program* Cengage Learning, United States.
4. Jerrold, S. (2012). *Empowering Health Decisions*.Jones & Bartlett Publishers. Burlington.
5. Asker Jeukendrup, Michael Gleson, (2019). *Sport Nutrition*: Human Kinetics. United States.

Journals:

1. Journal of the International Society of Sports, Nutrition Biomed Central Ltd, United States
2. American health & Fitness Journal, American College of Sports Medicine, 401 W. Michigan Street Indianapolis, IN 46202-3233

Web links:

1. http://www.sportsauthorityofindia. nic.in
2. https://www.hhs.gov/programs/prevention-and-wellness/nutrition-and-fitness/index.html
3. https:/www.hopkinsmedicine.org/health/wellness-and-prevention/nutrition-and-fitness

Pedagogy: E-content, Lecture, Powerpoint presentation, Seminar, Assignment.

Course designers

- Ms. S. FATHIMA
- Ms. T.R. REVATHI

SEMESTER I	INTERNAL MARKS: 25			EXTERNAL MARKS: 75
COURSE CODE	COURSE	CATEGORY	HRS/WEEK	CREDITS
22PFS1DSE1C	NUTRITION IN CLINICAL CRITICAL CARE	ELECTIVE	6	3

Course Objective

- To understand the special nutritional requirements in critically ill.
- To know the nutritional support system for critically ill.
- To ensure the nutritional needs of the critically ill patient

Pre requisites

- Fundamentals on nutrition and disease.
- Basic knowledge on nutritional assessment.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Knowledge Level
CO 1	Explain the nutritional assessment methods	K1,K2,K3, K4,K5
CO 2	Compute principles of nutritional care	K1,K2,K3, K4,K5
CO 3	Analyze nutritional status of critically ill patients	K1,K2,K3, K4,K5
CO 4	Assess importance of enteral and parentral nutrition	K1,K2,K3, K4,K5
CO 5	Evaluate role of nutrients in critical care	K1,K2,K3, K4,K5

Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	3	3	2	2
CO2	3	3	3	3	2	3	3	3	2	2
CO3	3	3	3	3	2	3	3	3	2	2
CO4	3	3	3	3	2	3	3	3	2	2
CO5	3	3	3	3	2	3	3	3	2	2

"1" – Slight (Low) Correlation "2" – Moderate (Medium) Correlation
"3" – Substantial (High) Correlation "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COS	COGNITIVE
I	**SCREENING AND NUTRITIONAL ASSESSMENT OF CRITICALLY ILL PATIENTS** a. **Screening:** Diagnosis of malnutrition, Nutrition screening, Methods for nutritional screening Malnutrition Universal Screening Tool, Nutritional Risk Screening, Mini Nutritional Assessment. b. **Assessment of Nutritional Status:** Anthropometric Assessment - Body Mass Index, Mid Arm Circumference, Triceps skin fold thickness; Biochemical assessment – Urea, Creatinine, liver function tests, plasma changes in minerals, plasma protein tests; Clinical assessment – temperature, Blood Pressure, Pulse Rate; Dietary assessment – 24-hour recall method, food frequency questionnaires.	18	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5
II	**NUTRITIONAL CARE FOR HOSPITALIZED PATIENTS** a. **Principles of nutrition care** – Nutrition care process, Progressive diets- Clear fluid diet, full fluid diet, soft and regular diet. b. **Surgical Conditions**- Hormonal response during surgery, levels of stress, starvation, sepsis, Infections, post operative diet.	18	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5
III	a. **Enteral nutrition** – Types, routes, mode of feeding and importance, advantages and disadvantages of home-based feed, precautions while feeding and complications.	18	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5

	b. **Parenteral nutrition** – Types, composition, importance of total parenteral nutrition, precautions while feeding and complications. Refeeding syndrome and clinical manifestations of refeeding syndrome.			
IV	**NUTRITIONAL SUPPORT IN BURN AND TRAUMA** a. **Burns** – Principles of nutrition management, Clinical effects of malnutrition and factors affecting nutritional requirements in burn patients. b. **Trauma** – Classification, Principles of nutrition management, Clinical effects of malnutrition and factors affecting nutritional requirements in trauma patients.	18	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5
V	a. **Renal failure** –types, metabolic aspects and nutritional requirement, effects of renal treatment on nutrition and nutritional therapy. b. **Hepatic failure** – Consequences of hepatic failure upon nutritional status and nutritional support. c. **Pulmonary diseases** – types, effects of pulmonary treatment on nutrition and nutritional support. d. **Cancer** -Types of cancer, overview of nutrition in cancer care, effects of cancer treatment on nutrition and nutritional support.	18	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5
VI	**SELF STUDY FOR ENRICHMENT** **(Not to be included for External Examination)** Classification of Malnutrition. Pre operative diet in surgical condition Comparison of enteral and parenteral nutrition. Classification of burns. Types of hepatic failure.	-	CO 1, CO 2, CO 3, CO 4, CO 5	K1,K2,K3, K4,K5

Textbooks

1. Luc Cynober A, Frederick Moore A., (2003), *Nutrition and Critical Care*, Karger Medical and Scientific Publishers.
2. Khanna K, Gupta S, Seth R, Passi SJ, Mahna R, Puri S., (2013), *Textbook of Nutrition and Dietetics*, Phoenix Publishing House Pvt Ltd.
2. Frederick A. Moore, Edward Abraham., (2017), *Textbook of Critical Care*, Elsevier

Reference Book

1. Verma P K., (2008), *Principles and Practice of Critical Care*, B. I Publications.
2. Pierre Singer., (2013), *Nutrition in Intensive Care Medicine: Beyond Physiology*, Karger Medical and Scientific Publishers.
3. Peter Faber, Mario Siervo., (2014), *Nutrition and Critical Care*, Cambridge University Press.
4. Rajkumar Rajendram, Victor R. Preedy, Vinood B. Patel., (2015), *Diet and Nutrition in Critical Care*, Springer New York.
5. Gail A. Cresc., (2016), *Nutrition Support for critically ill patient*, CRC Press.

Journals

1. Journal, Indian Academy of Clinical Medicine, Med IND, India.
2. Journal of the American Academy of PAs, Wolters Kluwer, United States

Web References

1. https://www.slhd.nsw.gov.au/rpa/neonatal%5Ccontent/pdf/guidelines/tpn.pdf
2. https://www.clinicalnutritionjournal.com/article/S0261-5614(20)30194-1/fulltext
3. https://www.researchgate.net/publication/244829589_Basics_in_Clinical_Nutrition_Nutritional_support_in_trauma
4. https://nutritionguide.pcrm.org/nutritionguide/view/Nutrition_Guide_for_Clinicians/1342058/all/Burns
5. https://www.nutritioncaresystems.com/chronic-obstructive-pulmonary-disease/
6. https://www.cancer.gov/about-cancer/treatment/side-effects/appetite-loss/nutrition-pdq

Pedagogy:

E-content, Lecture, Powerpoint presentation, Seminar, Assignment

Course Designers

- Ms. M. VINOTHINI
- Ms. C. NIVETHA

SEMESTER- II	INTERNAL MARKS: 25			EXTERNAL MARKS: 75
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS2CC4	**MANAGEMENT IN FOOD SERVICE OPERATIONS**	**CORE**	**6**	**5**

Course Objectives

- To gain knowledge on principles and functions of management.
- To study the importance of tools of management**.**
- To familiarize process of food service management.

Pre requisites

- Principles of management.
- Tools of management.

Course Outcome and Cognitive Level Mapping

CO number	CO statement On the successful completion of the course, students will be able to:	Knowledge level
CO 1	Identify commercial and non – commercial food service institutions and Managerial problems in food service establishment	K1, K2, K3, K4, K5
CO 2	Explain the principles, functions and tools of management,	K1, K2, K3, K4, K5
CO 3	Predict the significance of event management and human resource management.	K1, K2, K3, K4, K5
CO 4	Determine the methods of communication and performance appraisal.	K1, K2, K3, K4, K5
CO 5	Evaluate the role of leadership, motivation and controlling in managerial process.	K1, K2, K3, K4, K5

Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2	3	3	3	3	3
CO2	3	3	3	2	2	3	3	3	3	3
CO3	3	3	3	2	2	3	3	3	3	3
CO4	3	3	3	2	2	3	3	3	3	3
CO5	3	3	3	2	2	3	3	3	3	3

"1" – Slight (Low) Correlation ¬ "2" – Moderate (Medium) Correlation ¬
"3" – Substantial (High) Correlation ¬ "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	a. **Food Service Institutions** - Classification of food service institutions: Commercial and Non-Commercial food service institutions. Objectives and workflow. b. **Event Management –** Types of Event, role of staff, event administration, event organization, weddings, and outdoor catering (off premises catering) c. **Food delivery system-** Wireless food ordering system, Online ordering system. Software and hard ware requirements for food ordering.	18	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
II	a. **Introduction to Management-** Principles, Functions and Theories of Management –Classical , Scientific, Human relations, Behavioural Science. b. **Tools of management-**Organization Chart, job description, job specification, work schedule, job analysis, production and staff analysis statement and budget.	18	CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5
III	a. **Planning and Forecasting**- Definition, Nature, steps in planning. Steps and kinds of forecasting. b. **Organization** -Definition, Process of organization, Types– Formal and Informal organization and importance of organization. c. **Human Resource Management –** Staffing, man power planning, recruitment, selection and training. Directing - Definition, characteristics and principles of directing**,** delegation, decentralization, centralization, supervision, authority and responsibility.	18	CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5
IV	a. **Motivation** - Definition, importance, types, theories -Traditional (Fear and Punishment theory, Efforts and Rewards Theory, Carrot and Stick Theory), Modern Theories (Maslow's hierarchy of needs theory, Herzberg's Motivation – Hygiene theory, McClelland's Three –Need theory, Vroom's Expectancy theory). Approaches and techniques to enhance motivation - wages, salaries, incentives, promotion, demotion, transfer and dismissal.	18	CO2, CO4, CO5.	K1, K2, K3, K4, K5

	b. **Leadership** – Definition, Characteristics, Theories of Leadership – Trait Leadership Theory, Behavioural Theories of Leadership, Tannenbaum and Schmidt's leadership continuum. Types of Leadership styles – Authoritarian, Paternalistic, Democratic, Laissez-faire, Expert or Functional Leader and Institutional Leader.			
V	a. **Communication** – Definition, Elements of Communication - Channels of Communication – formal and informal channel. Methods of communication – Oral, Written, Gestural, communication principles and Barriers of Communication. b. **Controlling** - Definition, characteristics and importance of controlling, techniques of control – Break Even Analysis, PERT (Programme Evaluation and Review Technique), MIS (Management Information System) and Budgetary control. c. **Performance appraisal –** Importance, methods – Traditional trait approach – Rating Scales, Ranking methods, Critical incident, Check-list methods. Appraisal by results or objects – Management by Objectives	18	CO2, CO4, CO5.	K1, K2, K3, K4, K5
VI	**SELF STUDY FOR ENRICHMENT** **(Not to be included for External Examination)** Managerial problems in food service establishment. Job specification for a Food and Beverage manager. Importance of planning in Food Service Institutions. Characteristics of Autocratic leader. Comparison of oral and written communication.	-	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5

Text books

1. Ahmed Ismail, (2004). *Front office operations and Management*. Delmar Publications, Singapore.
2. Naseem Ahmed, (2006).*Principles of Hotel Management*. Anmol Publications Pvt.Ltd.
3. Anil Bhat, Arya Kumar, (2008). *Management Principles, Processes, and Practices,* Oxford University Press
4. Vijay R. Thakur, (2007). *Food and Beverage Service*, Denetis Co
5. Premavathy N, (2008). *Principles of Management (Business Management),* Sri Vishnu Publication.
6. Raghubalan G and Smritee Raghubalan, (2009). *Hotel housekeeping - Operations and Management,* Oxford University Press, New Delhi.
7. Mohini Sethi, (2011). *Catering management – An Integrated approach*, New Age International Pvt. Ltd. New Delhi

Reference books

1. West and B.B.Wood, (1996). *Food Service in Institutions*, Jonewiley and sons
2. Malhotra R K, (1998). *Fundamentals of hotel Management,* Anmol Publications, New Delhi.
3. Sharma Jyothi S, (2006) *Catering Management Practices*, Akansha Publishing house, New Delhi.
4. Chakravarthi B K, (2011). *Hotel and Hospitality Management,* A.P.H.Publishing corporation.
5. Anil Bhat, (2016) *Principles of Management competencies*, *Practices*, *Processes*, Oxford University Press, New Delhi.
6. Peter jones, (2016) *Food service operations*, Library cataloguing in publishing data, London.
7. Singaravelan R, (2016) *Foodand Beverage Service*, Oxford university Press, New Delhi.
8. Mamoria.C/B and Gankar.S.V, (2003), *Personnel Management, (23rd ed),* Himalaya Publishing House.

Web Links

1. http://ncert.nic.in/textbook/pdf/lehe104.pdf
2. https://pdfs.semanticscholar.org/18b8/eb1b94af18401e4610673e3f8bd6120f38fc.pdf
3. https://nptel.ac.in/courses/122106031/slides/1_1s.pdf
4. http://shodhganga.inflibnet.ac.in/bitstream/10603/197548/5/05_chapter%202.pdfhttps://www.manage.gov.in/studymaterial/EC.pdf
5. https://www.ijrte.org/wp-content/uploads/papers/v8i2S3/B11560782S319.pdf

Journals

1. Journal of Industrial Engineering and Management, Omnia Science.
2. Journal of Food Service Business Research, Taylor and Francis, United Kingdom.
3. Journal of Hotel and Business Management, Longdom Publishing, Belgium.

Pedagogy

Lecture, Assignment, Seminar, Quiz, Power point Presentation, Visit to Commercial and Non-Commercial Food Service Establishments,Internship.

Course Designers

- Ms. S.AGALYA
- Ms. B.THANUJA

SEMESTER - II	INTERNAL MARKS: 25		EXTERNAL MARKS: 75	
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS2CC5	**ADVANCED DIETETICS II**	**CORE**	**6**	**5**

Course Objectives

- To analyze the underlying causes and complications of diseases.
- To understand the pathophysiology of diseases.
- To outline the focus of nutrition and dietetics in the prevention of diseases.

Pre requisites

- Knowledge in menu planning.
- Insights on therapeutic nutrition.

Course Outcome and Cognitive Level Mapping

CO Number	CO statement On the successful completion of the course, students will be able to:	Knowledge level
CO 1	Determine the dietary principles in the management of various diseases.	K1,K2,K3,K4,K5
CO 2	Assess the symptoms of various diseases with clinical manifestations.	K1,K2,K3,K4,K5
CO 3	Describe mechanism of food allergy.	K1,K2,K3,K4,K5
CO 4	Classify inborn errors of metabolism.	K1,K2,K3,K4,K5
CO 5	Evaluate role of diet counseling in the nutritional Care.	K1,K2,K3,K4,K5

Mapping of CO with PO and PSO

COs	PSO1	PSO 2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	-	3	3	3	3	3
CO2	3	3	3	3	-	3	3	3	3	3
CO3	3	3	3	3	-	3	3	3	3	3
CO4	3	3	3	3	-	3	3	3	3	3
CO5	3	3	3	3	-	3	3	3	3	3

"1" – Slight (Low) Correlation ¬ "2" – Moderate (Medium) Correlation
"3" – Substantial (High) Correlation ¬ "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	**a. Dietary Management in Cardio Vascular diseases:** Pathogenesis, etiology, types, symptoms, treatment and dietary modification for cardio vascular disorders – hyper lipidaemia, hypertension, atherosclerosis, hypercholesterolemia, acute and chronic cardiac diseases, congestive heart failure and Myocardial Infarction. **b. Dietary Management in Renal diseases:** Pathogenesis, etiology, types, symptoms, treatment and dietary modification for renal disorders– glomerulonephritis, nephrosis, Acute Renal failure (ARF), Chronic Renal Failure (CRF), End Stage Renal Disease (ESRD), Dialysis. nephrolithiasis.	18	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
II	**a. Dietary Management in Nervous System Disorders**: Etiology, Clinical features and Dietary management for – Parkinson's disease and Alzheimer's disease **b. Dietary Management in diseases of the musculoskeletal system:** Pathogenesis, symptoms, causes, treatment and dietary management - arthritis, osteoporosis, gout and rheumatism.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5
III	**a. Dietary Management in Hormonal diseases:** Etiology, symptoms, and dietary modification for - Cushing's syndrome, Addison's disease, hypothyroidism and hyperthyroidism. **b. Dietary Management in Cancer :** Stages of development of cancer, etiology, metabolic alterations, symptoms, nutritional and dietary management of cancer patients, role of antioxidants in cancer treatment.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5

IV	**a. Dietary Management for the patients with inborn errors of metabolism:** Overview, diagnosis, symptoms, dietary management - Phenylketonuria, Galactosemia and Fructosuria. **b. Dietary Management for Developmental Disabilities:** Down's syndrome, Cerebral Palsy, Autism and Attention Deficit Hyperactivity Disorder **c. Basics of Palliative care:** Definition, objectives and principles of palliative care.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5
V	**a. Dietary Management in Food allergy:** Food allergy and food intolerance – Definition, mechanism, symptoms, diagnosis of allergy and dietary management. **b. Dietary Management for patients having Metabolic stress:** Surgery – Preoperative nutrition care and postoperative nutrition care. Burns – pathophysiology and medical nutrition therapy.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5
VI	**SELF STUDY FOR ENRICHMENT** **(Not to be included for External Examination)** Complications of Dialysis. Stages of gout. Side effects of cancer treatment. Types of Palliative care. Food allergen.	-	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5

Text Books

1. Mahan Kathleen L. (2004). Krause's Food, Nutrition and Diet, Therapy, Pennsylvania Saunders.
2. Antia F P. (2005). Clinical Dietetics and Nutrition. Oxford University Press, New Delhi.
3. Prakash S Lohar. (2007). Endocrinology –Hormones and Human Health, MJP publishers, Chennai.
4. Joshi A Shubhangini. (2010). Nutrition and Dietetics. McGraw Hill Education Private Limited, New Delhi.
5. Swaminathan M. (2012). Essentials of Food and Nutrition. Ganesh and Company, Madras.
6. Maity,S.B. (2016). Pharmacology for Second Professional Students. Books & Allied Pvt.Ltd.

Reference Books

1. Robbinson,Corrine H. (1982). Normal and Therapeutic Nutrition. Macmillan McGraw Hill School Division, New York.
2. Udai Veer. (2007). Elements of Food Science, Anmol Publications Pvt.Ltd, New Delhi.
3. Indrani.T.K. (2008). Nursing Manual of Nutrition and Therapeutic Diet. Jaypee Brothers Medical Publishers Pvt.Ltd.
4. Mary Marian. (2008). Clinical Nutrition for Surgical Patients. Jones and Barletta Publishers.
5. Sangeetha Karnik. (2010). Nutrition and Dietetics Therapy. Biotech Pharma Publications, Hyderabad.
6. Sari Edelstein. (2015). Life Cycle Nutrition – An Evidence Based Approach. Jones and Barletta Publishers.

Web links

1.https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/heart-disease-and- foodhttp://idaindia.com/
2.https://www.omicsonline.org/societies/indian-dietetic-association/
3.https://www.frontiersin.org/journals/nutrition/sections/clinical-nutrition
4.https://www.cancer.gov/publications/dictionaries/cancer-terms/def/dietary-counseling
5.https://www.ncbi.nlm.nih.gov/pubmed/14685018

Journals

1. Food and Nutrition Bulletin, Sage Publications Inc,Japan.
2. Food and Nutrition Research, Co-Action Publishing,Weden.
3. Food Digestion, Springer Verlag,Germany.
4. Nutrition and Cancer, Lawrence Erlbaum Associates Inc. UnitedStates
5. Nutritional Therapy and Metabolism, Wichtig Publishing,Italy.
6. Nutrition in Clinical Practice, Sage Publications Inc, UnitedStates

Pedagogy

Lecture, assignment, Power Point presentation, quiz, seminar, visit to hospital dietary units.

Course designers

- Ms.S.AGALYA
- Ms.E.AGALYA

SEMESTER- II	INTERNAL MARKS: 25			EXTERNAL MARKS: 75
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS2CCC1A	**BIOCHEMISTRY AND METABOLIC DISORDERS**	**CORE CHOICE**	**6**	**4**

Course Objectives

- To gain knowledge on the metabolism of the nutrients .
- To learn the importance of hormones and enzymes in health and diseases.
- To understand importance of organ function tests in the analysis of clinical manifestations.

Pre requisites

- Basic aspects of nutrient metabolism .
- Fundamentals of physiological functions of organs .

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	State the parameters of biochemistry in disease condition	K1,K2,K3,K4,K5
CO2	Interpret inborn diseases associated with carbohydrate, protein and fat disorder	K1,K2,K3,K4,K5
CO3	Relate importance of hormones and enzymes with diseases	K1,K2,K3,K4,K5
CO4	Illustrate compensatory mechanism in disease condition	K1,K2,K3,K4,K5
CO5	Plan appropriate technique to evaluate various organ functions	K1,K2,K3,K4,K5

Mapping of CO with PO and PSO

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	-	2	2	3	3	2	2	3
CO2	3	3	-	3	2	3	3	3	3	3
CO3	3	3	-	2	2	3	3	3	2	3
CO4	3	3	-	3	2	3	3	2	3	3
CO5	3	3	-	3	2	3	3	3	3	3

“1” – Slight (Low) Correlation ¬ “2” – Moderate (Medium) Correlation.
“3” – Substantial (High) Correlation ¬ “-” indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	**a. Biochemical Data Acquisition and Interpretation** Basis for biochemical estimation of basic principles- uses of biochemical data in clinical medicine. Acquisition and interpretation of biochemical data. **b. Detoxification Mechanism** Phase one reaction – Oxidation, Reduction, Hydrolysis, Phase two – Glucuronic acid, sulfate methylation **c. Disorders of Erythrocyte Metabolism** Hemoglobinopathies, thalassemia, thrombosis	**18**	CO1, CO2, CO3	K1,K2,K3,K4,K5
II	**a. Disorders of Carbohydrate Metabolism** Glycohemoglobin, hypoglycemia, galactosemia and ketone bodies, Various types of glucose tolerance tests. Glycogen storage diseases. Inborn errors of carbohydrate metabolism. **b. Disorders of Protein Metabolism** Phenylalaninemia, homocystinuria, tyrosinemia, maple syrup urine diseases, Phenylketonuria, alkaptonuria, albinism and aminoaciduria. Disorders in purine/ pyrimidine metabolism. **c. Disorders of Fat Metabolism** Dyslipidemia, Atherosclerosis, Coronary Artery Disease, Disorders of lipoproteins and Steatorrhea.	**18**	CO1, CO2, CO3	K1,K2,K3,K4,K5
III	**a. Disorders of Mineral Metabolism** Hypercalcemia, hypocalcemia, normocalcemia, hypophosphatemia and hyperphosphatemia. Electrolytes, blood gases, respiration and acid- base balance. Disorders of acid- base balance and their respiratory and renal mechanisms.	**18**	CO1, CO2, CO3	K1,K2,K3,K4,K5

	b. Environmental Pollution and Heavy Metal Poisons Environmental Pollution- Corrosives, Irritants, Pesticides and insecticides, Occupational and industrial hazards, Air pollutants. Heavy Metal Poisons – lead poisoning, mercury poisoning, aluminium toxicity, arsenic toxicity.			
IV	**a. Disorders of Hormone** Protein hormones (anterior pituitary hormones, posterior pituitary hormones), Steroid hormones (Adrenocorticosteroids, Reproductive endocrinology). b. **Clinical Enzymology** Creatine kinase, Cardiac troponins, Lactate dehydrogenase Alanine aminotransferase, Alkaline phosphatise Prostate specific antigen Glucose-6- phosphate dehydrogenase, Amylase, Lipase, Enolase	**18**	CO1, CO2, CO3,	K1,K2,K3,K4,K5
V	**a. Tissue Protein** Collagen- Structure and synthesis, abnormal collagen, Elastin, keratin, Muscle proteins. **b. Evaluation of Organ Function Tests** Renal - clearance test – Urea clearance, inulin clearance and creatinine clearance, Dye test and Dilution test Hepatic - serum bilirubin, Icteric index, Galactose tolerance test, Hippuric acid Test and Bromsulphthalein test Pancreatic – Secretin stimulation test and Faecal Elastase test Gastric - Determination of free acidity, Fractional test, Examination of duodenal contents.	**18**	CO1, CO2, CO5	K1,K2,K3,K4,K5
VI	**SELF STUDY FOR ENRICHMENT** **(**Not to be included for External Examination) Rules to be followed in biochemistry laboratory, Diabetes mellitus, Synergetic mechanism of nutrients, Anemia. Types of Jaundice.	-	CO1, CO2, CO5	K1,K2,K3,K4,K5

RELATED EXPEREINCE

1. Estimation of Hemoglobin (Drabkin's method).
2. Estimation of blood glucose (Folin-Wu method).
3. Estimation of Triglycerides (Enzymatic method)
4. Estimation of Serum Calcium (Arsenzo method)
5. Demonstration of automated Biochemical Analyzer.
6. Qualitative analysis of Urine for normal constituents
7. Qualitative analysis of urine for abnormal constituents

Text Books

1. Ambika Shanmugam (2016). *Fundamentals of biochemistry for medical students* (8th ed.). Lippincott Williams and wilkin.
2. DM Vasudevan, Sreekumari S, Kannan Vaidyanathan (2013). *Textbook of Biochemistry for Medical Students.(*7th ed*)* S Jaypee brother's medical publisher(p)Ltd.
3. Pattabiraman N.T.(2015). *Laboratory Manual Biochemistry* (4th ed.). All India Publishers and Distributors Regd Chennai.
4. Evangeline Jones (2016). *Manual of Practical Medical Biochemistry*(2nded.) Jaypee Brothers Medical Publishers(p) Ltd.
5. Shanmugam S, Sathish kumar T, Panneer Selvam K (2010). *Laboratory handbook Biochemistry*. . (1st ed.) PHI learning Private Ltd.Chennai

Reference Books

1. Beckett Geoffrey (2006).*Clinical Biochemistry*. (8th ed.)Blackwell Geoffrey Publishing Australia.
2. Lajja Das (2014). *Medicinal Biochemistry*.(1st ed.). Venus Books New Delhi.
3. Murray, Robert K (2012). *Harper's Illustrated Biochemistry*. (28th ed) McGraw Hill Irwin Companies New York.

Web links

1. https://egyankosh.ac.in/bitstream/123456789/33039/1/Unit-12.pdf
2. https://egyankosh.ac.in/bitstream/123456789/73108/2/Unit-11.pdf
3. https://www.cdc.gov/nchs/data/nhanes/nhanes_99_00/lab18_met_biochemistry_profile.pdf

Journals

1. CPD Bulletin Clinical Biochemistry, Rila Publications, Ltd, United Kingdom.
2. Annals of Clinical Biochemistry, Sage Publications Inc, England
3. Clinical Biochemistry, Pergamon-Elsevier Science Ltd, Canada.
4. Indian Journal of Clinical Biochemistry, Association of Clinical Biochemists of India.
5. Journal of Clinical Biochemistry and Nutrition Japan.

Pedagogy

E-content, Lecture, PowerPoint presentation, Seminar, Assignment, Demonstration, Visit to biochemistry lab.

Course Designers

- Ms. S. FATHIMA
- Ms. K.S. MITHILA

SEMESTER -II	INTERNAL MARKS: 25			EXTERNAL MARKS: 75
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS2CCC1B	**FOOD QUALITY CONTROL AND REGULATIONS**	**CORE CHOICE**	**6**	**4**

Course Objective

- To study the importance of food regulations and quality control in food sectors.
- To understand the regulating authorities for food safety worldwide.
- To know about the regulations and quality control of food in various food industries.

Pre requisites

- To enable the students to understand the need for regulations and safety in food Industries.
- To familiarize with various food standards, laws and regulations.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Infer basic laws and regulations followed in various food industries relevant to food quality	K1,K2,K3,K4,K5
CO2	Assess the safety operations involved in food systems	K1,K2,K3,K4,K5
CO3	Interpret various regulations and quality control involved in food industries	K1,K2,K3,K4,K5
CO4	Evaluate the steps of food regulation involved in the process of operations in food industries	K1,K2,K3,K4,K5
CO5	Implementation of adequate safety regulations and control at different food sectors	K1,K2,K3,K4,K5

Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	2	3	3	2	3	2	3	3
CO2	3	2	2	3	3	2	3	2	3	3
CO3	3	2	2	3	3	2	3	2	3	3
CO4	3	2	2	3	3	2	3	2	3	3
CO5	3	2	2	3	3	2	3	2	3	3

"1" – Slight (Low) Correlation ¬ "2" – Moderate (Medium) Correlation ¬
"3" – Substantial (High) Correlation ¬ "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	**Introduction to quality control** **a)** Definition of quality control, quality assurance and quality management. Quality attributes- physical, chemical, nutritional, microbial. Quality control and quality assurance- objectives, importance and functions. Methods Of Quality Control. Pre-requisite programme - Good Manufacturing Practices. **b)** Quality Council of INDIA, History, Objectives, Role of Quality Council of India, Voluntary quality standards and certification.	**18**	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5
II	**Food authority in India** **a)** Food Safety and Standards Act,2006- principles to be followed- provisions as to articles of food, imported items, responsibilities of the food business operator, liability of manufacturers, packers, wholesalers, distributors and sellers. enforcement of the act – licensing and registration of food business. **b)** Food Safety and Standards Regulations,2011-food product standards and food additives, prohibition and restriction on sales, contaminants, toxins and residues. Food safety and standards regulations,2016-food or health supplements, nutraceuticals, food for special dietary uses, foods for special medical purposes, functional foods and novel food. food safety and standards regulations,2017-organic food, food recall procedure, import food safety and standards regulations,2018-packaging, fortification, advertising and claims, recognition and notification of laboratories.	**18**	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5
III	**Structure and functions of Food Authority** **a)** Food safety officer and their powers, analysis of food – regulations regarding labs involved in food analysis, offences and penalties. **b)** Promoting safe and wholesome Food (Eat Right India, Food Fortification, SNF, Clean Street Food Hub, RUCO and various other social and behavioural change initiatives) training and capacity building, role of State Food Authorities.	**18**	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4. K5

IV	**Food Safety Regulations -National and International** **a)** Voluntary based products certifications- Bureau of Indian Standard (BIS), AGMARK, Consumer Protection act (1986). **b)** Government regulations (Food laws, orders) and amendments and national and international standards – ISI, FPO, codex Alimentarius, ISO. Role of FDA in India Management systems in food quality control, HACCP, TQM and concept of food audit.	**18**	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
V	**International Organizations and Affiliations in Quality control** **a)** Codex Alimentarius-History, operations of Codex Alimentarius (Members, Standard setting and Advisory mechanisms).World Trade Order – Functioning and responsibilities,WTO agreements (SPS/TBT). responsibilities, codex standards and maximum residue limits, current issues under consideration – SPS (Sanitary and phytosanitary measures) agreement. **b)** Food Labelling- Need for labelling, developing labelling standards at the world level, limitations of labelling safety issues, labelling regarding methods of processing, products derived from modern biotechnology and irradiated product, organic product, genetically modified foods, EU rules and US rules on nutritional labelling, health claims – Approach of US and EU.	**18**	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5
VI	**SELF STUDY FOR ENRICHMENT** **(Not to be included for External Examination)** Principles of quality control, Hygienic practices to be followed by food handlers, Role of Food safety officer, Functions of AGMARK, Overview of Codex Alimentarius.	**-**	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5

Text Books

1. Adams., M.R Moss. M.O. (2015), *Food Microbiology*, New Age international(P)ltd, Publishers, New Delhi.
2. Subbulakshmi, G, Shobha A Udupi., (2006), *Food Processing and Preservation*, New Age international Publishers, New Delhi, 1st ed.,
3. Roday S., (2008), *Food Hygiene and Sanitation*, Tata McGraw Hill publishing company ltd, New Delhi.
4. Frazier, W.C., (2000) *Food Microbiology*, New Age international(P)ltd, Publishers, New Delhi.

Reference Books

1. Kees A. van der Heijden and Sanford Miller., (1999), *International Food Safety Handbook: Science, International Regulation, and Control*. Published by CRC Press. ISBN 0824793544, 9780824793548.
2. Neal D. Fortin., (2016). *Food Regulation Law, Science, Policy, and Practice*. Wiley
3. Hui, Y.H., (2003). *Food Plant Sanitation*, Marcel Dekker, Inc.
4. Potter N, and Hotchkiss J.H (2008) *Food Science*. CBS Publications and Distributors, New Delhi
5. Srilakshmi B., (2016). *Food Science.* New Age International Publishers, New Delhi

Web References

1.http://www.eolss.net
2.https://www.fssai.gov.in/home
3.http://www.fao.org/trade/docs/LDC-foodqual_en.htm
4. http://www.fao.org/ag/agn/agns/capacity_elearning_codex_ en.asp
5.http://www.eufic.org/index/en/
6.http://foodsafety.unl.edu/haccp/start/physical.html
7. http://www.codexalimentarius.net
8. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=Cdnwi2LUCCLzrJZ76d/o1A==

Journals

1. Journal of Packaging Technology and Research. Springer Nature, Switzerland.
2. Food Packaging and shelf life, Elsevier Science Inc, United States.
3. Emirates journal of Food & Agriculture, United Arab Emirates university, UAE

Pedagogy

Chalk and talk, PPT, Discussion, Assignment, Quiz, Seminar.

Course Designers

- Ms. T.R. REVATHI
- Ms. B. SIVA VAISHNAVI

SEMESTER -II	INTERNAL MARKS: 25			EXTERNAL MARKS: 75
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS2CCC1C	**FRONT OFFICE OPERATIONS**	**CORE CHOICE**	**6**	**4**

Course Objectives

- To gain knowledge on role of front office as functional area.
- To understand the functions of front office.
- To study the operational aspects of front office.

Pre requisites

- Fundamentals of hotel functional areas.
- Basics of front office operations.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Illustrate operations of hospitality sector	K1,K2,K3,K4,K5
CO2	Classify hotels on the basis of various criteria	K1,K2,K3,K4,K5
CO3	Explain functionalities of all departments in the industry	K1,K2,K3,K4,K5
CO4	Device strategies for the profitability of the hotel	K1,K2,K3,K4,K5
CO5	Plan for check in and check out of guest	K1,K2,K3,K4,K5

Mapping of CO with PO and PSO

Cos	SO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	-	3	3	3	3	-	3	3
CO2	3	3	-	3	3	3	3	-	3	3
CO3	3	3	-	3	3	3	3	-	3	3
CO4	3	3	-	3	3	3	3	-	3	3
CO5	3	3	-	3	3	3	3	-	3	3

“1” – Slight (Low) Correlation ¬ “2” – Moderate (Medium) Correlation ¬ “3” – Substantial (High) Correlation ¬ “-” indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	**Hotel Industry** Hotel - Definition, Classification based on star Category, size and location. Hotel Organization - Organization Pattern in a large, medium and small sized hotel. Functional Department in a hotel –Front office, Housekeeping, Reservations, Night audit, Loss / Prevention, Security , Food and beverage. Engineering and Sales departments.	**18**	CO1, CO2	K1,K2,K3,K4,K5
II	**The Guest and Guest Rooms** Categorizing the guest room - Room types, Room configuration, Room Designations, Room Numbering, Room status reconciliation, Key control systems ..	**18**	CO1, CO2.	K1,K2,K3,K4,K5
III	**Room Rates , Room Rate Designations** a**nd Reservation** Rack rate, Corporate rate Volume account rates, Government rate, seasonal rates weekday / Weekend rates, membership rates, Industry rates, Walk in rates, Premium rates, half day rates, Advance Purchase rates, Package rates, Per person rates, group rates. Reservations – Determining occupancy and availability, Availability factors overselling and procedure.	**18**	CO1, CO2, CO3.	K1,K2,K3,K4,K5
IV	**Front Office Overview** The Arrival Chronology - Greeting, Transition, Registration and Completion – Group arrivals. Departure - Front desk Checkout, Guest directed Computer checkout, Automated checkout. Front office operations - Communications, staffing Values added Services – safe deposit boxes, Mail, Telephone and document handling. The Electronic Front Office (EFO)**.**	**18**	CO1, CO2, CO3, CO4, CO5	K1,K2,K3,K4,K5
V	**Guest Accounting and Night Audit** Guest Accounting - Accounting basics, Guest history account – Guest Ledger ,City ledger , Accounting entries. Night Audit - Night audit overview, Night audit reporting, Ancillary Night audit duties.	**18**	CO3, CO4, CO5.	K1,K2,K3,K4,K5

VI	**SELF STUDY FOR ENRICHMENT** **(Not to be included for External Examination)** Pod hotel. Functioning of lost and found. Point of Sale System. Property Management System. Software and apps used for Reservation.	-	CO1, CO2, CO3, CO4, CO5.	K1,K2,K3,K4,K5

Text Books

1. Ahmed Ismail. (2004). *Front office operations And Management*. Delmar Publications
2. Sudhir Andrews.(2014). *Hotel Front Office a Training Manual*, (3rd edition) McGraw Hill Education(India) Private Limited.
3. Dr. B.K.Chakravarthi.(2011). *Hotel Front Office Training Manual*, A.P.H Publishing Corporation.
4. R.K. Arora.(2009).*Hotel Organization And Front Office Management*.A.P.H Publishing Corporation.

Reference Books

1. Ahmed Ismail. (2004).*Front office operations And Management*. Delmar Publications.
2. Kyesung chon and Raymond . T.Sparrowe. (2001).*Welcome to Hospitality An Introduction*(2nd ed) Delmar publication.
3. G.Raghubalan, Smritee Raghubalan, *Hotel Housekeeping operations an Management*, Oxford University Press.
4. Tarachand.(2000). *Hotel and Restaurant Management*. Mohit Publications. New Delhi.
5. S.K. Bhatnagar(2005) *Front Office Management*, Frank Bros.& Co.(Publishers) Limited.
6. Ravi Aggarwal (2010). *Hotel Front Office – Systems & Procedures*, sublime publications.
7. M.A. khan.(2005).*Front Office*.Anmol Publication Private Limited.

Web Reference

1. **https://www.ihmnotessite.net/hotel-core-areas**
2. **https://www.ihmnotessite.net/classification-of-hotels**
3. **https://www.ihmnotessite.net/types-of-rooms**
4. **https://www.ihmnotessite.net/fo-organisation**
5. **https://www.bharatskills.gov.in/pdf/E_Books/FrontOffice1Sem_TP.pdf**
6. **file:///C:/Users/Lenovo/Downloads/BHM-704ET.pdf**

Journals

1. The Journal of Hospitality & Tourism Research, Sage Publication.
2. The Journal of Hospitality & Tourism Research,

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Group discussion.

Course Designers

- Ms.S.FATHIMA
- Ms. B. SIVA VAISHNAVI

SEMESTER- II	INTERNAL MARKS: 40	EXTERNAL MARKS: 60		
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS2CC2P	**ADVANCED DIETETICS II (P)**	**CORE PRACTICAL**	**6**	**5**

Course Objectives

- To understand the modification of normal diet for therapeutic purpose.
- To acquire the skills of preparing diet for various disease conditions.
- To able to counseling therapeutic approaches.

Pre requisites

- Application of dietary principles.
- Planning and preparation of modified diet.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Illustrate the importance of therapeutic nutrition.	K1,K2,K3,K4,K5
CO2	Classify foods to be included and avoided in the treatment of diseases.	K1,K2,K3,K4,K5
CO3	Determine the dietary principles in the management of diseases.	K1,K2,K3,K4,K5
CO4	Evaluate nutritional status before planning menu.	K1,K2,K3,K4,K5
CO5	Appraise the developed tools for diet counseling.	K1,K2,K3,K4,K5

Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	2	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	2	3	3	3	3	3
CO4	3	3	3	3	2	3	3	3	3	3
CO5	3	3	3	3	2	3	3	3	3	3
	3	3	3	3	-	3	3	3	3	3

“1” – Slight (Low) Correlation ¬ “2” – Moderate (Medium) Correlation ¬
“3” – Substantial (High) Correlation ¬ “-” indicates there is no correlation.

SYLLABUS

LIST OF EXPERIMENTS	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Planning and preparing diets for Cardio vascular disorders – Hypertension and Atherosclerosis.	18	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5.
II	Planning and preparing diets for Renal disorders –Acute Renal Failure, Chronic Renal Failure, Renal Stones and Dialysis.	18	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5.
III	Planning and preparing diets for Musculoskeletal Disorders –Gout, Arthritis, Osteoporosis.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
IV	Planning and preparing diets for Hormonal diseases - hypothyroidism and hyperthyroidism.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
V	Planning and preparing diets for Cancer.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
VI	Diet counseling for ● Febrile conditions. ● Gastrointestinal disorders. ● Liver disorders. ● Metabolic disorders. ● Cardio vascular disorder. ● Renal disorders.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.

Text Books

1. Mahan Kathleen L. (2004). Krause's Food, Nutrition and Diet, Therapy, Pennsylvania Saunders
2. Srilakshmi,B. (2009). Dietetics. New Age International Publications, New Delhi.

Reference Books

1. Indrani.T.K. (2008). Nursing Manual of Nutrition and Therapeutic Diet. Jaypee Brothers Medical Publishers Pvt.Ltd.
2. Sangeetha Karnik. (2010). Nutrition and Dietetics Therapy. Biotech Pharma Publications, Hyderabad.

Pedagogy

Lecture, Demonstration, Practical.

Course designers

- Ms.S.AGALYA
- Ms.E.AGALYA

SEMESTER -II	INTERNAL MARKS: 25		EXTERNAL MARKS:75	
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS2DSE2A	**FUNCTIONAL FOODS, NUTRACEUTICALS AND NUTRIGENOMICS**	**DISCIPLINE SPECIFIC ELECTIVE**	**6**	**3**

Course Objective

- To acquire a sound understanding of the sources of functional foods and nutraceuticals
- To learn role of functional foods and nutraceuticals in health and diseases.
- To understand the concept of nutrigenomics.

Pre requisites

- Fundamentals of food science.
- Basic knowledge on nutrition and dietetics.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Define and classify functional foods and nutraceuticals and its regulatory aspects	K1,K2,K3,K4,K5
CO2	Explain the techniques used for extracting functional food components from food sources	K1,K2,K3,K4,K5
CO3	Evaluate the isolated component derived from the functional food	K1,K2,K3,K4,K5
CO4	Illustrate mechanism of action of functional foods and nutraceuticals on health and disease	K1,K2,K3,K4,K5
CO5	Interpret the interactions between functional foods and nutrigenomics	K1,K2,K3,K4,K5

Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	2	-	2	2	3	3	3	3	2
CO2	3	3	-	3	3	3	3	3	3	3
CO3	3	3	-	3	3	3	3	3	3	3
CO4	3	2	-	3	3	3	3	3	3	3
CO5	3	2	-	2	2	2	3	3	3	2

"1" – Slight (Low) Correlation ¬ "2" – Moderate (Medium) Correlation ¬ "3" – Substantial (High) Correlation ¬ "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	**Functional Foods and Nutraceuticals** Definition, Classification of functional foods based on Food source - Plant, animal, microbial. Mechanism of action - antioxidant, antibiotic, anti inflammatory, antitumor, antihypertensive. Chemical nature - Fatty acids and structural lipids, saponins, isoflavones, phenolic substances, terpenoids, tocotrienols and simple terpenes, Isoprene derivatives, Amino acid derivatives, Carbohydrate derivatives.	18	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5.
II	**Role of Functional Foods and Nutraceuticals on Health from Plant Sources:** Cereals and its Products – rice bran, wheat bran, oats, barley, corn. Pulses and its Products – grams, bean, soyabean. Vegetables and Fruits – GLV, cruciferous vegetables, carrot, tomato, avocado, berries. Nuts and Oilseeds – flax seeds, walnut, almond Herbs – thyme, aloevera, mint Roots and tubers – Ginger, sweet potato, cassava Spices and Condiments – turmeric, red chilli, nutmeg, cloves, cardomom **Role of Functional Foods and Nutraceuticals on Health from Animal Sources:** Meat – Liver, Country chicken Fish- tuna fish, mackerel, sardines and salmon Egg – Country egg **Role of Functional foods and nutraceuticals on health from microbial source:** Probiotic microflora, prebiotics, symbiotics	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.

III	**Role of Functional Foods and Nutraceuticals in Diseases :** Diabetes mellitus, Hypertension, Ulcer Osteoporosis, Cancer, Obesity and Stress. **Role of Functional Foods and Nutraceuticals in Disorder :** Hypercholesterolemia, Neurological disorders Nephrological disorders, Liver disorders	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
IV	**Isolation and Extraction Functional Component from Plant and Animal Materials:** Extraction methods- Extraction of phenolic compounds using solvents, Microwave- assisted Extraction, Ultrasonic – assisted Extraction. Recent developments in the isolation, purification and delivery of phytochemicals. **Regulatory Aspects of Functional Foods and Nutraceuticals** Regulatory aspects- CODEX, DSHEA, FOSHU, FSSAI, AYUSH, development of biomarkers to indicate the of functional ingredients, Research frontiers in functional foods.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
V	**Nutrigenomics** Basic concepts of Genomics and Functional Genomics, Proteomics, Metabolomics, Epigenetics and Personalized nutrition. Nutrients and gene expression with its regulation. Scope and Importance to Human Health and Industry, Transporter gene polymorphisms -interaction with effects of macro and micronutrients in humans. The intestinal microbiota - role in nutrigenomics. Nutrigenomics approaches to unraveling physiological effects of complex foods.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.

	Modifying Disease Risk through Nutrigenomics Modulating the risk of diseases through Nutrigenomics – Cardiovascular disease, Diabetes, Cancer, Inflammatory bowel disease, Obesity.			
VI	**SELF STUDY FOR ENRICHMENT** **(Not to be included for External Examination)** Difference between functional Foods and nutraceuticals. Sources of functional foods. Role of functional foods in Psoriasis. Regulatory aspects of FDA. Proteomics	-	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.

Text Books

1. Chavan,U.D. (2017) *Nutraceutical Functional Foods – Volume 1*. Daya Publishing House, New Delhi.
2. Chavan,U.D. (2017) *Nutraceutical Functional Foods– Volume I1*. Daya Publishing House, New Delhi.

Reference Books

1. Pomeranz,Y (2000). *Food Analysis Theory and Practice*. CBS Publishers & Distributors Pvt.Ltd, New Delhi.
2. Edward.R,Farnworth (2008). *Handbook of Fermented Functional Foods*. CRC Press. Newyork.
3. Medwin Gale (2018). *Nutrigenomics*. Random Publications, New Delhi.
4. Wildman,E.C Robert(2007). *Handbook of Nutraceuticals and Functional Foods*(2nd ed). CRC press.

Web Links

1.**https://www.nutritionsociety.org/blog/nutrigenomics-basics**

2.**https://faculty.ksu.edu.sa/sites/default/files/lectute_1_457_0.pdf**

3.**https://egyankosh.ac.in/bitstream/123456789/38355/1/Uint-9.pdf**

Journals

1. Functional foods in Health and Disease, Functional food centre, Unitedstates
2. Future journal of pharmaceutical sciences, Elsevier,UnitedKingdom
3. Nutrafoods, Springer, UnitedStates.
4. Functional Foods in Health and Disease, Functional Food Center, Inc.UnitedStates.
5. International Journal of Bio-Resource and Stress Management

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment, Quiz, Group Discussion

Course Designers

- Ms.M.VINOTHINI
- Ms.S.FATHIMA

SEMESTER- II	INTERNAL MARKS:25		EXTERNAL MARKS:75	
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS/ WEEK**	**CREDITS**
22PFS2DSE2B	**HOUSEKEEPING AND INTERIOR DESIGNING**	**DISCIPLINE SPECIFIC ELECTIVE**	**6**	**3**

Course Objectives

- To gain knowledge on the role of housekeeping departments in hospitality sector.
- To acquire skill in aspects of interior design.
- To understand the types of rooms and cleaning procedures.

Pre requisites

- Basic knowledge about food service establishments.
- Principles and elements of interior design.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Knowledge Level
CO 1	Identify the concept, scope and importance of housekeeping and interior design in food service establishments	K1, K2, K3, K4, K5
CO 2	Illustrate the layout of establishment and styles of interior design	K1, K2, K3, K4, K5
CO 3	Interpret and apply the functions of housekeeping and interior design	K1, K2, K3, K4, K5
CO 4	Examine the selection and maintenance of cleaning equipment	K1, K2, K3, K4, K5
CO 5	Develop skill in the field of housekeeping and interior design	K1, K2, K3, K4, K5

Mapping of CO with PO and PSO

Cos	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2	3	3	3	3	3
CO2	3	3	3	3	2	2	2	2	2	2
CO3	3	3	3	2	2	3	3	3	3	3
CO4	3	3	3	3	2	2	3	2	3	3
CO5	3	3	3	3	2	3	3	3	3	3

"1" – Slight (Low) Correlation ¬ "2" – Moderate (Medium) Correlation
"3" – Substantial (High) Correlation ¬ "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	**Housekeeping Overview** **a.** Housekeeping- Objectives, qualities and etiquette of housekeeping staff. inter and intra departmental co-ordination, role of housekeeping in hospitality and food service establishment **b.** Housekeeping procedures- Briefing, debriefing, gate pass indenting from stores- inventory of housekeeping items, housekeeping control desk, importance, 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.	18	CO 1 CO 2 CO 3 CO 4 CO 5	K1, K2, K3, K4, K5
II	**House Keeping Organization and Layout** **a.** Organization - Structure of housekeeping department, job description of housekeeping personnel. operational areas of housekeeping department, sequence of housekeeping functions **b.** Layout- Types of guest rooms, layout of guest room, corridor and floor pantry.	18	CO 1 CO 2 CO 3 CO 4 CO 5	K1, K2, K3, K4, K5
III	**Linen Rooms and Laundry and Cleaning Science** **a.** Linen Room and Laundry - Linen, Uniform, Bedding, Linen- storage and control, Table linen, bed linen, bedding, bed making and turning down, uniforms, and fabric stain removal. Laundry – Commercial, in-house,	18	CO 1 CO 2 CO 3 CO 4 CO 5	K1, K2, K3, K4, K5

	linen hire, laundry process. Uniform designing: Importance, types, characteristics, selection, par stock, Function of Tailor room. **b.** Cleaning science- Daily cleaning of Occupied, Departure, Vacant, Under repair, VIP rooms. Cleaning agent -types and characteristics. Stain removal Techniques. Cleaning equipment -types, Selection and care and maintenance.			
IV	**Elements and principles of Interior Design** **a.** Interior design- Importance of interior design. Design – definition, types. Elements – line, direction, shape, size, texture and colour. Principles- harmony, balance, rhythm, emphasis, proportion. **b.** Color –color dimensions– hue, value and intensity, color therapy and psychology. Color systems, applications of color in interior and exterior.	18	CO 1 CO 2 CO 3 CO 4 CO 5	K1, K2, K3, K4, K5
V	**Accessories in Interior Design** **a.** Accessories-meaning, types-functional, decorative. Importance of lighting, sources, types, glare- its types, causes and prevention. Styles of furniture – traditional, contemporary and modern design. Furniture for different purpose, furnishing materials. Selection, use and care of furnishing materials. **b.** Window Treatment - draperies, curtains type and uses. **c.** Flower arrangement- requirements, care of flowers, types and styles of flower arrangements.	18	CO 1 CO 2 CO 3 CO 4 CO 5	K1, K2, K3, K4, K5

VI	**SELF STUDY FOR ENRICHMENT** **(Not to be included for External Examination)** Difference between job description and job specification. Role of housekeeping department in a hotel. Activities of the linen room. Color harmony. Types of flower holders.	-	CO 1 CO 2 CO 3 CO 4 CO 5	K1, K2, K3, K4, K5

Text Books

1. G. Raghubalan and Smritee Raghubalan, 2015, *Hotel Housekeeping: Operations and Management,* 3rd Edition, Oxford University Press.
2. Marilynne Robinson, 2015, *Housekeeping,* Faber & Faber Publishers.
3. Gary Gordon & Jamco L. Nuckolls, 2004, *Interior lighting for Designers,* 3rd edition, John Wiley & Sons, New York.

Reference Books

1. Allen Tate, 2005, *The making of interiors – An introduction*, - Harper & Row Publishers, New York.
2. Simon Dodsworth, 2009, *The Fundamentals of Interior Design,* Bloomsbury Academic Publishers.
3. Malini Singh, 2012, *Hotel Housekeeping,* Tata McGraw Hill Education.
4. Joan Cameron Branson, Margaret Lennox, 1988, *Hotel, Hostel and Hospital Housekeeping.* Edward Arnold Publishers.

Journals

1. Journal of Interior design research and education
2. International Journal of Transformation in Tourism & Hospitality Management
3. Journal of Interior Design

Web links

1. https://www.emerald.com/insight/content/doi/10.1108/ijchm.2000.12.3.218.3/full/html
2. https://www.cleanindiajournal.com/category/professional/housekeeping/
3. https://www.etsy.com/market/housekeeping_journal
4. https://idec.org/journal-of-interior-design/
5. https://matjournals.com/Journal-of-Interior-Designing%20and-Regional-Planning.html
6. https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=Cdnwi2LUCCLzrJZ76d/o1A==
7. https://egyankosh.ac.in/simple-search?query=housekeeping

Pedagogy

E-content, Lecture, Power point presentation, Seminar, Assignment.

Course Designers

- Ms. T.R. REVATHI
- Ms. C. NIVETHA

SEMESTER- II	INTERNAL MARKS: 25			EXTERNAL MARKS: 75
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS2DSE2C	**FOOD PACKAGING**	**DISCIPLINE SPECIFIC ELECTIVE**	**6**	**3**

Course Objectives

- To study about the functions of packaging along with the influence of various factors on food.
- To know about the different packaging materials, their manufacturing process and equipment.
- To study about the various methods of packaging to improve the shelf life of the products.

Pre requisites

- Basics in food science and food chemistry concepts.
- Fundamentals of food safety and laws.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement On the successful completion of the course, students will be able to	Cognitive Level
CO1	Infer basics in relevant to food packaging, materials and equipment	K1, K2, K3, K4, K5
CO2	Assess the different types and properties of the food packaging materials and equipment	K1, K2, K3, K4, K5
CO3	Understand packaging properties, rules and packaging techniques	K1, K2, K3, K4, K5
CO4	Describe the packaging materials and effective packaging processes	K1, K2, K3, K4, K5
CO5	Interpret food standard and laws to emphasize the importance of food safety with packaging aspects	K1, K2, K3, K4, K5

Mapping of CO with PO and PSO

COs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	3	1	3	3	3	3	3	3	3
CO2	2	3	1	3	3	3	3	3	3	3
CO3	3	2	1	3	3	2	3	3	3	3
CO4	2	2	1	3	3	2	2	3	3	3
CO5	2	2	1	3	3	2	2	3	3	3

"1" – Slight (Low) Correlation ¬ "2" – Moderate (Medium) Correlation
"3" – Substantial (High) Correlation ¬ "-" indicates there is no correlation.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	**Introduction to food packaging** Objectives, functions of packaging, requirement of effective packaging. Forms of Packaging – rigid, semi-rigid, flexible. Packaging closures and sealing systems, analysis of storage requirement, Vacuum and Inert gas Packaging. Tests on packaging materials, mechanical strength, tension, notch and tearing strengths.	18	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5.
II	**Materials used for food packaging** Types, properties, advantages and disadvantages- Paper and paper-based Packaging materials, metal packaging materials, glass packaging materials, plastics and composites, edible and biodegradable, nano food packaging materials. Selection and Design of packaging, Material for dehydrated foods, frozen foods, dairy products, fresh fruits & vegetables, meats and sea foods.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
III	**Packaging material properties** Properties of packaging materials such as tensile strength, bursting strength, tearing resistance, puncture resistance, impact strength, tear strength, methods of testing and evaluation; barrier properties of packaging materials, theory of permeability, factors affecting permeability, permeability coefficient, gas transmission rate and its measurement, water vapor transmission rate and its measurement.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
IV	**Packaging equipment and machinery** Active packaging, Modified atmosphere packaging, aseptic packaging, packages for microwave ovens, tetra pack unit Biodegradable plastics, edible gums, coatings vacuum machine; gas packaging machine, seal and shrink packaging machine, form and fill sealing machine, aseptic packaging systems, bottling machine, carton making machine, retort pouches, package printing machines.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.

V	**Safety and legislative aspect of packaging** Principles in the development of safe and protective packing, Safety assessment of food packaging materials. Shelf life of packaged food products. Migration, regulatory considerations. Indian and International Food Laws, Organizations and Affiliations -FSSAI Regulations, BIS, FDA, licensing and Registration of Food Units – Central and State Licensing Authorities. FAO & WHO – Role and Functions, World Animal Health Organization, World Trade Organization, European Committee for Standardization, European Union on Food Safety, EFSA, Euro-Asian Council for Standardization, COPANT and ASEAN, ISO – special emphasis on ISO 9001:2000/2008; ISO 22000:2005; ISO 45001; ISO 14001.	18	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.
VI	**SELF STUDY FOR ENRICHMENT** **(Not to be included for External Examination)** Advantages of ECO friendly - Sustainable and biodegradable packaging. Recycling of food packaging Materials. FSSAI- Function. Codex India.	-	CO1, CO2, CO3, CO4, CO5.	K1, K2, K3, K4, K5.

Text Books

1. Subbulakshmi, G, Shobha A Udupi., (2006), *Food Processing and Preservation,* New Age international Publishers, New Delhi, 1st ed.,
2. Dr Birendra Kumar Mishra., (2014),*Dairy and Food Processing Industry: Recent Trends*, Biotech Books, ISBN-10 817622300 :
3. Sivasankar.B., *Food Processing and Preservation*, Prentice Hall of India Pvt. Ltd., New Delhi.

Reference Books

1. Kees A., van der Heijden and Sanford Miller- *International Food Safety Handbook: Science, International Regulation, and Control.* Published by CRC Press. ISBN 0824793544, 9780824793548. 1999.
2. Neal D. Fortin., (2016) *Food Regulation Law, Science, Policy, and Practice*. Wiley
3. Gordon L. Robertson, *Food Packaging: Principles and Practice*, Third Edition,2013.
4. Potter N, and Hotchkiss J.H., (2008) *Food Science*. CBS Publications and Distributors, New Delhi
5. Srilakshmi B, (2016) *Food Science*. New Age International Publishers, New Delhi
6. Joslyn and Heid, (2018) *Food Processing Operations: Management, Machines, Materials & Methods.* Vol. 1, Medtec (1 January 2018), ISBN-10 : 9789386800688

Web links

1. https://matmatch.com/learn/material/materials-used-in-food-packaging
2. https://pubs.acs.org/doi/10.1021/jf900040r

Journals

1. Journal of Packaging Technology and Research, Springer
2. Floros JD, Matsos KI. Introduction to modified atmosphere packaging. In: Innovations in Food Packaging (New York, NY: Elsevier Academic Press). p. 159–72. Public Health Nutrition, Cambridge University, England
3. Food Research International, Elsevier Science Inc, United States.
4. Journal of Food and Agriculture, Wiley-Blackwell, England

Pedagogy

Chalk and talk, PPT, Discussion, Assignment, Quiz, Seminar, Visit to food packaging industry.

Course Designers

1. Ms. T.R. REVATHI
2. Ms. M. VINOTHINI

SEMESTER- II	INTERNAL MARKS: 40			EXTERNAL MARKS: 60
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**HRS / WEEK**	**CREDITS**
22PFS2INT	**DIETARY INTERNSHIP**	**INTERNSHIP**	**-**	**2**

Course Objective

- To understand working operational aspects of dietary department in hospitals.
- To Plan modified diet according to special needs of patients.
- To learn role of Dietitian in hospitals.

Pre requisites

- Basic knowledge on various disease condition.
- Fundamental aspects of therapeutic diets.

Course Outcome and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
CO1	Explain functions of dietary department in hospitals	K1,K2,K3, K4, K5
CO2	Schedule the organization pattern of dietary department	K1,K2,K3, K4, K5
CO3	Illustrate routine hospital diets	K1,K2,K3, K4, K5
CO4	Predict modified diet according to special condition	K1,K2,K3, K4, K5
CO5	Design tools for patient education	K1,K2,K3, K4, K5

Mapping of CO with PO and PSO

Cos	PSO1	PSO 2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	3	3	3	3	3	3	2
CO2	3	3	3	3	3	3	3	3	3	2
CO3	3	3	3	3	3	3	3	3	3	2
CO4	3	3	3	3	3	3	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	2

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“3” – Substantial (High) Correlation ¬ “-” indicates there is no correlation.

SYLLABUS

The Practical work consists of internship in a IDA recognized hospital for 30 days

- Observe different areas in dietary department.
- Visit different areas in wards and hospitals.
- Experience in planning and calculating modified diets.
- Supervising and handling the food preparation and service in the dietary department of the hospital.
- Accompanying the dietitian while visiting the patient.
- Learn to use software used in dietary department.
- Develop tools for diet counseling.
- Acquire the skills to provide individual counseling.
- Case study- Selecting and observing patients requiring a therapeutic diet in relation to patients history - income, occupation, food habits, social factors, nutritional status, disease conditions and complications
- Waste management
- Energy effective technologies.

Preparation of the report should include

- History of the hospital
- Location
- Facilities provided
- Layout of the kitchen
- Work organization
- Organization structure
- Duties of the dietitian
- Special dietary preparation
- Menus
- Types of service
- Equipment
- Storage of food
- Handling of leftovers and shortages
- Sanitation and hygiene

Text Books

1. Shubhangini A Joshi (2010). *Nutrition and Dietetics* McGraw Hill Education private Limited, New Delhi

2. Gopalan C Rama Sastri V and BalasubramaniyanC (2016) *Nutritive value of Indian Foods*, National Institute of Nutrition, Hyderabad.

Reference Books

1. Joshi Y K(2003).*Basis of Clinical Nutrition*, Jaypee Brothers Medical Publishers

Web Links

1.https://egyankosh.ac.in/handle/123456789/32940
2.https://egyankosh.ac.in/handle/123456789/33414

Pedagogy

Lecture, Demonstration, Internship

Course Designers

- Ms.S.FATHIMA
- Ms.M.VINOTHINI

EVALUATION PATTERN

EXTERNALS

S.NO	COMPONENTS	MARKS
1.	Regularity	10
2.	Participation and Hands – on training	10
3.	Case Study	10
4.	Report Writing	10
5.	Counselling	10
6.	Seminar/Quiz	10
	TOTAL	**60**

INTERNALS

S.NO	COMPONENTS	MARKS
1.	Report	20
2.	Viva	20
	TOTAL	**40**