



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)
(Accredited by NBA-AICTE, New Delhi, Accredited by NAAC with "A" Grade)
Madagadipet, Puducherry - 605 107



SCHOOL OF ARTS AND SCIENCE

Department of Food Science

B.Sc. Nutrition and Dietetics
ANNEXURE –I
(Curriculum & Syllabi for V, VI Sem)

Minutes of the Fourth Meeting of BoS (B.Sc. Nutrition and Dietetics)

T. Javir

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SEMESTER –V										
S. No	Course Code	Course Title	Category	Periods			Credits	Max.Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	A20NDT515	Dietetics I	DSC	4	0	0	4	25	75	100
2	A20NDT516	Public Health Nutrition	DSC	4	0	0	4	25	75	100
3	A20NDT517	Food Product Development and Marketing	DSC	4	0	0	4	25	75	100
4	A20NDE507	Food Service Management	DSE	3	0	0	3	25	75	100
Practical										
5	A20NDL518	Dietetics I Practical	DSC	0	0	4	2	50	50	100
6	A20NDL519	Food Product Development Practical	DSC	0	0	4	2	50	50	100
Skill Enhancement Course										
7	A20NDS505	In-Plant Training / Internship	SEC	0	0	4	2	100	0	100
							21	300	400	700

SEMESTER– VI										
S. No	Course Code	Course Title	Category	Periods			Credits	Max.Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	A20NDT620	Dietetics II	DSC	4	0	0	4	25	75	100
2	A20NDT621	Sports Nutrition	DSC	4	0	0	4	25	75	100
3	A20NDT622	Nutrition in Critical Care	DSC	4	0	0	4	25	75	100
4	A20NDE609	Health Psychology	DSE	3	0	0	3	25	75	100
Practical										
5	A20NDL623	Dietetics II Practical	DSC	0	0	4	2	50	50	100
6	A20NDP601	Project	DSC	0	0	10	5	40	60	100
Skill Enhancement Course										
7	A20NDS606	Basics in Research Methodology	SEC	2	0	0	2	100	0	100
							24	290	410	700

Minutes of the Fourth Meeting of BoS (B.Sc. Nutrition and Dietetics)

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DISCIPLINE SPECIFIC ELECTIVES										
Sl.No	Course Code	CourseTitle	Category	Periods			Credits	Max.Marks		
				L	T	P		CAM	ESM	Total
Discipline Specific Electives (DSE - I) - offered in Third Semester										
1	A20NDE301	Food Safety and Sanitation	DSE	3	0	0	3	25	75	100
Discipline Specific Electives (DSE - II) - offered in Fourth Semester										
1	A20NDE402	Nutritional Assessment & Surveillance	DSE	3	0	0	3	25	75	100
2	A20NDE403	Food Service & Layout	DSE	3	0	0	3	25	75	100
3	A20NDE404	Nutrition for Women								
Discipline Specific Electives (DSE - III) - offered in Fifth Semester										
1	A20NDE505	Resource Management	DSE	3	0	0	3	25	75	100
2	A20NDE506	Food Analysis	DSE	3	0	0	3	25	75	100
3	A20NDE507	Food Service Management	DSE	3	0	0	3	25	75	100
Discipline Specific Electives (DSE - IV) - offered in Sixth Semester										
1	A20NDE608	Basics in Research Methodology	DSE	3	0	0	3	25	75	100
2	A20NDE609	Health Psychology	DSE	3	0	0	3	25	75	100
3	A20NDE610	Human Development	DSE	3	0	0	3	25	75	100

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Department	Food Science		Programme: B.Sc Nutrition and Dietetics						
Semester	Fifth		Course Category Code: DSC			*End Semester Exam Type: TE			
Course Code	A20NDT515		Periods / Week			Credit		Maximum Marks	
			L	T	P	C	CAM	ESE	TM
Course Name	DIETETICS – I		4	0	0	4	25	75	100
Prerequisite	Diet management & Role of Dieticians								
Course Objectives	1. To provide comprehensive knowledge on principles and planning of therapeutic diets.								
	2. To determine the knowledge on nutritional needs of febrile conditions.								
	3. To acquire knowledge on nutritional needs of Gastro intestinal diseases.								
	4. To determine the nutritional support for Liver disorders.								
	5. To identify the knowledge on dietary management for Inborn errors of metabolism.								
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Get an idea about the concept of therapeutic diet .						K2	
	CO2	Identified the dietary management for febrile patients.						K3	
	CO3	Understand the dietary principles for gastro intestinal diseases						K3	
	CO4	Understand the role played by dietary measures to recover liver disorders						K3	
	CO5	Get acquainted with nutritional support for Inborn errors of metabolism.						K3	
UNIT-I	Diet Therapy					Periods: 12			
Dietetics - Definition, History of Dietetics, Objectives and Principles of Diet Therapy .									CO1
a) Classification of Therapeutic Diets - Routine Hospital Diet – Clear liquid diet, Full fluid diet/liquid diet, Semi-solid diet, Soft diet, Bland diet, High & Low-calorie diet, High & Low protein diet, High & Low fiber diet, Low cholesterol diet.									
b) Adjuncts to Diet Therapy – Physical Activity, Exercise, Yoga and Stress Management.									
UNIT-II	Diet in Fever and Infectious Disease					Periods: 12			
Febrile Condition – Overview Diagnosis, Causes, Symptoms, Dietary Management of Febrile conditions – Typhoid, influenza, malaria, tuberculosis, AIDS.									CO2
UNIT-III	Diet in Gastro Intestinal Disease					Periods: 12			
Gastrointestinal Diseases – Overview Diagnosis, Causes, Symptoms, Dietary management for:									CO3
a. Upper Gastro Disease – Gastro Esophageal Reflex Disease (GERD), Indigestion, Peptic Ulcer, Gastric Surgery.									
b. Intestinal Diseases – Constipation, Diarrhea, Dumping Syndrome, and Diverticular Disease.									
c. Inflammatory Bowel Diseases - Ulcerative Colitis - Crohn's Disease, Irritable Bowel Syndrome, Intestinal gas and flatulence.									
UNIT-IV	Diet in Liver and Gall Bladder Diseases					Periods: 12			
Liver – Functions of Liver, Factors responsible for liver damage , Liver Diseases - Infective hepatitis, Cirrhosis of liver, Hepatic Encephalopathy - Overview Diagnosis, Causes, Symptoms, Dietary management.									CO4
Gall Bladder Diseases - Cholecystitis, Cholelithiasis.									

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UNIT-V	Inborn Errors of Metabolism	Periods: 12	
Inborn Errors of Metabolism – Dietary Management for Phenylketonuria, Galactosaemia, Fructosuria, Fructose – 1,6, Biphosphatase Deficiency, Menke’s Disease and Wilson’s Disease.			CO5
Lecture Periods: 60	Tutorial Periods: -	Practical Periods: -	Total Periods: 60
Text Books			
<ol style="list-style-type: none"> 1. Srilakshmi, B., Nutrition Science, New Age International (P) Ltd., New Delhi, 2017. 2. Mahtab, S, Bamji, Kamala Krishnasamy, G.N.V. Brahman, Text Book of Human Nutrition, Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi, 2015 3. Swaminathan, M., Advanced Textbook on Food and Nutrition, Vol. 1, Second Edition, Bangalore Printing and Publishing Co. Ltd., Bangalore, 2015. 			
Reference Books			
<ol style="list-style-type: none"> 1. Dietary Guidelines for Indians, ICMR, National Institute of Nutrition, Hyderabad, 2011. 2. Gordon M. Wardlaw, Paul M. Insel, Perspectives in nutrition 11th edition, Mosby- year Book, Inc. St. Louis, Missouri, 2019 3. Corne H. Robinson Marilyn R. Lawler, Normal and Therapeutic Nutrition, Mac Millan Publishing Company, New York, 1986. 4. F.P. Antia, Clinical Dietetics and Nutrition, Oxford University press, 1989. 5. Krause, M.V. and Hunisher, M.A., Food, Nutrition and Diet Therapy, 14th Edition, W.B. Saunders Company, Philadelphia, London, 2016. 			
Web References			
https://bowenstaff.bowen.edu.ng/lectureslides/1611582925.pdf https://naturallyyours.in/blogs/blog/nutritional-management-in-fever https://medlineplus.gov/ency/article/002441.htm https://liverfoundation.org/health-and-wellness/healthy-lifestyle/liver-disease-diets/			

* TE – Theory Exam, LE – Lab Exam

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Department	Food Science			Programme: B.Sc Nutrition and Dietetics						
Semester	Fifth			Course Category Code: DSC		*End Semester Exam Type: TE				
Course Code	A20NDT516			Periods / Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	PUBLIC HEALTH NUTRITION			4	0	0	4	25	75	100
Prerequisite	Basic knowledge in community health nutrition and deficiency disorders									
Course Objectives	1. Identify the concepts and scope of Public health and community nutrition									
	2. Determine the nutritional problems									
	3. Determine the nutritional status of the community									
	4. Identify the hazards in community health.									
	5. Identify the preventive measures.									
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)		
	CO1	Get an idea about the concepts and scope of Public health and community nutrition							K2	
	CO2	Identified the nutritional problems in India.							K3	
	CO3	Understand the steps to identify the nutritional status of the community							K3	
	CO4	Determined the various hazards in community health							K4	
	CO5	Get acquainted with the preventive measures taken by the Government							K3	
UNIT-I	Introduction to Public Health Nutrition					Periods: 12				
Introduction, concepts, scope of public health and community nutrition, Global Public Health Nutrition (PHN), definition, PHN training and workforce, PHN positions and career settings, PHN future trends. Nutrition and Health in National Development, Role of Nutritionist in improving community.									CO1	
UNIT-II	Nutritional problems confronting the community					Periods: 12				
Protein Energy Malnutrition- Prevalence, etiology, clinical features and prevention through food sources. Iron Deficiency Anemia- prevalence, etiology, clinical features, prophylaxis programme and prevention through food sources. Iodine Deficiency Disorder- prevalence, etiology, clinical features and prevention through food sources. Fluorosis- prevalence, etiology, clinical features and prevention. Vitamin A deficiency- prevalence, etiology, clinical features, prophylaxis programme and prevention through food sources. Vitamin D deficiency - prevalence, etiology, clinical features and prevention through food sources.									CO2	
UNIT-III	Determination of consumption and nutritional status of the community					Periods: 12				
Nutrition and Behavior - Factors affecting food habits and food behavior Improvement of nutrition in community - fortification, conservation and education Weaning foods-planning, formulating and preparing importance of correct and timely weaning - Review.									CO3	
UNIT-IV	Nutrition Epidemiology Research Methods					Periods: 12				
Epidemiology –Concept, approaches, types and significance. Principles of Nutritional Epidemiology. Measurement issues. Epidemiology of communicable and non-communicable diseases. Research methods and Study Design in Nutritional Epidemiology.									CO4	
UNIT-V	Nutrition intervention programs to Combat Malnutrition					Periods: 12				

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National organizations- ICMR-NIN, ICAR, CHEB, CSWB, SSWB, NNMB, CFTRI, DFRL, NFI and NIPCCD. International organizations- FAO, WHO, UNICEF, WFP, CARE, GAIN, AFPRO, CWS, CRS, and World Bank. Economics of Nutrition. Malnutrition and its economic consequences. Food security. Food production and food pricing. Recent advances in community nutrition research- Fortification & enrichment of foods.			CO5
Lecture Periods: 60	Tutorial Periods: -	Practical Periods: -	Total Periods: 60
Text Books			
<ol style="list-style-type: none"> 1. Boyle M.A.(2021). Community Nutrition in Action. 8th Edition. Cengage Learning, USA. 2. Steyn N. and Temple N.J. (2016). Community Nutrition for Developing Countries. Athabasca University Press, Canada. 3. Park K. (2021). Textbook Of Preventive And Social Medicine, 26th Edition. Banarsidas Bhanot Publisher, Madhya Pradesh, India. 			
Reference Books			
<ol style="list-style-type: none"> 1. Gibney M.J., Margetts B.M., Kearney J.M., Arab L. (2015). Public Health Nutrition. John Wiley and Sons, New York. 2. Stein N. (2014). Public Health Nutrition- Principles and Practice in Community and Global Health. Jones and Bartlett Learning, LLC Publishers, U.S.A. 3. Welch A.A., Kearney J.M., Buttriss J.L. and Lanham S.A. (2017). Public Health Nutrition, 2nd Edition. Wiley, U.K. 4. Nutrition- Concepts and Controversies, bySizer F.S. and Whitney E, 15th Edition, 2016, Wadsworth Cengage Learning, USA. 5. Understanding Nutrition, by Whitney E. and Rolfes S.R,11th Edition, 2018, Wadsworth Cengage Learning, USA. 			
Web References			
https://www.godigit.com/health-insurance/nutrition/nutritional-problems-in-india https://www.mdsuajmer.ac.in/econtents/846_nutritional%20problems%20in%20India.pptx https://www.researchgate.net/publication/317305228_NUTRITIONAL_PROBLEMS_in_India_world_ways_to_combat			

* TE – Theory Exam, LE – Lab Exam

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Department	Food Science		Programme: B.Sc Nutrition and Dietetics						
Semester	Fifth		Course Category Code: DSC			*End Semester Exam Type: TE			
Course Code	A20NDT517		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	FOOD PRODUCT DEVELOPMENT AND MARKETING		4	0	0	4	25	75	100
Course Objectives	1. To understand and know various aspects of food product development including Food Science and Technology								
	2. To understand the principles in product development and design								
	3. To identify the generation of new product ideas.								
	4. To understand the different steps involved in testing and evaluation.								
	5. Develop entrepreneurship skills for setting up small scale food industries								
Prerequisite	Product development, consumer view on food products and sensory evaluation								
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Identified various aspects of food product development including Food Science and Technology						K2	
	CO2	Get acquaintance with the principles in product development and design						K3	
	CO3	Frame the generation of new product ideas.						K3	
	CO4	Understand the different steps involved in testing and evaluation.						K4	
	CO5	Develop entrepreneurship skills for setting up small scale food industries						K3	
UNIT-I	Introduction to Food Product Development					Periods: 12			
New Food Product development, Phases in Food Product Development. Definition, classification, characterization, Factors in fluency new product development – social concerns, health concerns impact of technology and market place influence (Corporate, market place, technological and governmental influences). Trends in Social Change as a base for New Product Development.								CO1	
UNIT-II	Recipe Development					Periods: 12			
Traditional Foods, Weaning Foods, Convenience Foods, RTE, RTS, Extruded Foods, IMF Foods, Nutritional Supplements, Functional Foods, Nutraceuticals and Designer Foods, Plant Proteins – Emerging Foods, Alternate to meat Proteins, Sports foods, Foods for Defence services, Space Foods. Newer techniques adopted in product development.								CO2	
UNIT-III	Generation of New Product Ideas					Periods: 12			
Internal sources of ideas-census data, magazine, reward cards, surveys. Polling, membership list, seller/retailer and distributor, telephone and mails. External sources of ideas –competitors, food conference/exhibition, tradeshow and research symposia, public libraries, trade literature, government publications. Market place analysis, SWOT analysis								CO3	

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UNIT-IV	Screening and Evaluation	Periods: 12	
Screening and refining the screening procedure for the product-Objectives of screening. Standardization, Portion Size and Control -Sensory Evaluation - Shelf life testing. Nutrient Analysis. Food standards needed to introduce new product.			CO4
UNIT-V	Marketing of Food Products	Periods: 12	
Market Sector perspective and market research, Cost Calculation, Advertising methods, Product Sales, Product License, Legal specifications, Consumer Behaviour and Acceptance – Institutional Support for Entrepreneurship Development			CO5
Lecture Periods: 60	Tutorial Periods: -	Practical Periods: -	Total Periods: 60
Text Books			
<ol style="list-style-type: none"> 1. Srilakshmi, B. Second Edition, Food Science, New Age International (P) Limited Publishers, New Delhi. 2016 2. Harry T. Lawless, Hildegarde, Sensory Evaluation of Food Principles and Practices, Second Edition, Springer Science, 2010. 3. Joshi, V.K Sensory Science: Principles and Applications in Food Evaluation, 2016. 			
Reference Books			
<ol style="list-style-type: none"> 1. Huttenwigs, B.J. Food Color and Appearance, Published by Blackie Academic and Professional, London, 2010. 2. Howard R. Beckley, Jacqueline, H. Sensory and Consumer Research in Food Product Design and Development, 2016 3. Sadasivam, S. and Manickam, A. Biochemical Method, Second Edition, New Age International P. Ltd., Publishers, New Delhi, 2013. 4. Raghuramulu, N., Madhavannair, K. and Kalyana Sundaram, National Institute of Nutrition, 2013, A Manual of Laboratory Techniques, Hyderabad, 500007 5. Bi, Jian, Sensory Discrimination Tests and Measurements: Statistical Principles, Procedures and Tables, 2016. 			
Web References			
https://www.foodresearchlab.com/what-we-do/new-product-development-service/new-food-product-development/ https://www.foodresearchlab.com/what-we-do/new-product-development-service/ https://www.sciencedirect.com/book/9781845697228/food-product-development http://niftem-t.ac.in/food_product_development.php			

* TE – Theory Exam, LE – Lab Exam

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Department	Food Science			Programme: B.Sc Nutrition and Dietetics						
Semester	Fifth			Course Category Code: DSE		*End Semester Exam Type: TE				
Course Code	A20NDE507			Periods / Week		Credit	Maximum Marks			
Course Name	FOOD SERVICE MANAGEMENT			L	T	P	C	CAM	ESE	TM
				3	0	0	3	25	75	100
Course Objectives	1. Gain knowledge about various types of food services.									
	2. Determine the food management process.									
	3. Identify the various food trends and service.									
	4. Understand the kitchen layout and equipments.									
	5. Gain knowledge about the principles and functions of Management.									
Prerequisite	Food service, food production, menu planning, purchase and storage.									
Course Outcome	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Understand the types of food services							K2	
	CO2	Acquired knowledge about the food production and management.							K3	
	CO3	Understand the various food trends and service.							K3	
	CO4	Understand the procedures for selection and use of equipments and layout							K2	
CO5	Get acquainted with the principles and functions of Management.							K3		
UNIT-I	Food Service Institutions					Periods: 09				
	Review of different types of institutional food service in operation - Commercial and Non-commercial - classification based on functional – profit oriented, service oriented and public health facility oriented food Service Institutions. Food Service – Formal and Informal types, Styles of Food Service – Centralized and Decentralized System of Service.									
	CO1									
UNIT-II	Food Management					Periods: 09				
	Food management- Characteristics of foods, nutritional knowledge, food purchase, inventory management, menu planning, food production, food service, waste management. Need based specific units- Dietary, catering, institutional food service.									
	CO2									
UNIT-III	Food Services and its Trends					Periods: 09				
	Styles of food service – Color, Table service, furnishing, packing services, service stations – hospitals, restaurants, hotels, Motels, food courts and catering services. Services - banquet and party setting and services, therapeutic diets, home remedies, traditional cookery, international cuisines, current trends- air catering, food service at old age homes, community kitchens, railway catering, robotic food service, virtual food service.									
	CO3									
UNIT-IV	Kitchen Layout and Equipments					Periods: 09				
	Kitchen space, storage space, service areas, Factors affecting Planning of different work areas Equipment: Types, selection, purchase, design, installation, operation and maintenance.									
	CO4									
UNIT-V	Organization and Management					Periods: 09				

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Management –Principles, Functions and tools of Management Personnel Management - Recruitment, Selection, Induction, Employee facilities and benefits. Training, Motivation and Leadership .			CO5
Lecture Periods: 45	Tutorial Periods: -	Practical Periods: -	Total Periods: 45
Text Books			
<ol style="list-style-type: none"> 1. Mohini Shetty, Institutional food management, New age International Publishers, 2016. 2. West ,BB, Wood “Food service in Institutions” ,Johnwiley & Sons,New York ,2015. 3. Sethi and Mahan S.-Catering Management and integrated approach, Johnwiley & Sons,New York,2010 . 			
Reference Books			
<ol style="list-style-type: none"> 1. Kotschevar, L. H. and Terrel, M. E. (1997). Food Service Planning: Layout and Equipment.John Wiley. 2. Minor, L. J., Cichy, R. F. (1984). Food Service Systems Management, Connecticut AVI Publ . 3. Kazarian, E. A. (1989). Food service facilities planning 3rd ed. New York. Van Nostrandand Reinhold. 			
Web References			
https://www.ecpi.edu/blog/what-is-food-service-management-and-why-do-i-need-a-degree- for-it https://www.scitechnol.com/scholarly/food-service-management-journals-articles-ppts- list.php https://ziphacp.com/en/food-service/food-service-management.html			

* TE – Theory Exam, LE – Lab Exam

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Department	Food Science		Programme: B.Sc Nutrition and Dietetics						
Semester	Fifth		Course Category Code: DSC			*End Semester Exam Type: LE			
Course Code	A20NDL518		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	DIETETICS – I PRACTICAL		0	0	4	2	50	50	100
Prerequisite	Diet Planning, Therapeutic Diet								
Course Objectives	To enable the students to								
	<ol style="list-style-type: none"> To deliver better understanding on the basic principles in diet planning. To promote skills and techniques in planning and preparation of therapeutic diets for various disease conditions. 								
Course Outcome	On completion of the course, the students will be able to						BT Mapping (Highest Level)		
	CO1	Understand the basic principles involved in planning diets for different disease conditions.						K3	
	CO2	Plan and prepare diets to meet out the quality and quantity requirements for specific disease conditions						K3	
	CO3	Acquire practical knowledge of therapeutic diet to meet the requirement						K3	
Experiments						Practicals - 30 hrs			
Planning and Preparation of diet in: <ol style="list-style-type: none"> Routine Hospital Diets Febrile conditions Gastrointestinal Disease Liver and Gall bladder disease Addictive patient. 									
Text Books									
<ol style="list-style-type: none"> Srilakshmi, B., Nutrition Science, New Age International (P) Ltd., New Delhi, 2017. Mahtab, S, Bamji, Kamala Krishnasamy, G.N.V. Brahmam, Text Book of Human Nutrition, Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi, 2015 Swaminathan, M., Advanced Textbook on Food and Nutrition, Vol. 1, Second Edition, Bangalore Printing and Publishing Co. Ltd., Bangalore, 2015. 									
Reference Books									
<ol style="list-style-type: none"> Dietary Guidelines for Indians, ICMR, National Institute of Nutrition, Hyderabad, 2011. Gordon M. Wardlaw, Paul M.Insel, Perspectives in nutrition 11th edition, Mosby- year Book, Inc. St. Louis, Missouri, 2019 Cornne H. Robinson Marilyn R. Lawler, Normal and Therapeutic Nutrition, Mac Millan Publishing Company, New York, 1986. F.P. Antia, Clinical Dietetics and Nutrition, Oxford University press, 1989. Krause, M.V. and Hunsher, M.A., Food, Nutrition and Diet Therapy, 14th Edition, W.B. Saunders Company, 									

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Philadelphia, London, 2016.

Department	Food Science		Programme: B.Sc Nutrition and Dietetics						
Semester	Fifth		Course Category Code: DSC			*End Semester Exam Type: LE			
Course Code	A20NDL519		Periods / Week		Credit	Maximum Marks			
Course Name	FOOD PRODUCT DEVELOPMENT PRACTICAL		L	T	P	C	CAM	ESE	TM
			0	0	4	2	50	50	100
Prerequisite	New Product Development and Sensory Evaluation								
Course Objectives	To enable the students to								
	<ol style="list-style-type: none"> To develop skills in product development To understand the steps involved in costing To learn sales techniques 								
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Identify suitable food groups for developing products						K3	
	CO2	Categorize the foods for developing recipes and preserved foods						K3	
	CO3	Understand the steps involved in the preparation of a new food product						K3	
	CO4	Standardize the developed food product for large scale cooking						K3	
	CO5	Learn marketing techniques and launch the developed products.						K3	
Experiments							Practicals - 30 hrs		
Product Development and Standardization	<ol style="list-style-type: none"> Sensory evaluation of developed products using hedonic scales. Cereal and Millet based foods Health foods and nutritional supplements Weaning foods Convenience foods, RTS and RTE foods Visit to food production and packaging unit of food industry 								
Text Books	<ol style="list-style-type: none"> Sudhir Gupta (2007). Handbook of Packaging Technology, Engineers India Research Institute, New Delhi Khanaka, S.S., Entrepreneurial Development, S.Chand and Company Ltd, New Delhi, 2006. Suja ,R.Nair(2014). Consumer Behaviour and Marketing Research, 1st edition, Himalaya publishers. 								
Reference Books	<ol style="list-style-type: none"> Hmacfie, (2007). Consumer led food Product Development, Weedhead publishing Ltd., UK Fuller, Gordon, W(2005). New Food Product Development, 2nd edition, CRC press, Boca, Raton, Florida, Schaffner. D,J,Schroder, W.R.(2010). Food Marketing and International perspectives, web/ Mc Graw Hill Publication. 								

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Department	Food Science		Programme: B.Sc Nutrition and Dietetics					
Semester	Fifth		Course Category Code: DSC			*End Semester Exam Type: LE		
Course Code	A20NDS505		Periods / Week			Credit	Maximum Marks	
			L	T	P	C	CAM	ESE
Course Name	INPLANT TRAINING / INTERNSHIP		0	0	4	2	50	50 100
Prerequisite	Diet Planning, Therapeutic Diet							
Course Objectives	To enable the students to							
	1. Acquire knowledge about the preparation of diet chart, routine hospital diet.							
	2. Understand the supportive services available in hospital.							
INTERNSHIP:								
Dietary Department: Students are expected to complete 30 days of training at the dietary department including ward visits for case study								
Support Services: Students are expected to complete 5 days of observational visits at Laboratory & Blood Bank								
SUBMISSION OF CASE REPORT:								
It includes (should be submitted to the respective institution)								
<ul style="list-style-type: none"> Brief description of the Hospital & dietary department (10 pages) Short report on the training undergone in Laboratory & Blood Bank (5 pages) Case study - ONE Patient (10 pages) Cover to cover – 25 pages Inclusive of graph, diagrams, pictures etc Times New Roman – font 1.1/2 spacing, 12 – font size Soft binding, certified by HOD. 								

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)		End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2		
Marks	50		50 (presentation – 40, viva -10)	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

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Department	Food Science		Programme: B.Sc Nutrition and Dietetics							
Semester	Sixth		Course Category Code: DSC			*End Semester Exam Type: TE				
Course Code	A20NDT620		Periods / Week			Credit	Maximum Marks			
			L	T	P	C	CAM	ESE	TM	
Course Name	DIETETICS - II		4	0	0	4	25	75	100	
Prerequisite	Nutrition and Diseases									
Course Objectives	1. Provide comprehensive knowledge on role and need of dietician.									
	2. Assess formulate & prepare diet for specific conditions of life style disorder									
	3. Acquire knowledge on nutritional needs of Diabetes Mellitus.									
	4. Determine the nutritional support for Cardiac disorders.									
	5. Acquire the knowledge on dietary management for renal and special cases.									
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)		
	CO1	Get an idea about the role of dietician							K3	
	CO2	Identified the dietary management for obesity and underweight.							K3	
	CO3	Understand the dietary management for diabetes mellitus							K3	
	CO4	Understand the role played by dietary measures to recover cardiac disorders							K3	
	CO5	Get acquainted with nutritional support for renal special case patients.							K3	
UNIT-I	The Dietician					Periods: 12				
Dietician: Definition; Educational Qualification of Dietician, Types and Role of dietician, Difference between registered dietician & Nutritionist, tools used by dietician. Indian Dietetic Association, Requirements for Registered Dietitian.									CO1	
UNIT-II	Diet in Obesity and Underweight					Periods: 12				
Aetiology, Role of Hormones, Assessment and Grades, Types, Treatment, Complications and Guidelines. Addictive Behavior - Anorexia Nervosa & Bulimia Nervosa									CO2	
UNIT-III	Diet in Diabetes Mellitus					Periods: 12				
Diabetes Mellitus - Aetiology, Types, Clinical Symptoms and treatment of Diabetes Mellitus (in brief). Diabetic complications – Cataract and Retinopathy, Neuropathy, Nephropathy, Diabetic Coma, Hypoglycemia and Ketoacidosis.									CO3	
UNIT-IV	Diet in Cardiovascular disease					Periods: 12				
Cardiovascular Diseases - Aetiology, Clinical Symptoms, Diagnosis and Treatment of Hypertension, Hyperlipidemia, Atherosclerosis, Ischemic Heart Disease.									CO4	
UNIT-V	Diet in Renal and Specific disease					Periods: 12				
Kidney Diseases - Aetiology, Clinical Symptoms, Diagnosis and Treatment of Glomerulonephritis, Nephrosis, Acute Renal Failure, Chronic Renal Failure.									CO5	
Lecture Periods: 60			Tutorial Periods: -			Practical Periods: -		Total Periods: 60		
Text Books										
1. Raheena Begum. M., A Text book of Foods, Nutrition and Dietetics, Sterling Publishers Pvt., Ltd 1991										

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2. Srilakshmi. B, Dietetics, New age international (Pvt Ltd.,) 2000
3. Subhangini. A. Joshi, Textbook of Nutrition and Dietetics, Tata Mc Graw hill publishing limited, 1992

Reference Books

1. Dietary Guidelines for Indians, ICMR, National Institute of Nutrition, Hyderabad, 2011.
2. Gordon M. Wardlaw, Paul M. Insel, Perspectives in nutrition 11th edition, Mosby- year Book, Inc. St. Louis, Missouri, 2019
3. Cornne H. Robinson Marilyn R. Lawler, Normal and Therapeutic Nutrition, Mac Millan Publishing Company, New York, 1986.
4. F.P. Antia, Clinical Dietetics and Nutrition, Oxford University press, 1989.
5. Krause, M.V. and Hunesher, M.A., Food, Nutrition and Diet Therapy, 14th Edition, W.B. Saunders Company, Philadelphia, London, 2016.

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<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1783583/> <https://www.sanitarium.com.au/health-nutrition/nutrition/foods-that-fight-lifestyle-diseases> <https://www.un.org/en/chronicle/article/lifestyle-diseases-economic-burden-health-services>

* TE – Theory Exam, LE – Lab Exam

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Department	Food Science		Programme: B.Sc Nutrition and Dietetics							
Semester	Sixth		Course Category Code: DSC			*End Semester Exam Type: TE				
Course Code	A20NDT621		Periods / Week			Credit	Maximum Marks			
			L	T	P	C	CAM	ESE	TM	
Course Name	SPORTS NUTRITION		4	0	0	4	25	75	100	
Prerequisite	Nutrition for Sports Person									
Course Objectives	1. Develop an understanding the concept of Sports Nutrition									
	2. Obtain an insight about the physiology of exercise.									
	3. Understand the role played by the macro nutrients									
	4. Understand the importance of water and electrolytes.									
	5. Know the nutritional support for sports person.									
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)		
	CO1	Get an idea about the concept of Sports Nutrition							K2	
	CO2	Acquaint the knowledge of exercise physiology							K3	
	CO3	Understand the role of macro nutrients.							K2	
	CO4	Understand the importance of water and electrolytes							K3	
	CO5	Get acquainted with nutritional support for sports person							K4	
UNIT-I	Introduction to Sports Nutrition					Periods: 12				
Introduction to Sports Nutrition- Definition - Scope - Importance of Sports Nutrition Physical Fitness - Types of Fitness - Components of Physical Fitness – Methods and Benefits, Exercise - Types and Factors affecting - Exercises to strengthen different parts of the body									CO1	
UNIT-II	Physiology of Exercise, Bioenergetics and Metabolic Responses					Periods: 12				
Physiology of Exercise - Fuels for Exercise - Carbohydrates -Fats - Proteins - High-Energy Phosphates, Bioenergetics - Anaerobic ATP Production - Aerobic ATP Production -Aerobic ATP Tally, Energy Requirements at Rest - Rest-to-Exercise Transitions - Recovery from Exercise: Metabolic Responses - Metabolic Responses to Exercise: Biomechanics - Muscular Adaptations to Exercise– Endurance and Resistance Training - Cardio-Pulmonary adaptations to Exercise - Effects of Training on Cardio- Pulmonary System.									CO2	
UNIT-III	Nutritional Recommendations					Periods: 12				
Carbohydrates, Proteins and Fats in sports: - during training, during different phases of Preparation, General preparatory phase, Specific preparatory phase, Competition phase, Transition phase, Injury and rehabilitation phase - Pre competition nutrition - Post competition nutrition									CO3	
UNIT-IV	Hydration and Electrolytes					Periods: 12				
Hydration - Pre competition Hydration, The Week before, the day before, on the day. Electrolytes - Role of electrolytes in Muscular contraction- Electrolyte loss & exercise -Maintaining / Restoring electrolyte Balance - Sports & Energy drinks - Osmolality & osmolarity - Hypotonic, Isotonic, Hypertonic - Acclimatization - Non Alcoholic Beverages .									CO4	
UNIT-V	Food Supplements					Periods: 12				

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Ergogenic Aids and Supplements - Sports Foods - Cereal Bar, Sports Drinks, Carbohydrate Gels, Liquid Meal Replacements ,Use of Performance Enhancing Substances among Athletes
- Anabolic Steroids, Types of Protein Supplements - Creatinine, Beta- Alanine, Glutamine, Branched Chain Amino Acids, Beta Hydroxyl Beta Methyl Butyrate(HMB), Whey Proteins, Caffeine, Glycerol, Bicarbonate, Citrate, World Anti- doping Agency (WADA) - Anti Doping Rules and Regulations.

CO5

Lecture Periods: 60

Tutorial Periods:

Practical Periods: -

Total Periods: 60

Text Books

1. Mcardle W. D. (2018). Sports and Exercise Nutrition, 5th Edition, Lippincott Williams and Wilkins, North America.
2. Burke L. (Author), Deakin V. (2015). Clinical Sports Nutrition. McGraw Hill, Australia.

Reference Books

1. Melvin H.Williams, Nutrition for Health, Fitness and Sports, 7th edition, McGraw Hill International Edition, 2005
2. Micheal J.Gibney, Ian A Macdonald and Helen M.Roche, Nutrition and Metabolism,Blackwell Publishing Company, Bangalore, Reprint 2004.
3. Mc Arde Katch & Katch, Nutrition, Health & Fitness, Williams & Wilkins, A.Waverly Company
4. Srilakshmi. B, Suganthi. V, Ashok, K.C, Exercise Physiology, Fitness and Sports Nutrition,New Age International, New Delhi, 2017.

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<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3805623/>

<https://www.nutrition.gov/topics/basic-nutrition/eating-exercise-and-sports>

* TE – Theory Exam, LE – Lab Exam

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Department	Food Science			Programme: B.Sc Nutrition and Dietetics						
Semester	Sixth			Course Category Code: DSC		*End Semester Exam Type: TE				
Course Code	A20NDT622			Periods / Week		Credit	Maximum Marks			
Course Name	NUTRITION IN CRITICAL CARE			L	T	P	C	CAM	ESE	TM
				4	0	0	4	25	75	100
Prerequisite	Nutritional Care									
Course Objectives	1. Develop an understanding the concept of nutritional care.									
	2. Obtain an insight into the Enteral Nutrition and feeding procedures.									
	3. Obtain an insight into the Parenteral Nutrition									
	4. Understand the importance of Pharmaconutrition									
	5. Know the nutritional support for critical ill patients.									
Course Outcome	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Get an idea about the concept of nutritionalcare							K3	
	CO2	Acquaint the knowledge of enteral nutrition.							K3	
	CO3	Understand the infusion techniques of parenteralnutrition							K3	
	CO4	Understand the importance of Pharmaconutrition							K3	
	CO5	Get acquainted with nutritional support for ICU patients							K3	
UNIT-I	Concept of Nutrition Care						Periods: 12			
Introduction to Nutrition Care Process - Definition, Steps in nutrition care process, NutritionAssessment - Nutritional Intervention – Definition, Objectives.										
Nutritional Monitoring and Evaluation – Definition, Components, Objectives, and Evaluation of nutrition care										
UNIT-II	Enteral Nutrition						Periods: 12			
Enteral Nutrition – Indications, Monitoring - Administration and Methods – Nasogastric,Gastrostomy, Jejunostomy - Types of food - Infusion Techniques - Complications.										
UNIT-III	Parenteral Nutrition						Periods: 12			
Parenteral Nutrition – Indications, Monitoring - Administration – Types of Infusion, TPN formula – Complications										
UNIT-IV	Pharmaconutrition						Periods: 12			
Pharmaconutrition – an evaluation of the specific issues surrounding - selection and supplementation of Macro nutrients and Micro nutrients such as fish oil, glutamine and antioxidants										
UNIT-V	Nutrition support for Critical ill patients						Periods: 12			
Introduction, Definition - Critically ill patient, Nutritional Changes during critical illness - Acute Phase Response, Hormonal Response, Catabolism and Urea Nitrogen - Nutrition support - Energy requirements, Protein requirements, Commencement of Enteral and Parenteral Nutrition - .for ICU patients (brief explanation).										
Lecture Periods: 60			Tutorial Periods: -			Practical Periods: -			Total Periods: 60	

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Text Books

1. Rajkumar .R & Vinod . B Patel, Diet and Nutrition in Ctitical Care. Living ReferenceWork (2020).
2. Cynober . L& Moore . F.A., Nutrition in Critical Care. Nestle Nutrition InstituteWorkshop: Vol8 (2013).
3. Subhal . D, Principles in Critical Care Nutrition. Jaypee BrothersMedical Publications(2019).

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<http://www.criticalcarenutrition.com>

[Nutrition therapy in critical illness: a review of the literature for clinicians | Critical Care](#)

[| Full Text \(biomedcentral.com\)](#)

<https://www.sciencedirect.com/science/article/abs/pii/S0261561415001>

* TE – Theory Exam, LE – Lab Exam

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Department	Food Science		Programme: B.Sc Nutrition and Dietetics							
Semester	Sixth		Course Category Code: DSE			*End Semester Exam Type: TE				
Course Code	A20NDE609		Periods / Week			Credit	Maximum Marks			
			L	T	P	C	CAM	ESE	TM	
Course Name	HEALTH PSYCHOLOGY		3	0	0	3	25	75	100	
Prerequisite	Health and Psychology									
Course Objectives	1. To understand the psychological and other factors contributing to health issues.									
	2. To identify the problematic health behaviors									
	3. To organize various factors influencing the practice of health behavior									
	4. To learn coping strategies for health issues and realize the role of positive emotions in health psychology									
	5. To describe the various preventive measures for illness and various strategies of enhancing health									
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)		
	CO1	Understanding of the role of psychological factors contributing to health issues.							K2	
	CO2	Realize different problematic health behaviors							K3	
	CO3	Organize various factors influencing the practice of health behavior							K3	
	CO4	Implement coping strategies and assimilate positive emotions to overcome health problems							K3	
	CO5	Describe the various preventive measures for illness and various strategies of enhancing health							K3	
UNIT-I	Introduction to Health Psychology					Periods: 09				
Definition - Meaning of Health Psychology – Health beliefs, Cognitive – behavioral approaches, health illness and mind-body continuum - Bio-Psychosocial model of health and its implications.									CO1	
UNIT-II	Models of Health Behavior					Periods: 09				
Health behavior – Types and Characteristics – Factors influencing health behavior and barriers to health behavior – Theories of Health Behavior - Avenues for health habit modification.									CO2	
UNIT-III	Enhancing Health Behavior					Periods: 09				
Importance of health enhancing behavior - Role of exercise, Yoga, Healthy diet, Weight management and Sleep - Psychology of Pain management, its theories and pain management techniques.									CO3	
UNIT-IV	Stress and Coping					Periods: 09				
Stress: definition, dimensions of stress- sources of chronic stress- Theoretical contributions: Lazarus's Appraisal Model, Flight or fight response, General adaptation Syndrome- Tending and Befriending Model- Coping strategies and the role of positive emotions in well being.									CO4	
UNIT-V	Health Care System					Periods: 09				

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Indian Scenario, Attitude of Health Professionals, Burnout in health professionals, Designing health care work environment, Future challenges for health care, Growth of Health Psychology.			CO5
Lecture Periods: 45	Tutorial Periods:	Practical Periods: -	Total Periods: 45
Text Books			
<ol style="list-style-type: none"> 1. Allen, F. (2011). Health psychology and behavior. Tata McGraw Hill Edition. 2. Marks, D. F., Murray, M., Evans, B., & Estacio, E.V. (2006). Health Psychology. India: Sage Publications. 3. Sarafino, E. P. (1999). Health Psychology. John Wiley & Sons Inc. 			
Reference Books			
<ol style="list-style-type: none"> 1. Boyer, B., & Paharia, I. (2008). Comprehensive Handbook of Clinical Health Psychology. Edison, NJ: John Wiley & Sons. 2. Branmon, L., & Frist, J. (2010). Introduction to Health Psychology; New Delhi, India: Cengage Learning India Pvt Ltd. 3. Friedman, H.S. (2011). Oxford Handbook of Health Psychology. Oxford:OU 4. Marks, D., Murray, M., Evans, B., Willig, C., Woodall, C., & Sykes, C.M. (2008). Health Psychology: Theory, research and practice (2nd Ed.). New Delhi, India: Sage Publications. 			
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https://www.apa.org/education-career/guide/subfields/health#:~:text=Health%20psychology%20focuses%20on%20how,or%20change%20poor%20health%20habits.			

* TE – Theory Exam, LE – Lab Exam

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Department	Food Science			Programme: B.Sc Nutrition and Dietetics						
Semester	Sixth			Course Category Code: SEC		*End Semester Exam Type: TE				
Course Code	A20NDS606			Periods / Week			Credit	Maximum Marks		
				L	T	P	C	CAM	ESE	TM
Course Name	BASICS IN RESEARCH METHODOLOGY			2	0	0	2	100	0	100
Prerequisite	Nutrition and Research Methods									
Course Objectives	1. Basic knowledge on the role and importance of research in science.									
	2. Analyze research reviews identified in existing literature									
	3. Identify the research design and methods.									
	4. Know about the processing of data.									
	5. Develop a research proposal or industry project plan.									
Course Outcome	On completion of the course, the students will be able to								BT Mapping (Highest Level)	
	CO1	Get an idea about the meaning of research and in science.							K3	
	CO2	Acquaint the knowledge of review of literature							K3	
	CO3	Understand the types of sample design and datacollection							K3	
	CO4	Understand the importance of processing the data							K3	
	CO5	Get acquainted knowledge about the layout of the research report							K3	
UNIT-I	Research Methodology – Introduction						Periods: 06			
Research- Meaning, Definition, Characteristics, Objectives, Motivation Importance andtypes, Significance, Research and Scientific Method, Criteria of a good research.										CO1
UNIT-II	Review of Literature						Periods: 06			
Literature review - Definition, Purpose and Importance. Research Design - Definition, Concept- Variables and Attributes, Types - Exploratory,Diagnostic, Descriptive.										CO2
UNIT-III	Sampling Methods						Periods: 06			
Sample Design- Definition and Types - Systematic, Stratified, Cluster and Multistage. Data Collection - Definition and Types - Observation and Interview - Collection of data through questionnaire and schedule.										CO3
UNIT-IV	Processing and Analysis of Data						Periods: 06			
Processing of Data - Editing, Coding, Classification and Tabulation. Analysis of Data - Measures of central tendency-Mode, Median and Mean. Measures of dispersion- Range, Mean Deviation and Standard Deviation.										CO4
UNIT-V	Research Report						Periods: 06			
Layout of the Research Report - Preliminary Page, Main Text and End Matter. Hands on training on SPSS, Field report presentations.										CO5
Lecture Periods: 30			Tutorial Periods: -			Practical Periods: -			Total Periods: 30	
Text Books										
1. Kothari, C.R., (2004), Research Methodology, Methods and Techniques, Second Revised Edition, New Age International Publishers, New Delhi.										
2. Ranjit Kumar, (2011), Research Methodology: a step-by-step Guide for Beginners, Third Edition, SAGE										

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Publications, New Delhi.

3. Beverley Moriarty, (2018), Research Skills for Teachers – From Research Question to Research Design, Allen & Unwin Publishers, Australia.

Reference Books

1. Rajendra Kumar, C. (2008), Research Methodology, APH Publishing Corporation, New Delhi.
2. Pagadala Suganda Devi (2017), Research Methodology: A Handbook for Beginners, Notion Press, Chennai.
3. Vijayalakshmi Ponnuraj and Sivaprakasam, C. (2008), Research Methods: Tips and Techniques, MJP Publishers.

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<https://www.educba.com/types-of-research-methodology/>
<https://ccsuniversity.ac.in/bridge-library/pdf/MPhil%20Stats%20Research%20Methodology- Part1.pdf>

* TE – Theory Exam, LE – Lab Exam

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Department	Food Science		Programme: B.Sc Nutrition and Dietetics						
Semester	Sixth		Course Category Code: DSC			*End Semester Exam Type: LE			
Course Code	A20NDL623		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	DIETETICS – II PRACTICAL		0	0	4	2	50	50	100
Prerequisite	Diet Planning, Therapeutic Diet								
Course Objectives	To enable the students to								
	<ol style="list-style-type: none"> 1. Provide comprehensive knowledge on principles and planning of therapeutic diets. 2. Acquire knowledge on dietary management for metabolic disorders. 								
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Understand the basic principles involved in planning diets for different disease conditions.						K3	
	CO2	Plan and prepare diets to meet out the quality and quantity requirements for specific disease conditions						K3	
	CO3	Acquire practical knowledge of therapeutic diet to meet the requirement						K3	
Experiments						Practicals - 30 hrs			
Planning and Preparation of diet in: <ol style="list-style-type: none"> 1. Obesity and Underweight 2. Diabetes Mellitus 3. Cardiovascular Disease - Hypertension, CHD 4. Renal Disorders - Glomerulonephritis, Nephrotic Syndrome 5. Acute Renal Failure and Chronic Renal Failure. 									
Text Books									
<ol style="list-style-type: none"> 1. Srilakshmi, B., Nutrition Science, New Age International (P) Ltd., New Delhi, 2017. 2. Mahtab, S, Bamji, Kamala Krishnasamy, G.N.V. Brahmam, Text Book of Human Nutrition, Third Edition, Oxford and IBH Publishing Co. P. Ltd., New Delhi, 2015 3. Swaminathan, M., Advanced Textbook on Food and Nutrition, Vol. 1, Second Edition, Bangalore Printing and Publishing Co. Ltd., Bangalore, 2015. 									

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Department	Food Science	Programme: B.Sc Nutrition and Dietetics						
Semester	Sixth	Course Category Code: DSC			*End Semester Exam Type: LE			
Course Code	A20NDP601	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	PROJECT	0	0	10	5	40	60	100
Prerequisite	Diet Planning, Therapeutic Diet							
Course Objectives	To enable the students							
	To gather the information regarding the novel recipes and diet therapies from various literature review.							
	To develop innovative ideas in new food products							
	To encourage the students to promote diet counseling techniques to prevent various diseases.							
	To train the students for the preparation of project reports.							
Course outcomes	To train the students to defend reviews and viva voce examination.							
	CO1 - Identify the problem statement for the proposed work through the literature survey.							
	CO2 – Understand the process of developing new food products.							
	CO3 - Apply the acquainted skills to counsel the various diseases.							
	CO4 - Estimate, plan and execute the project.							
CO5 - Defend the finding and conclude with oral/written reports.								
Course Description:								
<ul style="list-style-type: none"> • A Project topic must be selected either from published lists or the students themselves may propose suitable topics in consultation with their guides. • The aim of the project work is to prepare novel recipes by incorporating the phytonutrients/ functional foods, evaluating the dietary practices for various diseases. • The progress of the project is evaluated based on a minimum of three reviews. • The review committee may be constituted by the Head of the Department. • The End Semester Examination for the project work shall consist of an evaluation of the final project report by an external examiner, followed by a viva-voce examination. 								

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)			End Semester Examination (ESE) Marks	Total Marks
	Review 1	Review 2	Review 3		
Marks	40 (review 1 – 10, review – 10, review 3 - 20)			60 (outcome – 10, presentation – 20, viva – 20, report – 10)	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

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SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

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Madagadipet, Puducherry - 605 107



SCHOOL OF ARTS AND SCIENCE

Department of Food Science

B.Sc. Nutrition and Dietetics

ANNEXURE –II
(Curriculum Structure & Syllabi – I
sem)

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SEMESTER – I										
Sl. No	Course Code	Course Title	Category	Periods			Credits	Max.Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	A23TAT101C / A23FRT101C	Tamil – I /French -I	MIL	3	0	0	3	25	75	100
2	A23GET101C	General English – I	ENG	3	0	0	3	25	75	100
3	A23NDT101D	Nutrition Science – I	DSC	4	0	0	4	25	75	100
4	A23NDT102D	Food Science	DSC	4	0	0	4	25	75	100
5	A23CHD102D	Basic Chemistry for Food Science	IDC	4	0	0	4	25	75	100
Practical										
6	A23NDL101D	Food Science Practical	DSC	0	0	4	2	50	50	100
7	A23CHI102D	Basic Chemistry for Food Science Practical	IDC	0	0	4	2	50	50	100
Skill Enhancement Course										
8	A23ENSA02C	Soft Skills	SEC	2	0	0	2	100	0	100
Ability Enhancement Course										
9	A23AETA01C	Public Administration	AEC	2	0	0	1	100	0	100
Employment Enhancement Course										
10	A23NDC101D	Certification Course	EEC	0	0	4	0	100	0	100
							25	525	475	1000

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SEMESTER- II										
SI No	Course Code	Course Title	Category	Periods			Credits	Max.Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	A23GET202C/ A23FRT202C	Tamil – II /French -II	MIL	3	0	0	3	25	75	100
2	A23GET202C	General English-II	ENG	3	0	0	3	25	75	100
3	A23NDT203D	Nutrition Science – II	DSC	4	0	0	4	25	75	100
4	A23NDT204D	Human Physiology	DSC	4	0	0	4	25	75	100
5	A23CPDA01C	Computer Basics	IDC	4	0	0	4	25	75	100
Practical										
6	A23NDL202D	Nutrition Science Practical	DSC	0	0	4	2	50	50	100
7	A23NDL203D	Human Physiology Practical	DSC	0	0	4	2	50	50	100
Skill Enhancement Course										
8	A23ENSA01C	Communication Skills	SEC	2	0	0	2	100	0	100
Ability Enhancement Course										
9	A23AETA02C	Environmental Studies	AEC	2	0	0	1	100	0	100
Employment Enhancement Course										
10	A23NDC202D	Certification Course	EEC	0	0	4	0	100	0	100
Extension Activities										
11	A23EAS201C	National Service Scheme	EA	0	0	2	0	100	0	100
							25	625	475	1100

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SEMESTER – III

S. No	Course Code	Course Title	Category	Periods			Credits	Max. Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	A23NDT305D	Nutritional Biochemistry	DSC	4	0	0	4	25	75	100
2	A23NDT306D	Food Microbiology	DSC	4	0	0	4	25	75	100
3	A23NDE30XD	DSE – 1**	DSE	3	0	0	3	25	75	100
4	A23NDD301C	Food Analysis and quality control	IDC	3	1	0	4	25	75	100
5	A23XXOXXX	Open Elective–1**	OE	2	0	0	2	25	75	100
Practical										
6	A23NDL304D	Nutritional biochemistry Practical	DSC	0	0	4	2	50	50	100
7	A23NDI301C	Food Analysis Practical	IDC	0	0	4	2	50	50	100
Skill Enhancement Course										
8	A23MASA01C	Quantitative Aptitude and Logical Reasoning	SEC	2	0	0	2	100	0	100
Ability Enhancement Course										
9	A23AETA03C	Indian Constitution	AEC	2	0	0	1	100	0	100
Employment Enhancement Course										
10	A23NDC303D	Certification Course	EEC	0	0	4	0	100	0	100
							24	525	475	1000

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SEMESTER- IV										
S. No	Course Code	Course Title	Category	Periods			Credits	Max.Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	A23NDT407D	Nutrition Through life cycle	DSC	4	0	0	4	25	75	100
2	A23NDT408D	Functional foods and nutrigenomics	DSC	3	0	0	4	25	75	100
3	A23NDE40XD	DSE – II*	DSE	3	0	0	3	25	75	100
4	A23MAD411C	Biostatistics	IDC	3	1	0	4	25	75	100
5	A23XXOXXX	Open Elective	OE	2	0	0	2	25	75	100
Practical										
6	A23NDL405D	Nutrition Through Life Cycle Practical	DSC	0	0	4	2	50	50	100
7	A23NDL406D	Functional Foods Practical	DSC	0	0	4	2	50	50	100
Internship										
8	A23NDN401D	Internship / Inplant Training	DSC	0	0	4	3	50	50	100
Skill Enhancement Course										
9	A23NDS401D	Bakery and Confectionery	SEC	0	0	4	2	100	0	100
Ability Enhancement Course										
10	A23AETA04C	Value Education	AEC	2	0	0	1	100	0	100
Employment Enhancement Course										
11	A23NDC404D	Certification Course	EEC	0	0	4	0	100	0	100
							27	575	525	1100

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SEMESTER –V										
S. No	Course Code	Course Title	Category	Periods			Credits	Max.Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	A23NDT509D	Dietetics I	DSC	4	0	0	4	25	75	100
2	A23NDT510D	Public Health Nutrition	DSC	4	0	0	4	25	75	100
3	A23NDT511D	Food Product Development and Marketing	DSC	4	0	0	4	25	75	100
4	A23NDE50XD	DSE – III*	DSE	3	0	0	3	25	75	100
Practical										
5	A23NDL507D	Dietetics I Practical	DSC	0	0	4	2	50	50	100
6	A23NDL508D	Food Product Development	DSC	0	0	4	2	50	50	100
Skill Enhancement Course										
7	A23NDS502D	Basics in Research Methodology	SEC	2	0	0	2	100	0	100
Online Course										
8	A23NDM501D	Online Course	OCC	0	0	2	0	100	0	100
							21	400	400	800

SEMESTER– VI										
S. No	Course Code	Course Title	Category	Periods			Credits	Max.Marks		
				L	T	P		CAM	ESM	Total
Theory										
1	A23NDT612D	Dietetics II	DSC	4	0	0	4	25	75	100
2	A23NDT613D	Sports Nutrition	DSC	4	0	0	4	25	75	100
3	A23NDE60XD	DSE – III*	DSE	3	0	0	3	25	75	100
Practical										
4	A23NDL609D	Dietetics II Practical	DSC	0	0	4	2	50	50	100
5	A23NDL610D	Sports Nutrition Practical	DSC	0	0	4	2	50	50	100
Project										
6	A23NDP601D	Project	DSC	0	0	10	5	40	60	100
Skill Enhancement Course										
7	A23NDS603D	Dietetic Techniques and Patient Counselling	SEC	0	0	4	2	100	0	100
							22	315	385	700

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B.Sc. Nutrition and Dietetics
STRUCTURE FOR UNDERGRADUATE PROGRAMME

Sl. No	Course Category	Breakdown of Credits
1	Modern Indian Language (MIL)	6
2	English (ENG)	6
3	Discipline Specific Core Courses (DSC)	72
4	Discipline Specific Elective Courses (DSE)	12
5	Inter-Disciplinary Courses (IDC)	20
6	Skill Enhancement Courses (SEC)	12
7	Employability Enhancement Courses (EEC*)	--
8	Ability Enhancement Courses (AEC)	4
9	Open Elective (OE)	4
10	Internship / In-Plant Training	3
11	Project	5
10	Extension Activity (EA)	--
Total		144

SCHEME OF CREDIT DISTRIBUTION – SUMMARY

Sl.No	Course Category	Credits per Semester						Total Credits
		I	II	III	IV	V	VI	
1	Modern Indian Language (MIL)	3	3	-	-	-	-	6
2	English (ENG)	3	3	-	-	-	-	6
3	Discipline Specific Core Courses (DSC)	10	12	10	12	16	12	72
4	Discipline Specific Elective Courses (DSE)	-	-	3	3	3	3	12
5	Inter-Disciplinary courses (IDC)	6	4	6	4	-	-	20
6	Skill Enhancement Courses (SEC)	2	2	2	2	2	2	12
7	Employability Enhancement Courses (EEC*)	-	-	-	-	-	-	-
8	Ability Enhancement Courses (AEC)	1	1	1	1	-	-	4
9	Open Elective (OE)	-	-	2	2	-	-	4
10	Internship / In-Plant Training	-	-	-	3	-	-	3
11	Project	-	-	-	-	-	5	5
10	Extension Activity (EA)	-	-	-	-	-	-	-
Total		25	25	24	27	21	22	144

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PROGRAMME EDUCATION OBJECTIVE (PEO):

Nutrition and Dietetics graduates will be able to:

PEO1 - Perform well in applied nutrition fields including public health nutrition and therapeutic diet.

PEO2 - Serve in the core health care system, which leverages diverse nutrition and dietetics domains including clinical nutrition, diet therapy, critical care, health and fitness centres.

PEO3 - Contribute to the skilled manpower requirement in this field so as to address societal & national needs.

PROGRAM OUTCOME (PO):

After the successful completion of the program, the students are expected to

PO1 - Apply the knowledge of biological sciences as a basis for understanding the role of food and nutrition, therapeutic nutrition in health and diseases.

PO2 - Apply ethical principles and commit to professional ethics and responsibilities and norms of the nutrition and health care practice.

PO3 - Understand the impact of nutrition and diet therapy in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.

PO4 - Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO5 - Design solutions for health and nutritional problems and design products that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations.

PROGRAM SPECIFIC OBJECTIVE

PSO1: Comprehend the association between nutrients with physiology, diseases and dietary solutions.

PSO2: Apply knowledge and technical skills in assessing, evaluating and providing health care solutions for individuals and communities.

PSO3: Associate the theoretical knowledge and skills acquired to the food industry .and health centres

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ment	Tamil	Programme: B.Sc Nutrition and Dietetics						
Semester	First	Course Category Code: C			*End Semester Exam Type: TE			
CourseCode	A23TAT101C	Periods/Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	GENERAL TAMIL – I	3	0	0	3	25	75	100
(Common to B.A., B.Sc., BBA., B.COM., BCA., B.COM CS)								
Prerequisite								
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)
	CO1	,yf;fpaq;fs; czHj;Jk; tho;tpay; newpKiwfisg; Ngzpelj;jy;.						K3
	CO2	ekJ vz;zj;ij ntspg;gLj;Jk; fUtpahfj; jha;nkhopiag; gad;gLj;Jjy;.						K3
	CO3	jfty; njlHGf;Fj; jha;nkhopapd; Kf;fpaj;Jtj;ij czHjy;.						K3
	CO4	jha;nkhopapd; rpwg;ig mwpjy;.						K3
CO5	,yf;fpa ,d;gq;fis EfUk; jpwd;fis tsHj;jy;.						K3	
UNIT-I	,f;fhy ,yf;fpak;- kuGf;ftpijfs;- GJf;ftpijfs;- rpWfij				Periods: 09			
kuGf;ftpijfs; - ghujpahH-nts;spg; gdpkiyapd; kPJyhTNthk;... (13 ghly;fs;)- ghujppjhrd;-Gul;rp;ftp (Ngud;Gf; nfhz;ltNu...Kjy; - ftpQDf;Fk; fhjyypf;Fk; kPl;rpje;jhH tiu) jq;fg;gh - gdp;g;ghiw Edpfs; - tho;f;if Xtpak;. GJf;ftpijfs;-mg;Jy; uFkhd; - tIY}Uk; thHjhTk; - Afp - capHg;G (,aw;ifapd; vYk;G Kwpg;G) – rpWfij -MH.#lhkzp - rhk;gYf;Fs;.								CO1
UNIT-II	ehlfk; -ciueil- ehty;				Periods: 09			
ehlfk; - gpugQ;rd; - Kl;il - ciueil - ,uh.Ntq;flhrygjp - me;jf; fhj;jjpy; fhg;gp ,y;iy –ehty; - ,uh.KuFNts; - kpsPHfy;								CO2
UNIT-III	gf;jp ,yf;fpak; -irtk;-				Periods: 09			
gf;jp ,yf;fpak; -irtk;-jpUQhdkr;ge;Jh - Kjy; jpUKiW - NjhLilanrtpad;...ghly; kl;Lk; - jpUehTf;furH - ehd;fhk; jpUKiW - \$w;whapdthW...ghly; kl;Lk;- Re;juH - Vohk; jpUKiW - gpj;jhgpiw#B...ghly; kl;Lk; - khzpf;fthrfH - jpUthrfk; - Gy;yha; GOtha;...ghly; kl;Lk; - jpU%yH - jpUke;jpuk; - MHf;Fk; ,Lkpd;...ghly; kl;Lk; - fhuiuf;fhyk;ikahH-jpUtpul;il kzkpkhiy - md;ghy; miltntj;thW...ghly; kl;Lk;. itztk; - ngha;ifaho;thH - itak; jfspaha;...ghly; kl;Lk; -G+jj;jho;thH - md;Ng jfspaha;...ghly; kl;Lk; - Ngaho;thH - jpUf;fz;Nld; nghd;Nkdp...ghly; kl;Lk; - ek;kho;thH - jpUtha;nkhop - csd; vdpd;...ghly; kl;Lk; - nghpaho;thH - nghpaho;thH jpUnkhop - thf;Fj; J}a;ik...ghly; kl;Lk; -Mz;lhs ; - ehr;rpahH - jpUnkhop- vd;G cUfp ,dNty;...ghly; kl;Lk; - fpwpj;Jtk; - ,ul;rz;a kNdhfuk; - Mtpf;FWnte;JaH...Kjy; ciday;yJ gw;WNjh tiu - ,J;yhk; - Fzq;Fb k];jhd; rhfG- uFkhd; fz;zp -mil;j kdf;Nfh;il...Kjy; vd;fz; tiu								CO3
UNIT-IV	rpw;wpyf;fpak; - Kj;njhs;shapuk; - cyh- fyk;gfk;- gs;S;ilf;fhyg; GytHfs;				Periods: 09			
rpw;wpyf;fpak; - Kj;njhs;shapuk; - 1.NtuWifgk;gpr; Riuaha;...2.khiy tpiygfHthH... 3.vd;id ciuay; ...vdj; njhlq;Fk; ghly;fs; kl;Lk; - cyh - FNyhj;Jq;fNrhod; cyh - jhis mutpe;jr; rhjp...Kjy; epyntd;whs; tiu - fyk;gfk; -jpUtuq;ff;fyk;gfk; - cUkhwp; gygpw;Gk;...Kjy; MBH thry; tiu - gs;S - Kf;\$lw;gs;S - ehl;Ltsk; - fiwgl;Ls;S...vdj;njhlq;Fk; ghly; kl;Lk; -J}J-mofH fps;istpL J}J - ,d;nrhy;iy....Kjy; cgNjrkhf ciug;gha; tiu ,ilf;fhyg; GytHfs; - ,uhkypq;f mbfs; - k`hNjtkhiy-gbj;Njd;...Kjy; ngha; cyfpay; tiu - tPukhKdptH jpUf;fhtY}Hf; fyk;gfk; - jio- Nghjtpo;g;...vdj;njhlq;Fk; ghly; kl;Lk; - K.K`k;kj`h - /nfsJK`pa;apj;JpD; gps;isj; jkpo; - tapWGilf;f cz;fpd;wPH...ghly; kl;Lk;.								CO4
UNIT-V	nkhogp;gapw;rp-,yf;fpa tuyhW				Periods: 09			
nkhogp;gapw;rp - 1.tykpFk; ,lq;fs; >tykpFh ,lq;fs;- 2.mfuthpirg;gLj;Jjy;.-3.NeHfz; - ,yf;fpa tuyhW - ,f;fhy ,yf;fpak;> gf;jp ,yf;fpak;> rpw;wpyf;fpak; Fwpj;j ghlg;gFjpa xl;baJ.								CO5
Lecture Periods: 45		Tutorial Periods:-		PracticalPeriods:-		TotalPeriods:45		
Text Books (Minimum 2 and maximum 3 – Latest editions to be given)								
1. ghujpahH – ghujpahH ftpijfs;> Kindle Edition > Published June 2, 2020.								
2. rptFkhH. v];-> nfhq;FNjH tho;f;if> ghly; njhFg;G E}y; - njhFjp -1 Aidnll; iul;IH];> nrd;id -86. Kjw;gpg;G 2003.								
3. #lhkzp.MH. - jdpikj; jspH> NjHe;njLj;j rpWfijfs;> fhry;RtL gjpg;gfk;> Kjy; gjpg;G: nrg;lk;gH 2013.								
4. gpugQ;rd; - [Ptejp (ehlfq;fs;) – ftphj gg;spNf\> > khrpyhkpz njU> ghz;bg[hH> jp.efH> nrd;id -600 017								
5. KuFNts; ,uh.-> kpsPHfy;> lk;ngropy; gjpg;gfk;> jpUg;G+H> ,uz;lhk; gjpg;G> 2014.								
Reference Books (Minimum 5– Latest editions to be given)								

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1. ty;ypf;fz;zd;> GJf;ftpijapd; Njhw;wKk; tsh;r;rpAk;> =nrz;gfh gjpg;gfk;> [dthp>1> 2020.
2. rpw;gpgHyRg;gpukzpak; kw;Wk; ePygj;kehgd; (g.Mrp.) – Gjpa jkpo; ,yf;fpa tuyhW> njhFjp-1>2>3> rhfpj;jpa mfhnjkp> GJnly;yp> 2013.
3. ghf;fpaNkhp> tifik Nehf;fpy; jkpo; ,yf;fpa tuyhW (nrk;ik kw;Wk; tphpTg; gjpg;G)> ghhppepiyak;. nrd;id>
4. Mde;jd;> Kidth.R.> - jkpo; ,yf;fpa tuyhW> fz;kzp gjpg;gfk;> jpUr;rp-2. ,Ugj;jp %d;whk; gjpg;G– 2015.
5. gue;jhkdhH> m.fp.> - ey;y jkpo; vOj Ntz;Lkh> ghhp epiyak;> nrd;id> 1998.

Web References (Minimum 5)

1. <http://www.tamilvu.org> – 2. <http://www.tamilweb.com> – 3. <http://www.tamilkodal.com> – 4. www.store.tamillexican.com
5. www.kala.tamilforu.blogspot.com 6. www.noolagam.com

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	3	3	3	3	3	3	3	3
2	3	3	3	3	3	3	3	3
3	2	2	3	3	2	3	2	3
4	3	3	2	1	2	2	3	2
5	3	3	3	3	3	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Assessment Pattern as per Bloom's Taxonomy

Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1	10	20	70	-	-	-	100
CAT2	10	20	70	-	-	-	100
ESE	10	30	60	-	-	-	100

* ±3% may be varied

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

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Department	French		Programme : BSc. Nutrition and Dietetics						
Semester	I		Course Category Code: MIL			*End Semester Exam Type: TE			
Course Code	A23FRT101C		Periods/Week			Credit	Maximum Marks		
Course Name	FRENCH I		L	T	P	C	CAM	ESE	TM
			3	0	0	3	25	75	100
(Common to B.A., B.SC., and BCA Branches)									
Prerequisite	French language in class 12 th								
Course Objectives	To introduce the basics of French language to the students								
	To enable the students to read, understand and write simple sentences								
	To help them to grasp the fundamentals of French grammar								
	To make the students to formulate correct phrases								
	To introduce them French and Francophone countries and their cultures								
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	have a general understanding of the language							K1
	CO2	analyze and interpret simple phrases written in French							K2
	CO3	have the basics of French grammar							K3
	CO4	communicate and ask basic questions in French language							K4
	CO5	appreciate the diversity and multiplicity of French and Francophone world							K5
UNIT-I	S'introduire					Periods:09			
	1. Le francais, les Francais, la France								
	2. Je m'appelle Elise, et vous ?								
	3. Saluer, se presenter, remercier								
	4. Vous dansez ? D'accord								
	5. Interroger quelqu'un et donner des informations								
UNIT-II	Demander des questions sur quelqu'un					Periods:09			
	1. Monica, Yokiko et compagnie								
	2. Dire ce qu'on l'aime								
	3. Les voisins de Sophie								
	4. Demander des informations sur quelqu'un								
UNIT-III	Expliquer quelque chose					Periods:09			
	1. Tu vas au Luxembourg ?								
	2. Dire où on va, dire d'où on vient								
	3. Nous venons pour l'inscription								
	4. A vélo, en train, en avion...								
	5. Expliquer un itinéraire, proposer quelque chose								
UNIT-IV	Poser des questions et commander					Periods:09			
	1. Pardon monsieur, le BHV s'il vous plait								
	2. Au marché								
	3. Acheter quelque chose, demander le prix								
	4. On déjeune ici ?								
	5. Aller au restaurant, comprendre un menu								
UNIT-V	Inviter et proposer quelque chose					Periods:09			
	1. On va chez ma copine ?								
	2. Proposer quelque chose								
	3. Demander et donner des informations sur quelqu'un								
	4. Chez Susana								
	5. Etre invité chez quelqu'un								
Lecture Periods: 45	Tutorial Periods:			Practical Periods:-			Total Periods: 45		
TextBooks	<i>Minutes of the Fourth Meeting of BoS (B.Sc. Nutrition and Dietetics)</i>								

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1. Sylvie Poisson Quinton and Michèle Maheo, *Festival 1 Méthode de Français*, CLE editions, 2009
2. Nathalie Hirschsprung and Tony Tricot, *Cosmopolite 1*, Hachette editions, 2017
3. Caroline Veltcheff and Stanley Hilton, *Preparation du Delf A1*, Hachette editions, 2011

ReferenceBooks

1. Régine Mérieux and Yves Loiseau, *Latitudes 1*, Didier editions, 2017
2. Annie Berthet and Emmanuelle Daili, *Alter Ego + A1*, Hachette editions, 2012
3. Bruno Giradeau, *Réussir le Delf A1*, Didier editions, 2019
4. Richard Lescure, *Delf A1 150 Activités*, Langers and CLE, 2005
5. Manisha Verma, *La grammaire élémentaire française*, Notion Press, 2010

Web References

1. <https://www.tv5monde.com>
2. <https://www.rfi.fr>
3. <https://www.lemonde.fr>
4. <https://www.frenchpodcasts.com>
5. <https://www.coursera.org>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (PO)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	3	3	3	3	3	3	3	3
2	3	3	3	3	2	3	3	3
3	3	3	3	3	3	3	2	3
4	2	3	2	2	3	3	3	3
5	3	3	3	3	3	3	3	3

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3
1	3	3	3	3	3	3	3	3
2	3	3	3	3	3	3	3	3
3	3	2	3	3	2	3	3	3
4	2	3	2	1	2	2	3	2
5	3	3	3	3	3	3	3	3

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Correlation Level

High	Moderate	Low
3	2	1

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10		5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

T. Javil

Department	Food Science		Programme: B.Sc Nutrition and Dietetics						
Semester	First		Course Category Code: DSC			*End Semester Exam Type: TE			
Course Code	A23NDT101D		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	NUTRITION SCIENCE - I		4	0	0	4	25	75	100
Prerequisite	Nutrients, Sources and Functions								
Course Objectives	Know the basic concepts and definitions related to Nutrition and Health.								
	Determine the Energy value of foods.								
	Understand the functions, sources and requirements of Carbohydrates.								
	Understand the functions, sources and requirements of Proteins.								
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Obtain the basic knowledge about Nutrition and its relation to health						K2	
	CO2	Understand the Energy value of foods and its utilization						K2	
	CO3	Obtain the in depth knowledge of Carbohydrate and its role in human health						K3	
	CO4	Obtain the in depth knowledge of Proteins and its role in human health						K3	
	CO5	Obtain the in depth knowledge of Fat and its role in human health						K3	
UNIT-I	Introduction					Periods: 12			
History of Nutrition, Concepts and definitions – Nutrition, Health, Nutrients, Macro and Micro Nutrients, Nutritional Status, Malnutrition – Under Nutrition, Over Nutrition, Imbalance, Specific Deficiency. Inter relationship between Nutrition and Health, Vicious Cycle, Virtuous Cycle. Reference Man and Women.								CO1	
UNIT-II	Energy					Periods: 12			
Energy Units, Direct and Indirect Calorimetry, Determination of Energy Value of Food (Bomb Calorimeter), Benedict's Oxy-Calorimeter. Total Energy requirement, Basal Metabolic Rate, Factors affecting BMR . Measurement of Basal Metabolism - Direct Calorimetry, Indirect Calorimetry, Thermic Effect of Food, Factors affecting TEF.								CO2	
UNIT-III	Carbohydrates					Periods: 12			
Composition, Properties, Classification, Functions, Sources & Requirements. Digestion and Absorption of carbohydrates. Dietary Fiber –Sources, Types and Functions of Dietary Fibre.								CO3	
UNIT-IV	Proteins					Periods: 12			
Composition, Classification, Functions, Sources & Requirements Nutritional Classification of Amino Acids, Digestion, Absorption and Deficiency - PEM: Types and Dietary Treatment. Factors affecting protein utilization , Methods of Protein Evaluation – PER, BV, NPU and NPR, chemical score.								CO4	
UNIT-V	Lipids					Periods: 12			
Composition, Classification, Functions, Sources & Requirements. Digestion, absorption and deficiency of lipids . Significance of SFA, MUFA, PUFA, & EFA								CO5	
Lecture Periods: 60		Tutorial Periods:		Practical Periods: -		Total Periods: 60			
<i>Minutes of the Fourth Meeting of BoS (B.Sc. Nutrition and Dietetics)</i>									

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Text Books

1. Roday. S, Food Science and Nutrition, OUP India, II Edition, 2012.
2. Yadav.S, Textbook of Nutrition and Health, Anmol Publishers 2002.
3. Smolin.A, Grosvenor, M.B, Basic Nutrition, Infobase Publishing, 2009.

Reference Books

1. Whitney. E, Rolfes R.S, Understanding Nutrition, Cengage Learning, 2010.
2. Robinson, C.H, Marilyn Lawler. M Normal and Therapeutic Nutrition Paperback Macmillan USA; XVII Revised edition 1990.
3. Schlenker. E, Roth S.L, WILLIAM'S Essentials of Nutrition and Diet Therapy, Mosby Publishers, X Edition, 2010.
4. Dietary Guidelines for Indians, ICMR, National Institute of Nutrition, Hyderabad, 2011.
5. Gordon M. Wardlaw, Paul M.Insel, Perspectives in nutrition 11th edition, Mosby- year Book, Inc. St. Louis ,Missouri, 2019
6. Krause, M.V. and Hunesher, M.A., Food, Nutrition and Diet Therapy, 14th Edition, W.B. Saunders Company, Philadelphia, London, 2016.

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1. <https://www.open.edu/openlearncreate/mod/oucontent/view.php?id=315&printable=1>
2. <https://mynutrition.wsu.edu/nutrition-basics>
3. <https://www.getsmarter.com/blog/market-trends/what-are-macronutrients-and-micronutrients/>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	3	2	2	1	2	2	1	2
2	2	-	1	1	2	2	2	3
3	3	3	3	2	3	3	3	2
4	3	3	3	2	3	3	3	2
5	3	3	3	2	3	3	3	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Minutes of the Fourth Meeting of BoS (B.Sc. Nutrition and Dietetics)

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Department	Food Science	Programme: B.Sc Nutrition and Dietetics						
Semester	First	Course Category Code: DSC			*End Semester Exam Type: TE			
Course Code	A23NDT102D	Periods / Week			Credit	Maximum Marks		
		L	T	P	C	CAM	ESE	TM
Course Name	FOOD SCIENCE	4	0	0	4	25	75	100
Prerequisite	Basic Food Groups, cooking methods, effects of cooking.							
Course Objectives	1. Know about the principles and chemistry of foods.							
	2. Understand the food chemistry of Cereals & Pulses.							
	3. Understand the food chemistry of fats, nuts and condiments.							
	4. Understand the food chemistry of vegetables, fruits and beverages.							
	5. Understand the food chemistry of animal foods.							
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)
	CO1	Obtain the knowledge in making food choices and obtaining an adequate diet.						K3
	CO2	Obtain an insight into the composition, structure and nutritive value of Cereals & Pulses.						K3
	CO3	Obtain an insight into the composition, structure and nutritive value of fats, nuts and condiments.						K3
	CO4	Gain knowledge about the role of vegetables, fruits and beverages.						K3
	CO5	Get acquainted with the detailed chemistry of animal foods .						K3
UNIT-I	Introduction of Food Groups and Cooking Methods				Periods: 12			
Foods, Classification, Functions, Food groups, Balanced Food, Food pyramid, My plate Cooking- Objectives of Cooking, Preliminary preparation, cooking methods, Dry heat, Moist heat, Merits and Demerits.								CO1
UNIT-II	Cereals and Pulses				Periods: 12			
Cereals – Structure, Composition and Nutritive value, cooking quality of cereals, functional properties – gelatinization, dextrinization, Cereal cookery .								CO2
Pulses- Composition and Nutritive value, Processing(brief) – Decortication, Germination, Fermentation, Factors affecting cooking quality of pulses, functional properties - binding, gelation, emulsification, foaming and viscosity, Presence of toxic constituents, Pulse cookery.								
UNIT-III	Fats And Oils, Nuts and Oilseeds, Spices and Condiments				Periods: 12			
Fats & Oils - Composition and Nutritive value of fats, Types, Shortening of fats, Effect of heat on oil absorption and factors affecting absorption of oil, Role of fats/oil in cookery.								CO3
Nuts and Oil seeds- Composition and Nutritive value, Nuts and oil seeds cookery.								
Spices and Condiments: Medicinal value , uses in cookery.								
UNIT-IV	Vegetables And Fruits, Sugars and Beverages				Periods: 12			
Vegetables - Classification, Composition and Nutritive Value, Selection, Pigments, enzymes and flavour compounds.								CO4
Fruits - Classification, Composition and Nutritive Value, post-harvest change, enzymatic and non-enzymatic browning, Ripening of Fruits, Pectic substances and different types of plant pigments- water and fat soluble pigments.								
Sugars - Properties, Stages of sugar cookery								
Beverages – Classification – Millet based, Milk based, Fruit based and carbonated beverages.								
UNIT-V	Milk and Animal foods				Periods: 12			

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<p>Milk – Composition and Properties of milk, Nutritive Value, effect of heat, acid and enzymes, Processing, Milk Products, Types, Role of milk and milk products in cookery .</p> <p>Egg- Structure, Composition and Nutritive Value, Quality of eggs, Egg cookery, Role of eggs in cookery.</p> <p>Fleshy Foods- Composition and Nutritive value of meat, Selection of meat, Post mortem changes in meat, . Ageing of meat, Tendering Meat.</p> <p>Poultry - Classification, Processing, Composition and Nutritive value, Fish - Classification, Composition, Selection, Fish cookery, Spoilage, Preservation and storage.</p>	CO5
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Lecture Periods: 60 **Tutorial Periods:** **Practical Periods: -** **Total Periods: 60**

Text Books

1. Srilakshmi. B. Food Science, New Age International Pvt Ltd Publishers, 3rd Edition, 2005.
2. Shakuntala Manay, Shadaksharaswamy. M Foods, Facts and Principles, New Age International Pvt Ltd Publishers, Sixth Edition, 2015.
3. Usha Chandrasekhar, Food Science and Application in Indian Cookery, Phoenix Publishing House P. Ltd., New Delhi, 2002.
4. Food science, Chemistry and Experimental foods by M. Swaminathan.
5. Swaminathan, M. : Hand Book of Food Science and Experimental Food

Reference Books

1. Brow, A., Understanding Food, Thomson Learning Publications, Wadsworth, 2000.
2. Mehas, K.Y. and Rodgers, S.L. Food Science and You, McMillan McGraw Company, New York, 2000.
3. Parker, R. Introduction to food Science, Delmer, Thomson Learning Co., Delma, 2000.

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1. <https://www.futurelearn.com/info/courses/eating-while-enjoying-life/0/steps/75494>
2. <http://www.iea.usp.br/midiateca/apresentacao/singhbiofuels2.pdf>
3. <https://www.hsph.harvard.edu/nutritionsource/legumes-pulses/>
4. <https://www.heartuk.org.uk/low-cholesterol-foods/fats-and-oils>
5. <https://www.embibe.com/exams/spices-and-condiments/>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	3	2	2	1	2	2	1	2
2	2	-	1	1	2	2	2	3
3	3	3	3	2	3	3	3	2
4	3	3	3	2	3	3	3	2
5	3	3	3	2	3	3	3	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Assessment Pattern as per Bloom's Taxonomy

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Test / Bloom's Category*	Remembering (K1) %	Understanding (K2) %	Applying (K3) %	Analyzing (K4) %	Evaluating (K5) %	Creating (K6) %	Total %
CAT1	10	20	70	-	-	-	100
CAT2	10	20	70	-	-	-	100
ESE	10	30	60	-	-	-	100
* ±3% may be varied							

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	5	5	5	5	75	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

T. Javil

Department	Chemistry		Programme: B.Sc Nutrition and Dietetics						
Semester	First		Course Category Code: IDC			*End Semester Exam Type: TE			
Course Code	A23CHD102D		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	BASIC CHEMISTRY FOR FOOD SCIENCE		4	0	0	4	25	75	100
Prerequisite	Basic Food Chemistry								
Course Objectives	<ul style="list-style-type: none"> • Make the student to know about the structure of atom and chemical bonding. • Learn the basic concepts of acids, base and salts. • Study the underlying concepts of chemistry of Carbohydrates . • Understand the basic chemistry of Proteins. • Understand the chemistry of Fats, Plant Pigments. 								
	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	Course Outcome	CO1	Recognize the structure of atom and chemical bonding						K3
		CO2	Obtain an insight into the concepts of acids, base and salts.						K3
		CO3	Acquire underlying concepts of chemistry of Carbohydrates						K3
CO4		Gain knowledge about the role of Chemistry of Protein						K3	
CO5		Determine the physical and chemical properties of fats, plant pigments and pectic substances						K3	
UNIT-I	Colloidal System in Foods				Periods: 12				
Colloidal system in foods – meaning, types, properties. Sols – meaning, types, properties: gels – meaning, type, properties, theory of gel formation, factors influencing gel formation.								CO1	
UNIT-II	Acids, Bases and Salts				Periods: 12				
General concept of acids, bases and salts, conjugate acids and bases, Classification of salts, Hydrolysis of salts, pH, and Buffer solution. Equivalent weight of acids bases and salts neutralization, Acid - Base indicators, Molar solution, Normal solution and Formula solution.								CO2	
UNIT-III	Chemistry of Carbohydrate				Periods: 12				
Classification , Preparation and reactions of glucose and fructose. Discussion of open and ring structure of glucose, mutarotation. Inter conversion of glucose to fructose and vice versa-properties of sucrose Properties of Starch, cellulose and derivatives of cellulose.								CO3	
UNIT-IV	Chemistry of Proteins				Periods: 12				
Amino acids-classification, preparation and properties of alpha amino acids- Preparation of dipeptide using Bergman method Proteins-classification according to composition- biological functions and shape- Nucleic acids- Elementary idea of DNA and RNA.								CO4	
UNIT-V	Chemistry of Fats				Periods: 12				
Lipids - Fatty acids and triglycerides, Phospholipids, Physical and Chemical Properties of Fats and Oils, Lipid oxidation -Rancidity, hydrolytic and oxidative Hydrogenation - mechanisms and catalysts.								CO5	
Lecture Periods: 60		Tutorial Periods:		Practical Periods: -		Total Periods: 60			

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Text Books

1. Basic Principles of practical Chemistry Venkateswaran, Veerasamy&Kulandaivel, S.Chand& co.
2. ShakuntalaManay, Shadaksharaswamy. M (2000) Foods, Facts and Principles, New Age InternationalPvtLtd Publishers, 2nd Edition.
3. Chandrasekhar, U. Food Science and applications in Indian Cookery (2002) Phoenix Publishing House, New Delhi.
4. Swaminathan, M. Food Science, (2005) Chemistry and Experimental Foods, Bappco Publishers, Bangalore. Reference Books 1. Meyer, L.H, Food Chemistry, (2004) CBS Publishers and Distributors,4th edition 2. Paul, P.C. and Palmer, H.H. Food Theory and Applications(2000) JohnWiley and Sons,New York, (Revised Edition) .
5. Chopra H.K, Panesar, P.S, Food Chemistry (2010) Narosa Publishing House, New Delhi.

Reference Books

1. Srilakshmi, B. Food Science, New Age International Publishers, New Delhi, 2010.
2. Brow, A., Understanding Food, Thomson Learning Publications, Wadsworth, 2000.
3. Parker, R. Introduction to food Science, Delmer, Thomson Learning Co., Delma, 2000.

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1. <https://medcraveonline.com/AOWMC/biochemical-functions-of-micronutrients.html>
2. https://chem.libretexts.org/Courses/Brevard_College/CHE_301_Biochemistry/07%3A_Nutrition/7.0%3A_Nutrients
3. <https://www.sciencedirect.com/topics/chemistry/macronutrient>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	2	1	-	1	1	1	-	2
2	2	1	-	1	1	1	-	2
3	2	2	3	2	3	2	3	1
4	2	2	3	2	3	2	3	1
5	2	2	3	2	3	2	3	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	10	5	5	5	5	75	100

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Department	Food Science		Programme: B.Sc Nutrition and Dietetics						
Semester	First		Course Category Code: DSC			*End Semester Exam Type: LE			
Course Code	A23NDL101D		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	FOOD SCIENCE PRACTICAL		0	0	4	2	50	50	100
Prerequisite	Cooking Methods and Functional Properties of foods								
Course Objectives	To enable the students to								
	1.	To enable the students to understand the composition and chemistry of foods in relation to food preparation							
	2.	To use appropriate methods of cooking for preparation of specific food products.							
	3.	To study the factors influencing the cooking quality of different foods.							
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Identify suitable food groups for developing products						K3	
	CO2	Acquire knowledge on the food groups and factors influencing the changes in different cooking methods.						K3	
	CO3	Develop skills on various cooking methods and medium of cooking.						K3	
Experiments							Practicals - 30 hrs		
1. Familiarization with different kitchen gadgets. 2. Methods of measuring dry ingredients and liquids. 3. Cereals and cereal cookery <ul style="list-style-type: none"> Preparation of cereal products using Rice, Wheat, Ragi, Thinai, Samai, Varagu etc. Experimental cookery on cereals. 4. Pulse Cookery <ul style="list-style-type: none"> Pulse based recipes Experimental cookery 5. Vegetables and Fruits <ul style="list-style-type: none"> Effect of cooking on vegetables pigments. Preparation of vegetable curries, and fruits salad. 6. Milk Cookery <ul style="list-style-type: none"> Preparation of ice creams and milk Products 7. Egg Preparation of <ul style="list-style-type: none"> Scrambled egg. Poached egg Omelette and Experimental cookery. 									
Text Books									
1. Shakuntala Manay, Shadaksharaswamy. M (2000) Foods, Facts and Principles, New Age International Pvt Ltd Publishers, 2nd Edition									
2. Chandrasekhar, U. Food Science and applications in Indian Cookery (2002) Phoenix Publishing House, New Delhi									
Reference Books									
1. Hmacfie, (2007). Consumer led food Product Development, Weedhead publishing Ltd., UK									
2. Fuller, Gordon, W(2005). New Food Product Development, 2 nd edition, CRC press, Boca, Raton, Florida,									
3. Schaffner. D,J, Schroder, W.R.(2010). Food Marketing and International perspectives, web/ Mc Graw Hill Publication.									
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<https://www.foodresearchlab.com/what-we-do/new-product-development-service/new-food-product-development/>
<https://www.foodresearchlab.com/what-we-do/new-product-development-service/>
<https://www.sciencedirect.com/book/9781845697228/food-product-development>
http://niftem-t.ac.in/food_product_development.php

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	2	2	2	-	3	3	2	3
2	3	3	3	2	3	3	3	2
3	3	3	3	2	3	3	3	2
4	3	3	3	2	3	3	3	2
5	3	3	3	2	3	3	3	2

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Internal Assessment	Internal marks			ESE MARKS	TOTAL MARKS
	Model exam	Record	Attendance		
Marks	30	10	10	50	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

T. Javil

Department	Food Science		Programme: B.Sc Nutrition and Dietetics						
Semester	First		Course Category Code: DSC			*End Semester Exam Type: LE			
Course Code	A23CHI102D		Periods / Week			Credit	Maximum Marks		
			L	T	P	C	CAM	ESE	TM
Course Name	BASIC CHEMISTRY FOR FOOD SCIENCE PRACTICAL		0	0	4	2	50	50	100
Prerequisite	Food Chemistry								
Course Objectives	To enable the students to								
	1.	To identify the functional groups of unknown organic compounds.							
	2.	To know the elements present in the compounds							
	3.	To realize the nature of aliphatic / aromatic compounds							
	4.	To visualize confirmatory tests of various functional groups							
Course Outcome	On completion of the course, the students will be able to							BT Mapping (Highest Level)	
	CO1	Detect various functional groups present in an organic compound						K3	
	CO2	Understand about saturation and unsaturation nature of compounds						K3	
	CO3	Identify aliphatic and aromatic compounds						K3	
	CO4	Visualize confirmatory tests of various functional groups						K3	
Experiments							Practicals - 30 hrs		
<p>ORGANIC ANALYSIS</p> <ol style="list-style-type: none"> 1. Preliminary tests 2. Detection of special Elements (N,S, Halogens) 3. To distinguish between aliphatic and aromatic compounds. 4. To distinguish between Saturated and unsaturated compounds. 5. Functional group tests for phenol, acids (mono, di) aromatic primary amine, aliphatic amide & Carbohydrate Glucose. Systematic analysis of organic compounds containing one functional group and characterization by confirmatory test. 									
Text Books									
<ol style="list-style-type: none"> 1. Rageeb Md. Usman, Dr.Sunila T, "Practical Hand Book of Systematic Organic Qualitative Analysis", Unicorn Publication Pvt. Ltd, 1st Edition, 2015. 2. Israel Arthur Vogel, "Vogel's Textbook of Practical Organic Chemistry", Wiley Edition: 1st Edition, 1989. 3. Arthur Israel Vogel, "Elementary Practical Organic Chemistry" Prentice Hall Press; 3rd Edition, 1980. 									
Reference Books									




1. Venkateswaran. V, Veeraswamy. R, Kulandaivelu. A.R., "Basic Principles of Practical Chemistry", New Delhi, Sultan Chand and Sons. 2nd Edition, 1997.
2. Mendham. J, Denney. R.C, Bames. J.D, and Thomas, M. "Vogel's Text book of Quantitative Analysis", Pearson Education, 1st Edition, 1989.
3. Gopalan.R, Subramaniam.P.S and Rengarajan.K, "Elements of Analytical Chemistry", Sultan Chand and Sons, 1st Edition, 2004.

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1. https://assets.cambridge.org/97805212/91125/frontmatter/9780521291125_frontmatter.pdf
2. https://www.csub.edu/chemistry/organic/manual/Lab14_QuantitativeAnalysis.pdf
3. <http://rushim.ru/books/praktikum/Mann.pdf>

* TE – Theory Exam, LE – Lab Exam

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3
1	2	1	-	1	1	1	-	2
2	2	1	-	1	1	1	-	2
3	2	2	3	2	3	2	3	1
4	2	2	3	2	3	2	3	1
5	2	2	3	2	3	2	3	1

Correlation Level: 1 - Low, 2 - Medium, 3 – High

Evaluation Method

Internal Assessment	Internal marks			ESE MARKS	TOTAL MARKS
	Model exam	Record	Attendance		
Marks	30	10	10	50	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

Minutes of the Fourth Meeting of BoS (B.Sc. Nutrition and Dietetics)

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Department	ENGLISH	Programme: BSc.Nutrition and Dietetics						
Semester	FIRST	Course Category Code: SEC	End Semester Exam Type : -					
Course Code	A23ENSA02C	Periods / Week			Credit	Maximum Marks		
Course Name	SOFT SKILLS	L	T	P	C	CAM	ESE	TM
		2	0	0	2	100	0	100
Prerequisite	Knowledge gained from Journal reading and Newspaper reading							
Course Objectives	To train students in Soft skills in order to enable them to be professionally competent							
	To facilitate the students for Goal setting and Goal Achieving skills							
	To enrich the sense of social responsibility and accountability of the students							
	To help the students to train them for Stress Management and Time Management							
	To train the students to work with team environment and Creative thinking							
Course Outcomes	On completion of the course, the students will be able to							BT Mapping (Highest Level)
	CO1	enhance the Soft skills and compete professionally						K3
	CO2	achieve Goal setting and Goal Achieving skills						K3
	CO3	improve their social responsibility and accountability skills						K3
	CO4	enrich Stress Management and Time Management						K3
	CO5	demonstrate the quality of a Team ship and Creative thinking						K3
UNIT-I	POSITIVE ATTITUDE				Periods: 06			
Skills-Personal Skills: Knowing Oneself/Self-Discovery - Confidence Building - Defining Strengths of Attitude - formation of attitudes - psychological factors - the power of positive attitude - the benefits of positive attitude – developing positive attitude - negative attitude – the causes of negative attitude - the consequences of negative attitude - how to change negative attitude								CO1
UNIT-II	GOAL SETTING				Periods: 06			
Introduction - importance of goal setting - goal definition - types of goals - what exactly goal setting - why people don't set goals - how to choose the right goals - SMART GOALS - Career goals - benefits of career goal setting - goal setting tips								CO2
UNIT-III	STRESS AND TIME MANAGEMENT				Periods: 06			
Definition of Stress management - types of stress - causes of stress - stress management and reduction techniques - Definition of Time management - Setting goals, planning – prioritizing - setting deadlines - multi-tasking - practicing self-discipline - overcoming procrastination								CO3
UNIT-IV	TEAMWORK SKILLS				Periods: 06			
Communication as Social Construction - Dynamics of professional Group communication - Group and Team - Team Building Process - Managing conflict and appreciating/respecting differences - Decision making & effective negotiation - Types of teams - Understanding, Identity and nurturing sensitivity (in terms of gender, orientation, language)								CO4
UNIT-V	PROBLEM SOLVING THROUGH CREATIVE THINKING				Periods: 06			
Thinking Creatively - Improving Perceptions - Creative thinking as an essential skill - Techniques of creative thinking (such as brainstorming, lateral thinking, mind mapping, rich pictures, role play) - Practical problem solving through creative thinking - Case Study								CO5
Lecture Periods: -		Tutorial Periods: -		Practical Periods: 30		Total Periods: 30		
Text Books								

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1. Sabina Pillai, Agna Fernandez, *Soft Skills and Employability Skills*, Cambridge University Press, 2017.
2. Jeff Butterfield, *Soft Skills for Everyone*, Cengage India Private Limited, 2nd Edition, 2020.
3. Alex K, *Soft Skills*, S Chand & Company, 1st Edition, 2014.

Reference Books

1. Barun Mitra, *Personality Development and Soft Skills 2*, Oxford University Press, 2016.
2. Prashant Sharma, *Soft Skills 3rd Edition: Personality Development for Life Success*, BPB Publications, 2021.
3. Ghosh, B.N, *Managing Soft Skills for Personality Development*, Tata McGraw Education Publication, 1st Edition, 2012.
4. R.S.Aggarwal. *A Modern Approach to Non-Verbal*. S Chand Publication. 2017.
5. K. K. Sinha, *Business Communication*, Galgotia Publishing, 4th Edition, 2011.

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1. <https://www.mindtools.com/a5ykiug/personal-goal-setting>
2. <https://www.healthlinkbc.ca/health-topics/stress-management-managing-your-time>
3. <https://www.herzing.edu/blog/7-important-teamwork-skills-you-need-school-and-your-career>
4. <https://online.hbs.edu/blog/post/what-is-creative-problem-solving>
5. <https://www.lucidchart.com/blog/7-steps-to-creating-better-goals>

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)					Program Specific Outcomes (PSOs)		
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3
1	1	3	3	1	1	1	3	3
2	3	3	3	1	1	1	3	2
3	3	3	3	1	2	1	3	3
4	3	3	3	1	2	1	3	1
5	3	3	3	1	3	1	3	3

Correlation Level

High	Moderate	Low
3	2	1

Evaluation Method

Assessment	Continuous Assessment Marks (CAM)					End Semester Examination (ESE) Marks	Total Marks
	CAT 1	CAT 2	Model Exam	Assignment*	Attendance		
Marks	80		-	10	10	-	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

T. Javil

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Department	Food Science		Programme: B.Sc Nutrition and Dietetics							
Semester	I		Course Category Code: AEC			*End Semester Exam Type: TE				
Course Code	A23AETA01C		Periods / Week			Credit	Maximum Marks			
			L	T	P	C	CAM	ESE	TM	
Course Name	Public Administration		2	0	0	1	100	0	100	
	(Common to B.Sc, BCA, B.Com, BBA, BA Branches)									
Prerequisite	Knowledge about Administration									
Course Objectives	The main objectives of the course are,									
	To introduce the elements of public administration									
	To help the students obtain a suitable conceptual perspective of public administration									
	To introduce them the growth of institution devices to meet the need of changing times									
Course Outcome	To instill and emphasize the need of ethical seriousness in contemporary Indian Public Administration									
	On completion of the course, the students will be able to							BT Mapping (Highest Level)		
	CO1	Understand the concepts and evolution of Public Administration.							K2	
	CO2	Be aware of what is happening in the Public Administration in the country.							K1	
	CO3	Explain the Territory Administration in the State and the Centre.							K2	
CO4	Appreciate emerging issues in Indian Public Administration.							K3		
UNIT-I	INTRODUCTION TO PUBLIC ADMINISTRATION					Periods: 07				
	Meaning, nature and Scope of Public Administration and its relationship with other disciplines- Evolution of Public Administration as a discipline — Woodrow Wilson, Henry Fayol , Max Weber and others - Evolution of Public Administration in India – Arthashastra – Colonial Administration upto 1947								CO1	
UNIT-II	PUBLIC ADMINISTRATION IN INDIA					Periods: 08				
	Enactment of Indian Constitution - Union Government – The Cabinet – Central Secretariat — All India Services – Training of Civil Servants – UPSC – NitiAyog – Statutory Bodies: The Central Vigilance Commission – CBI - National Human Rights Commission – National Women’s Commission –CAG								CO2	
UNIT-III	STATE AND UNION TERRITORY ADMINISTRATION					Periods: 08				
	Differential Administrative systems in Union Territories compared to States Organization of Secretariat: - Position of Chief Secretary, Functions and Structure of Departments, Directorates – Ministry of Home Affairs supervision of Union Territory Administration – Position of Lt.Governor in UT – Government of Union Territories Act 1963 – Changing trend in UT Administration in Puducherry and Andaman and Nicobar Island.								CO3	
UNIT-IV	EMERGING ISSUES IN INDIAN PUBLIC ADMINISTRATION					Periods: 07				
	Changing Role of District Collector – Civil Servants – Politicians relationship – Citizens Charter - Public Grievance Redressal mechanisms — The RTI Act 2005 – Social Auditing and Decentralization – Public Private partnership.								CO4	
Lecture Periods: 30			Tutorial Periods: -			Practical Periods: -		Total Periods:30		
Text Books ((Minimum 2 and maximum 3 – Latest editions to be given) <i>Minutes of the Fourth Meeting of BoS (B.Sc. Nutrition and Dietetics)</i>										

T. Javil



1. Avasthi and Maheswari, "Public Administration", Lakshmi Narain Agarwal, 1st Edition, 2016.
2. Ramesh K.Arora, "Indian Public Administration: Institutions and Issues", New Age International Publishers, 3rd Edition, 2012.
3. Rumki Basu, "Public Administration: Concept and Theories", Sterling, 1st Edition, 2013.

Reference Books (Minimum 5– Latest editions to be given)

1. Siuli Sarkar, "Public Administration in India", Prentice Hall of India, 2nd Edition, 2018.
2. M. Laxmikanth, "Public Administration", McGraw Hill Education, 1st Edition, 2011.
3. R.B.Jain, "Public Administration in India, 21st Century Challenges for Good Governance", Deep and Deep Publications, 2002.

Web References (Minimum 5)

1. <http://cic.gov.in/>
2. <http://www.mha.nic.in/>
3. <http://rti.gov.in/>
4. <http://www.cvc.nic.in/>

* TE – Theory Exam, LE – Lab Exam

Evaluation Method

Marks Distribution	Assessment			ESE MARKS	TOTAL MARKS
	CAT I & CAT II	Report	Attendance		
	70	20	10	-	100

* Application oriented / Problem solving / Design / Analytical in content beyond the syllabus

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A23XCXXD	CERTIFICATION COURSES	L	T	P	C	Hrs
		0	0	4	0	40

Students shall choose an International certification course offered by the reputed organizations like Google, Microsoft, Information Technology Specialist, Project Management Institute, Adobe, CISCO Networking Academy, AWS Academy, Tally and Autodesk, Eplan, etc. The duration of the course is 40 hours specified in the curriculum, which will be offered through Centre of Excellence.

Pass /Fail will be determined on the basis of participation, attendance, performance and completion of the course.

If a candidate Fails, he/she has to repeat the course in the subsequent years. Pass in this course is mandatory for the award of degree.

T. Javil

