

VANITA VISHRAM WOMEN'S UNIVERSITY
SCHOOL OF SCIENCE AND TECHNOLOGY
FACULTY OF SCIENCE
DEPARTMENT OF FOOD AND NUTRITION



VANITA VISHRAM
WOMEN'S UNIVERSITY
— SURAT —

BACHELOR OF SCIENCE
(B.Sc.) HONOURS FOOD AND NUTRITION PROGRAMME
under Learning Outcomes-based Curriculum Framework (LOCF)
for UnderGraduate (UG) Education

Core Courses (CC), Skill Enhancement Courses (SEC),
Department Elective Courses (DE)

Course Structure is applicable to the students seeking admission in the following programmes
B.Sc. Food and Nutrition under LOCF

SEMESTER IV
Core Courses (CC)w.e.f. the Academic Year 2023-2024

1. Preamble – VVWU

Vanita Vishram Women's University (VVWU) is the First-ever Women's University of Gujarat approved by the Government of Gujarat under the provisions of the Gujarat Private Universities Act, 2009. It is a University committed to achieve Women's Empowerment through Quality Education, Skill Development, and by providing employment opportunities to its girl students through its model curriculum, integration of technology in pedagogy and best-in-class infrastructure. The focus is on prioritizing practical components and experiential learning supported through academia-industry linkages, functional MoUs, skill development training, internships etc. It aims at providing opportunities to the girl students for holistic development and self-reliance.

VISION

Empowerment of women through quality education and skill development, so as to make them strong pillars of stability in society.

MISSION

To provide Education & Professional Training to all women for their all-round development, so as to enable them to become economically independent and socially empowered citizens.

2. Introduction of the Programme

It is a three-year undergraduate course offered after completion of 10+2 schooling. The course aims to provide broad and balanced knowledge of Food and Nutrition in addition to an understanding of key chemical concepts, principles and theories. It will provide knowledge and skill to the students' thus enabling them to undertake further studies in Food and Nutrition, in related areas or multidisciplinary areas that can be helpful for self-employment/entrepreneurship. The course is designed to provide intellectual and laboratory skills according to the UGC module for CHOICE-BASED CREDIT SYSTEM (CBCS) pertaining to B.Sc. Food and Nutrition (Honours).

3. Programme Specific Objectives (PSOs)

- To provide knowledge of Food and Nutrition with board and balanced aspects
- Development of laboratory analysis skills.
- To develop critical thinking approaches for problem-solving.
- To provide skill base training to hold out in the current competitive environment.
- Multidisciplinary approach for overall development.

4. Programme Specific Outcomes (PSOs)

- Identifying Food and Nutrition related problems, analysis and application of data using appropriate methodologies.
- Finding opportunity to apply subject-related skills for acquiring jobs and self-employment.
- Understanding new frontiers of knowledge in Food and Nutrition for professional development.
- Applying subject knowledge for solving societal problems related to application of Food and Nutrition in day to day life.
- Applying subject knowledge for sustainable environment friendly green initiatives.

5. B.Sc. Food and Nutrition Programme

Semester	Subjects	Core Course	Credits	Total
SEMESTER-1	Nutrition Science	FN11010 Fundamentals of Food and Health (Th)-2 FN11020 Principles of Macronutrients (Th)-2 FN11030 Applied Science (Pr)- 2	6	24
	Clinical Dietetics	FN11040 Basic Dietetics (Th)-2 FN11050 Human Physiology -I (Th)- 2 FN11060 Food Laboratory (Pr)- 2	6	
	Food Science	FN11070 Food Hazards & Prevention (Th)-2 FN11080 Essential of Food Science (Th)-2 FN11090 Basic Food Chemistry (Pr)- 2	6	
	AECC	EN12010 English Communication-I BT12010 Environmental Studies-I	2 2	
	Elective	BT31090 Biotechnology for Human Welfare (Th)-2 CH31090 Biochemistry-I (Th)-2 FN31020 Food Safety and Hygiene (Th)-2 PH32080 Physics in Everyday Life-I (Th)-2 BO31010 Microbes, Algae, Fungi and Archegonite (Th)-2	2	
SEMESTER-2	Nutrition Science	FN11100 Life Cycle Nutrition (Th)-2 FN11110 Principle of Micronutrients (Th)-2 FN11120 Family Meal Management (Pr)- 2	6	24
	Clinical Dietetics	FN11130 Nutrition in Physical Fitness (Th)-2 FN11140 Human Physiology -II (Th)-2 FN11150 Assessment of Nutritional Status (Pr)- 2	6	
	Food Science	FN11160 Advance Food Science (Th)-2 FN11170 Food Adulteration and Legislation (Th)-2 FN11180 Food Preservation and Processing (Pr)- 2	6	
	AECC	EN12020 English Communication-II BT12020 Environmental Studies-II	2 2	
	Elective	BT31100 Basics of Human Embryology (Th)-2/ CH31100 Biochemistry-II (Th)-2/ BO31020 Botany for Human Welfare (Th)-2/ FN31030 Food Standards and Laws (Th)-2/ PH31100 Physics in Everyday Life II (Th)-2	2	
SEMESTER-3	Nutrition Science	FN11190 Food Microbiology-I (Th)-2 FN11200 Food Psychology (Th)-2 FN11210 Food Fortification (Th)-2 FN11220 Sensory Evaluation (Pr)- 3	9	24
	Clinical Dietetics	FN11230 Maternal and Child Nutrition (Th)-2 FN11240 Malnutrition in Children (Th)-2 FN11250 Nutrition in GI Disorders (Th)-2 FN11260 Maternal Counseling (Pr)-3	9	
	SEC	FN14010 Nutrition Instrumentation(Th)-2 FN14020 Food Instrumentation (Th)-2	4	
	Department Elective	FN15010 Growth and Development (Th)-2 / FN15020 Mass Media and Extension (Th)-2 (Certificate Course (30 Hrs)*/ In House or Outside Training (30 Hrs)/ Student Exchange Program)	2	
SEMESTER-4	Nutrition Science	FN11270 Geriatric Nutrition (Th)-2 FN11280 Food Entrepreneurship (Th)-2 FN11290 Diet for Communicable Diseases (Th)-2 FN11300 Food Craft(Pr)-3	9	

	Clinical Dietetics	FN11310 Special Feeding Methods(Th) - 2 FN11320 Diet for Non-Communicable Diseases(Th) - 2 FN11330 Nutrition in Critical Care (Th)- 2 FN11340 Hospital Diets(Pr)- 3	9	24
	SEC	FN14030 Food Tourism(Th) -2 FN14040 Ayurveda and Nutrition(Th) - 2	4	
	Department Elective	FN15030 Food Packaging and Marketing (Th) -2 or FN15040 Professional Applications in Food Science and Nutrition- Department Elective-2 (Certificate Course (30 Hrs)*/ In House or Outside Training (30 Hrs)/ Student Exchange Program)	2	
SEMESTER-5	Nutrition Science	FN11350 Nutritional Biochemistry-I (Th) - 2 FN11360 Food microbiology- II (Th) - 2 FN11370 Nutrition Programme Management(Th) - 2 FN11380 Food Service Management (Th) - 2 FN11390 Food Security (Th) - 2 FN11400 Nutrition Education and Extension (Th) - 2 FN11410 Diet Therapy (Pr) - 3 FN11420 Food Analysis (Pr)- 3	18	24
	Department Elective	FN15050 Nutrition Updates (Th)-2 FN15060 Dietetics Techniques (Th)-2 FN15070 Nutritional Biochemistry (Pr)-2	6	
SEMESTER-6	Nutrition Science	Core Course-XVII (Credit-2) Core Course-XVIII (Credit-2) Core Course-XIX (Credit-2) Core Course-XX (Credit-2) Core Course Lab-VI (Credit-4)	12	24
	Department Elective	Department Elective-5 (Credit-2) Department Elective-5 Practical (Credit-1) Selections would be made from the two subjects offered Department Elective-6 (Credit-2) Department Elective-6 Practical (Credit-1) Selections would be made from the two subjects offered	6	
		Project Work/ Training (90 Hrs)/ Internship (2 Weeks)	6	
SEMESTER-7	Nutrition Science	Core Course-XXI (Credit-4) Core Course Lab-7 (Credit=2)	6	22
	Research Specific Elective	Research Methodology (Credit-2) Research Area Specific Elective-I (Credit- 2)	4	
	Research Component	Dissertation (Credit-9) Seminar (Credit-1) Research Article Writing (Credit-2)**	12	
SEMESTER-8	Nutrition Science	Core Course-XXII (Credit-4) Core Course Lab-8 (Credit=2)	6	22
	Research Specific Elective	Data Analysis Course (Credit-2) Research Area Specific Elective-II (Credit- 2)	4	
	Research Component	Dissertation (Credit-9) Seminar (Credit-1) Research Paper Presentation in Seminar or Conference (Credit-2)	12	
Total				188

Note:

1. Course structures are to be passed year by year with necessary changes from the respective board of studies.
2. Students will have an exit option at the end of the Semester-6 and she will be awarded with the regular B.Sc Degree (Non-Honours).
3. Course structure of Semester-7 & 8 will require rigorous analysis before implementation in terms of academic requirements, finance and implementation challenges.
4. Subjects suggested above are examples of how subjects can be offered.
5. *Certificate Course may be in Online/Offline or in blended mode.
6. **Research Article Writing comprises articles submitted to the supervisor. Suggestive
7. Notes for the implementation of NEP 2020:
 - a. ● As per Government guidelines, yet we can implement NCC/NSS/ Saptdhara/ Physical Training as 2 Credit component in each semester and incorporate it in the Course Curriculum
 - b. ● Students with CGPA > 7.5 at the end of Semester-6 will only become eligible to go for B.Sc (Honours) Program (Research Track) in Semester-7. Rest of the students will be awarded traditional B.Sc Degree at the end of Semester-6

BACHELOR IN FOOD AND NUTRITION
SEMESTER IV
CORE COURSE

FN11270 - Geriatric Nutrition (Th)	
Course Objectives This course will enable students to:	
<ul style="list-style-type: none"> ● Thorough knowledge on the nutritional requirements at old age. ● Effective understanding of diet planning principles and nutritional facts for balanced and healthy diet during old age. ● Gain knowledge on the aspects of aging and the importance of the nutritional requirements and dietary modification during old age. 	
Course Outcome: This course will help the students to improve the quality of life of elderly people, by understanding their physiological aspects and nutritional needs.	
FN11270-THEORY COURSE CONTENTS (2 Credits)	
S.No	STRUCTURE
Unit 1	Introduction to Geriatrics <ul style="list-style-type: none"> ● Longevity ● Life span ● Life expectancy ● Theories of ageing
Unit 2	The Process of Ageing <ul style="list-style-type: none"> ● Changes in sensory, oral health status, Gastrointestinal, Metabolic, Cardiovascular, Renal, Musculoskeletal, Neurologic, Immunocompetence.
Unit 3	The Psychology of Ageing <ul style="list-style-type: none"> ● Prolonged illness ● Loss of spouse ● Retirement ● Institutionalized elderly
Unit 4	Nutritional Requirements of the Elderly <ul style="list-style-type: none"> ● Diet and feeding pattern ● Nutrition problems of the elderly
References	
<ol style="list-style-type: none"> 1. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd. 2. Kumud Khanna, Sharda Gupta, Santosh Jain Passi, Textbook of Nutrition and Dietetics. 	
Teaching Methodology	
<ul style="list-style-type: none"> ● Powerpoint presentations ● Videos ● Chalk and talk method ● Guest Lectures ● Group discussions ● Quiz and Debate 	

BACHELOR IN FOOD AND NUTRITION
SEMESTER IV
CORE COURSE

FN11280 - Food Entrepreneurship (Th)	
Course Objectives This course will enable students	
<ol style="list-style-type: none"> 1. To understand the concept and the process of entrepreneurship. 2. To acquire knowledge about the world of entrepreneurs. 3. To enable the students to develop entrepreneurial skills and competency particularly in the field of Food and Nutrition. 	
Course Outcome: This course will help the students to establish multifunctional companies dealing with production of food products, dairy, beverages, pharmaceutical, agribusiness. In addition they would be able to seek opportunities in various Research Organizations; Universities in India & abroad.	
FN11280-THEORY COURSE CONTENTS (2 Credits)	
S.No	STRUCTURE
Unit 1	<ul style="list-style-type: none"> ● Introduction to Entrepreneurship Development ● Entrepreneur and Entrepreneurship - meaning, need & their characteristics <ul style="list-style-type: none"> ○ Types of Entrepreneur and Enterprise ○ Qualities of a good entrepreneur ○ Problems of entrepreneurs
Unit 2	<ul style="list-style-type: none"> ● Entrepreneurial Opportunities, Creativity and Idea Generation- Sources of Entrepreneurial Ideas. Steps in the identification of Entrepreneurial Ideas ● Practical use of SWOT analysis in business enterprise ● Entrepreneurial Motivation- Definition, Meaning & Need for Achievement Motivation ● Market survey
Unit 3	<ul style="list-style-type: none"> ● Importance of SSI and Registration of SSI ● Meaning, Types and Sources of Finance ● Role of institutions providing assistance, manpower, consultancy, financial marketing- SIDCO, DIC, EDI, KVIC ● Institutional Finance to Entrepreneurs – IDBI, ICICI, RBI, LIC, SIDBI,IFCI, NSIC
Unit 4	<ul style="list-style-type: none"> ● Meaning and definition of Food Entrepreneur ● Skills Does a Food Entrepreneur / Restaurant Manager Need ● Concept of Food Industry and its various types ● Top Trends for Food Service Businesses ● How to open a Restaurant? ● How to run a successful food business ● How to Find a Business Mentor ● Consider Joining a Restaurant Management Training

References

1. Bolton, B. & Thompson, J (2001): “Entrepreneurs: Talent, Temperament and Technique”, Replika Press Private Ltd, Delhi, 110 040, India.
2. Patel R.D (2003), “Entrepreneurial Development”, Atulprakashan, Ahmedabad.
- 3.. S. Anil kumar, Entrepreneurship Development, New age international limited.
4. Food entrepreneurship principles and practice. 2021.

Teaching Methodology

- Powerpoint presentations
- Videos
- Chalk and talk method
- Guest Lectures
- Group discussions
- Quiz and Debate

BACHELOR IN FOOD AND NUTRITION
SEMESTER IV
CORE COURSE

FN11290 - Diet for Communicable Diseases (Th)	
Course Objectives This course will enable students	
<ul style="list-style-type: none"> ● Understand the etiology, Physiologic and Metabolic Anomalies of acute and chronic diseases and patient needs that are communicable in nature. ● Know the effect of the various diseases on nutritional status. ● Be able to recommend and provide appropriate nutritional care for the person suffering from communicable diseases. 	
Course Outcome: Students will be able to plan, manage and treat communicable diseases after having depth knowledge in this subject.	
FN11290-THEORY COURSE CONTENTS (2 Credits)	
S.No	STRUCTURE
Unit 1	<ul style="list-style-type: none"> ● Communicable disease- meaning and definition, prevention and cure ● Nutritional Management in Pulmonary Disease <ul style="list-style-type: none"> ○ Effects of Malnutrition on Respiration ○ Chronic Obstructive Pulmonary Disease ○ Pneumonia Acute respiratory infection/pneumonia. ○ 2019-nCoV
Unit 2	<ul style="list-style-type: none"> ● Food Allergy <ul style="list-style-type: none"> ○ Definition, Symptoms and mechanism of food allergy, ○ Diagnosis – Biochemical, immunotesting (brief), history and food record, ○ Elimination diets, ○ Food Selection, ○ Medication (brief), ○ Food allergy in infancy (milk sensitive enteropathy, colic prevention of food allergy)
Unit 3	<ul style="list-style-type: none"> ● AIDS <ul style="list-style-type: none"> ○ Definitions, symptoms, causes ○ Diagnosis and Nutritional management
Unit 4	<ul style="list-style-type: none"> ● Contagious skin diseases and nutrition ● Measles, chickenpox, Herpes ● Thrush ● Athlete's Foot ● Cold Sores ● Rashes
References	
<ol style="list-style-type: none"> 1. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd. 2. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, 	

Churchill Livingstone.

Teaching Methodology

- Powerpoint presentations
- Videos
- Chalk and talk method
- Guest Lectures
- Group discussions
- Quiz and Debate

BACHELOR IN FOOD AND NUTRITION
SEMESTER IV
CORE COURSE

FN11300- Food Craft(Pr)	
Course Objectives This course will enable students	
<ul style="list-style-type: none"> ● Demonstrate food pre- preparation and cooking methods. ● Illustrate different methods of mixing. ● Develop a basic Indian menu. ● Prepare continental dishes. 	
Course Outcome: This course enables students to familiarize with the kitchen and prepare very basic items used in different cuisines.	
FN11300-THEORY COURSE CONTENTS (2 Credits)	
S.No	STRUCTURE
Unit 1	<ul style="list-style-type: none"> ● Equipments – Identification, Description, Uses & handling ● Hygiene – Kitchen etiquettes, Practices & knife handling • Safety and security in kitchen
Unit 2	<ul style="list-style-type: none"> ● Cuttings of Vegetables; Cuts – julienne, dices, cubes, shred, mirepoix; ● Components of sauces: Mother sauces or basic sauces
Unit 3	<ul style="list-style-type: none"> ● Stock: Classification ● White stock ● Brown stock ● Emergency stock ● Fungi stock
Unit 4	<ul style="list-style-type: none"> ● Dining Services Methods,Techniques & Styles: ● Table service: Silver service/ English service; American/ Plated; Buffets Self Service : Cafeteria : - Straight Line; Free-flow; Single point service: Take-away; Drive through; Fast food; Vending.
References	
<ul style="list-style-type: none"> ● Catering Management: Sethi & Malhan, New Age International Publishers ● The Theory of Catering: Ceserani & Kinton, Hodder Headline & Stoughton (Publisher) 	
Teaching Methodology	
<ul style="list-style-type: none"> ● Powerpoint presentations ● Videos ● Chalk and talk method ● Guest Lectures ● Group discussions ● Quiz and Debate 	

BACHELOR IN FOOD AND NUTRITION
SEMESTER IV
CORE COURSE

FN11310 - Special Feeding Methods(Th)	
Course Objectives This course will enable students	
<ul style="list-style-type: none"> ● To recognize the metabolic and physiological effects of foods on the body's healing and immune systems and reduction of inflammation. ● To consider how to supply appropriate, bioavailable nutrients. ● To recognize the assessment of the nutritional status of patients with an illness, diet-related condition, or injury, in order to benefit the patient's own health and reduce health-care costs. ● To recognize the health effects of setting goals for the patient's treatment and developing a specialized nutrition prescription that includes patient education and self-management training. 	
Course Outcome:	
<ol style="list-style-type: none"> 1. Identify alternative feeding routes and feeding methods. 2. Recommend Enteral Formulas leading to better health outcomes and improved quality of life. 3. Identify nutritional support, enteral nutrition, parenteral nutrition, indications for uses & contraindication. 4. Reduce & managing complications of nutritional support, enteral nutrition & parenteral nutrition. 	
FN11310-THEORY COURSE CONTENTS (2 Credits)	
S.No	STRUCTURE
Unit 1	Nutritional Management in critical care <ul style="list-style-type: none"> ● Nutritional screening and nutritional status assessment of critically ill patients ● Nutritional requirement according to the critical condition ● Special feeding methods: an overview. ● Types of special feeding methods: Enteral and Parenteral
Unit 2	Enteral Nutrition <ul style="list-style-type: none"> ● Site and Size of the tube ● Feed-types ● Complications ● Feeding routes and feeding methods and nutritional support
Unit 3	Parenteral Nutrition <ul style="list-style-type: none"> ● Type ● Composition ● Complications ● Feeding routes & feeding methods and nutritional support

<p>Unit 4</p>	<ul style="list-style-type: none"> ● Comparative analysis of various types of feeding methods, their advantages and disadvantages. ● Case studies.
<p>References</p> <ol style="list-style-type: none"> 1. Mahan, L.K. and Escott-Stump, S. (2000): Krause’s Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd. 2. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone 3. Helen Guthrie: Introductory Nutrition, Times Mirror Publishing 4. M. Swaminathan. Advanced Text book on Food and Nutrition Vol.-I & Vol. – II. 5. Mantab S. Bamji, N. Prahlad Rao, Vinodini Reddy Textbook of Human Nutrition. 6. Annalynn Skipper (2011). Dietitian's Handbook of Enteral and Parenteral Nutrition. Jones & Bartlett Publishers. 	
<p>Teaching Methodology</p> <ul style="list-style-type: none"> ● Powerpoint presentations ● Videos ● Chalk and talk method ● Guest Lectures ● Group discussions ● Quiz and Debate 	

BACHELOR IN FOOD AND NUTRITION
SEMESTER IV
CORE COURSE

FN11320 - Diet for Non-Communicable Diseases(Th)	
Course Objectives	
This course will enable students	
<ul style="list-style-type: none"> ● Understand the basic concept of non communicable diseases ● Understand the relationship between dietary modifications and physiological changes observed in specific disease conditions. ● Acquire the ability to modify the normal diet to suit individuals suffering from specific diseases. 	
Course Outcome: Students will be able to comprehend the pathological and nutritional aspects of disease management.	
FN11320-THEORY COURSE CONTENTS (2 Credits)	
S.No	STRUCTURE
Unit 1	<ul style="list-style-type: none"> ● NCD meaning and definition, prevention and cure <ul style="list-style-type: none"> ○ Four major death-causing NCDs, Cardiovascular Diseases, Diabetes, Cancer, Metabolic Syndrome ● Cardiovascular Disorders <ul style="list-style-type: none"> ○ Terms: Ischemia, hyperlipidemia, Coronary Artery Disease, P/S ratio, Rheumatic Heart Disease ○ Risk factors for CVD ● Concept of atherosclerosis and general dietary guidelines for CVD (Types of Fats – LDL, VLDL, HDL, TGs, MUFA, PUFA, SFA, MCT) ● Dietary modification and nutritional management
Unit 2	<ul style="list-style-type: none"> ● Hypertension – <ul style="list-style-type: none"> ○ Classification, symptoms, treatment and prevention, ○ DASH diet, ○ Dietary modification and nutritional management
Unit 3	<ul style="list-style-type: none"> ● Diabetes <ul style="list-style-type: none"> ○ Terms: Hyperglycemia, Hypoglycemia, OHA, Type 1 DM, Type 2 DM, Gestational Diabetes, Glycemic Index, Glycemic Load ○ Etiology, pathophysiology, Diagnosis and management of type 2 D.M. ○ Dietary modification and nutritional management ● Metabolic Syndrome <ul style="list-style-type: none"> ○ Overview, symptoms, treatments and prevention ○ Dietary modification and nutritional management
Unit 4	<ul style="list-style-type: none"> ● Nutrition and Cancer Carcinogenesis and Mutagenesis- <ul style="list-style-type: none"> ○ Carcinogens in Food Epidemiology ○ Investigations of Diet-Cancer relationship ○ Development of cancer ○ Types of cancer and effect on metabolism and nutritional status ○ Nutrients and their relationship with cancer ○ Recent developments in nutrition and cancer

References

1. Srilakshmi, B. (2008) Dietetics, 5th Edition, New Age International (P) Limited Publishers, New Delhi, India.
2. Krause, M. M., Mahan, L.K. and Escott, S.S. (2003) Krause's – Food, Nutrition and Diet Therapy, 11th Edition, W.B. Saunders, Philadelphia, U.S.A.
3. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone.
4. Annalynn Skipper (2011). Dietitian's Handbook of Enteral and Parenteral Nutrition. Jones & Bartlett Publishers.

Teaching Methodology

- Powerpoint presentations
- Videos
- Chalk and talk method
- Guest Lectures
- Group discussions
- Quiz and Debate

BACHELOR IN FOOD AND NUTRITION
SEMESTER IV
CORE COURSE

FN11330 - Nutrition in Critical Care (Th)	
Course Objectives This course will enable students	
<ul style="list-style-type: none"> ● To understand the meaning of critical care. ● To correlate between nutrition and critical care. ● Plan nutritional intervention for critically ill patients. 	
Course Outcome: Students may become specialized in planning the diet and nutrition of critically ill patients.	
FN-THEORY COURSE CONTENTS (2 Credits)	
S.No	STRUCTURE
Unit 1	<ul style="list-style-type: none"> ● Nutritional screening and nutritional status assessment of the critically ill: Introduction, Malnutrition, Medical Status, Nutritional status, Dietary & Fluid Intake, Clinical assessment, Anthropometry, Biochemical tests. Nutritional support systems and other life – saving measures for the critically ill. ● Patho-physiological, clinical and metabolic aspects, understanding of the special nutritional requirements in Stress and Trauma
Unit 2	<ul style="list-style-type: none"> ● Patho-physiological, clinical and metabolic aspects, understanding of the special nutritional requirements in Burns
Unit 3	<ul style="list-style-type: none"> ● Patho-physiological, clinical and metabolic aspects, understanding of the special nutritional requirements in Surgery & SIRS/MODS
Unit 4	<ul style="list-style-type: none"> ● Patho-physiological, clinical and metabolic aspects, understanding of the special nutritional requirements in ICU, CCU, NICU
References	
1. Mahan LK and Escott – Stump S (2000). Krause’s Food Nutrition and Diet Therapy, 10th Ed. W.B. Saunders Ltd.	
Teaching Methodology	
<ul style="list-style-type: none"> ● Powerpoint presentations ● Videos ● Chalk and talk method ● Guest Lectures ● Group discussions ● Quiz and Debate 	

**BACHELOR IN FOOD AND NUTRITION
SEMESTER IV
CORE COURSE**

FN11340 - Hospital Diets (Pr)	
Course Objectives This course will enable students	
<ul style="list-style-type: none"> ● To acquire professional skills in the dietetics field. ● To become a good dietitian. ● To upgrade counseling skills of the students. 	
Course Outcome: Students will be able to handle their own clinics as well as work smoothly and independently in renowned settings of various clinics and hospitals.	
FN-THEORY COURSE CONTENTS (2 Credits)	
S.No	STRUCTURE
Unit 1	<ul style="list-style-type: none"> ● Planning, preparation and calculation of following diets: <ul style="list-style-type: none"> ○ Liquid diet ○ Soft diet ○ Diet for Diabetes mellitus ○ Diet for Hypertension and Atherosclerosis ○ Normal diet
Unit 2	<ul style="list-style-type: none"> ● Handle the Dietetic department in the hospital. ● Food warmers used in hospitals ● Food safety and hygiene in Dietetics department ● Food labeling importance in Dietetics department
References:	
<ol style="list-style-type: none"> 1. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd. 2. Indian Food Composition Tables. T. Longvah, Irājacīnkam Anantan, K. Bhaskarachary, K. Venkaiah · 2017. National Institute of Nutrition, Indian Council of Medical Research. 	
Teaching Methodology	
<ul style="list-style-type: none"> ● Powerpoint presentations ● Videos ● Chalk and talk method ● Guest Lectures ● Group discussions ● Quiz and Debate 	

BACHELOR IN FOOD AND NUTRITION
SEMESTER IV
CORE COURSE

FN14030 - Food Tourism(Th)	
Course Objectives This course will enable students	
<ul style="list-style-type: none"> ● To learn about the basics of the tourism industry. ● To understand about different sectors of the tourism industry. ● To learn about tour operations and travel agency functions. 	
Course Outcome: After completion of the course students will be able to understand the basics of Tourism industry, understand different sectors of the tourism industry and be able to learn the effective planning of tour operations and travel agency functions.	
FN14030-THEORY COURSE CONTENTS (2 Credits)	
S.No	STRUCTURE
Unit 1	Introduction of food tourism <ul style="list-style-type: none"> ● An innovation concept ● Increase in demand ● Food tourism in india ● Food tourism around the world
Unit 2	Food tourism based on festivals <ul style="list-style-type: none"> ● Season based ● Food festivals in the world ● Food festivals in india
Unit 3	Modern revolution and contribution of hotels and restaurants <ul style="list-style-type: none"> ● Branded hotel chains ● Modern food tourism ● Organic food tourism ● Wine tourism ● Medical tourism
Unit 4	Role of Government and NGO in enhancing food tourism <ul style="list-style-type: none"> ● Role of Government ● Role of influencers / food bloggers ● Role of Social media
References	
<ol style="list-style-type: none"> 1. A practical book by John Stanley and Linda Stanley. 2. Culinary Tourism (Material Worlds Series): Lucy M Lons. 3. Hospitality and Tourism: Jack D. Ninemeier and Joe perdue Pearson Education. 4. A culinary tour of India, Singh, Yogesh IK International. 	
Teaching Methodology	
<ul style="list-style-type: none"> ● Powerpoint presentations and Videos ● Chalk and talk method ● Guest Lectures ● Group discussions ● Quiz and Debate 	

BACHELOR IN FOOD AND NUTRITION
SEMESTER IV
CORE COURSE

FN14040 - Ayurveda and Nutrition(Th)	
Course Objectives This course will enable students	
<ul style="list-style-type: none"> ● To introduce the basic principles of nutrition in Ayurveda. ● To link Ayurvedic nutrition with modern dietary practices for health. ● To analyse basic tenets of traditional diets and health recipes. ● To understand the contemporary food habits in everyday life. 	
Course Outcome: The Learning outcomes of the Course are:	
<ol style="list-style-type: none"> 1. Awareness of traditional food cultures of India. 2. Evaluate changing food patterns and lifestyle over the years. 3. Understand Indian Knowledge Systems (IKS) and key Vedic principles with respect to Food and Nutrition. 4. Apply basic tenets of traditional diets for health and disease. 5. Prepare selected healthy recipes based on Ayurvedic principles. 	
FN14040-THEORY COURSE CONTENTS (2 Credits)	
S.No	STRUCTURE
Unit 1	Introduction to Ayurvedic Nutrition <ul style="list-style-type: none"> ● Ayurveda and Indian food cultures ● Nutrition and lifestyle transition over the years ● Regional Food Traditions of India
Unit 2	Basic principles of Food and Nutrition and Ayurveda <ul style="list-style-type: none"> ● Understanding rich sources of nutrients ● Concept of Doshas & assessment ● Ayurvedic Principles of food habits and factors determining quality of food (Ahara vidhi visheshaayatana)
Unit 3	Ayurvedic Diets <ul style="list-style-type: none"> ● Principles of Diet: Aharavidhi vidhan, Sattvic, Rajasi, Tamasic foods ● Incompatible food (Viruddha Ahara), Pathya; Apathya; Viprita Ahaar ● Lifestyle Management with Dincharya and Ritucharya ● Application of Ayurvedic diets to stress linked food behaviour
Unit 4	Market study on Ayurvedic Foods <ul style="list-style-type: none"> ● FSSAI regulations on Ayurvedic Ahaar ● Visit your local market and classify the available food items according to Sattvic, Rajasi, Tamasic foods
References	
<ol style="list-style-type: none"> 1. Rastogi S (2014) Ayurvedic Science of Food and Nutrition. ASIN: BOOHWMV094, Springer: ISBN-13:978-1461496274 2. Rastogi S (2010) Building bridges between Ayurveda and modern science. Int J Ayurveda Res. 1(1):41-46. 3. FSSAI regulations on Ayurveda Ahaar Regulations 2022. Gazette of India CG-DL-E-07052022-235642. New Delhi, Friday, May 6, 2022/ Vaisakha 16, 1944. • Frawley D 	

(2012) Ayurvedic healing: A comprehensive guide. Lotus Press, India.

Teaching Methodology

- Powerpoint presentations
- Videos
- Chalk and talk method
- Guest Lectures
- Group discussions
- Quiz and Debate

BACHELOR IN FOOD AND NUTRITION
SEMESTER IV
CORE COURSE

FN15030 - Food Packaging and Marketing (Th)	
Course Objectives This course will enable students	
<ul style="list-style-type: none"> ● To understand nature and composition of food. ● To understand the principles of food processing and packaging. ● To comprehend the role of different ingredients used in food preparation with reference to packaging. ● To understand the basic concept of food marketing. 	
Course Outcome:	
<ul style="list-style-type: none"> ● Students will be able to comprehend the basic concept of packaging and marketing. ● Students become successful entrepreneurs after studying this subject. 	
FN15030-THEORY COURSE CONTENTS (2 Credits)	
S.No	STRUCTURE
Unit 1	<ul style="list-style-type: none"> ● Packaging – Meaning, definition, concept and classification and importance ● Food packaging and its function. ● Packaging Decisions ● Packaging strategies
Unit 2	<ul style="list-style-type: none"> ● Packaging Materials ● Packaging Process and Machinery ● Transportation and Packaging
Unit 3	<ul style="list-style-type: none"> ● Active and intelligent packaging ● Antimicrobial packaging ● Leakage in packaging ● Packaging techniques
Unit 4	<ul style="list-style-type: none"> ● Food marketing- Meaning, definition, and concept ● Four P's of the marketing mix ● Food marketing system ● Food marketing and labelling
References	
<ol style="list-style-type: none"> 1. Coles R, Mc Dowell D and Kirwan MJ, Food Packaging Technology, CRC Press, 2003. 2. Frazier WC and Westhoff DC, Food Microbiology, TMH Publication, New Delhi, 2004. 3. Manay N S and Shadaksharaswamy M, Food-Facts and Principles, New Age International (P) Ltd. Publishers, New Delhi, 1987 4. Ramaswamy Hand Marcott M, Food Processing Principles and Applications CRC Press, 2006. 	
Teaching Methodology	
<ul style="list-style-type: none"> ● Powerpoint presentations ● Videos ● Chalk and talk method ● Guest Lectures ● Group discussions 	

- Quiz and Debate