

**VANITA VISHRAM WOMEN'S UNIVERSITY
SCHOOL OF SCIENCE AND TECHNOLOGY**

DEPARTMENT OF FOOD AND NUTRITION

MASTERS IN NUTRITION AND DIETETICS



**Under Learning Outcomes-based Curriculum Framework
(LOCF) for Post Graduate (PG) Education**

**SEMESTER 2
Core Courses (CC)**

*Syllabus applicable to the students seeking admission in the
following program*

**MASTERS IN NUTRITION AND DIETETICS under
LOCF w.e.f. the Academic Year 2022-2023**

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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 component 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 the 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 PROGRAM

The program on Masters in Nutrition and Dietetics focuses on facilitating students to understand the concepts of Diet and Nutrition to further contribute as nutritionists. They need to apply knowledge drawn from relevant sciences to promote an understanding of the effects of nutrition on growth, development, and well-being. It is further strengthened with project work and internships in the food industry, hospitals & public nutrition area. A component of Research is the feature that makes the student think in an innovative manner and thus apply the skills in active research.

3. PROGRAM SPECIFIC OBJECTIVES (PSOs)

- Introduce the students to the advanced aspects of Nutrition Science and Dietetics.
- Make them understand the role as a Nutritionist or a dietitian in preventive and therapeutic aspects of Health care management.
- Develop skills wherein they understand the role of various foods, nutrients they provide and imply innovative methods in food product development.
- Create awareness among them about the current and future trends in the industry and help to determine food safety and entrepreneurship.
- Create awareness about the need for Nutrition in Community emphasizing the role of Public Health Nutrition.

4. PROGRAMME SPECIFIC OUTCOMES (PSOs)

- Students will be equipped with the advanced skills and knowledge that are essential for functioning in the field of Nutrition and Dietetics.
- They will develop professional behavior and competencies in handling hospital setups, counseling, and food handling.
- They will also develop a scientific outlook towards the research in this field and do active research.
- Students will be able to guide and counsel the people in the community, thereby helping in prevention of nutrient deficiencies.
- They will develop competencies that will enable them to focus on various startups, government or non-government organizations.

5. Structure of the program

Master in Nutrition & Dietetics STRUCTURE & DISTRIBUTION OF COURSES							
Courses	Theory (Credits)	Practical (Credits)	Courses	Theory (Credits)	Practical (Credits)	Total Theory & Practical Credits	Total yearly Credits
SEM I			SEM-II				
FN21010	5	-	FN21070	5	-		
FN21020	5	-	FN21080	5	-		
FN21030	5	-	FN21090	5	-		
FN21040	5	-	FN23010	-	4		
FN21050	-	4	FN21100	-	4		
FN21060	-	4	FN21110	-	4		
	20	08		15	12	35+20	65

6. Course Structure: M.Sc in Nutrition & Dietetics (SEMESTERS I & II)

Semester	Core Course	Ability Enhancement Course	Skill Enhancement Course	Discipline Specific Elective Course	Generic Elective Course
Semester-I	FN21010- Human Physiology	-	-	-	
	FN21020- Nutritional Biochemistry	-	-	-	
	FN21030- Macronutrient	-	-	-	
	FN21040- Therapeutic Nutrition I	-	-	-	
	FN21050- Therapeutic Nutrition I (Pr)	-	-	-	
	FN21060- Innovations in Food Product Development (Pr)	-	-	-	
Semester-II	FN21070 - Micronutrients	-	-	-	-
	FN21080 - Therapeutic Nutrition II	-	-	-	-
	FN21090 – Sports Nutrition	-	-	-	-

	FN 23010- GE	-	-	-	-
	FN21100- Therapeutic Nutrition II (Pr)	-	-	-	-
	FN21110- Food Analysis (Pr)	-	-	-	-

**MASTER IN NUTRITION AND DIETETICS
SEMESTER 2
CORE COURSE**

FN21070- Micronutrients (Th)	
Course Objectives This course will enable students to	
<ol style="list-style-type: none"> 1. To understand the fundamentals of the science of nutrition. 2. To understand the underlying biological, chemical, & regulatory mechanism. 3. To understand contemporary issues in the context of current scientific knowledge. 4. To understand the interrelationship between Nutrients. 5. To understand the latest developments in Human Nutrition. 	
Course Outcome: This course will help to get in-depth knowledge about various micronutrients, their functions, sources, deficiency, and the effect of excess.	
FN21070- THEORY COURSE CONTENTS (5 CREDIT)	
S.No.	STRUCTURE
Unit 1	Fat-Soluble vitamins- A, D, E, K Structure, sources, absorption, transport, utilization, storage, excretion, functions, RDA, deficiency, toxicity, assessment of status.
Unit 2	Water-Soluble Vitamins- B Complex and C Structure, sources, absorption, transport, utilization, storage, excretion, functions, RDA, deficiency, toxicity, assessment of the status

<p>Unit 3</p>	<p>Macro Minerals: (Calcium, Phosphorus, Magnesium, Chloride, Potassium, Sodium and Sulfur) Structure, sources, absorption, transport, utilization, storage, excretion, functions, bioavailability, requirements and RDA, deficiency, toxicity, assessment of the status</p>
<p>Unit 4</p>	<p>Micro Minerals : (Iron, Zinc, Copper, Iodine, Fluoride, Chromium, Cobalt, Selenium, Manganese, and Molybdenum) Structure, sources, absorption, transport, utilization, storage, excretion, functions, bioavailability, requirements and RDA, deficiency, toxicity, assessment of the status</p>

REFERENCE

1. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.
2. Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins.
3. Escott-Stump, S. (1998): Nutrition and Diagnosis Related Care, 4th Edition, Williams and Wilkins.
4. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone.
5. Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing.
6. Davis, J. and Sherer, K. (1994): Applied Nutrition and Diet Therapy for Nurses, 2nd Edition, W.B. Saunders Co.
7. Walker, W.A. and Watkins, J.B. (Ed) (1985): Nutrition in Pediatrics, Boston, Little, Brown & Co.
8. Robinson. Passmore M.A. Eastwood, Human Nutrition & Dietary -. ELBS English language book society.
9. Helen Guthrie: Introductory Nutrition, Times Mirror Publishing
10. M. Swaminathan: Advanced Text book on Food and Nutrition Vol.-I & Vol. – II
11. Mantab S. Bamji, N. Prahlad Rao, Vinodini Reddy Textbook of Human Nutrition

TEACHING METHODOLOGY

- Chalk and talk method
- PowerPoint presentations
- Videos
- Posters
- Quiz and Debates

**MASTER IN NUTRITION AND DIETETICS
SEMESTER 2
CORE COURSE**

FN21080 - Therapeutic Nutrition II (Th)	
<p>Course Objectives This course will enable students to</p> <ol style="list-style-type: none"> 1. Understand the basic principles of diet therapy 2. Be aware of the physiological changes associated with specific diseases. 3. Understand the relationship between dietary modifications and physiological changes observed in specific disease conditions. 4. To assess the nutritional status of patients. 5. Acquire the ability to modify the normal diet to suit individuals suffering from specific diseases 	
<p>Course Outcome: This course will help the students to understand various diseases, their etiology, RDA, symptoms, and dietary principles of various diseases.</p>	
FN21080- THEORY COURSE CONTENTS (5 CREDITS)	
S.No.	STRUCTURE
Unit 1	<p>Prevention of Nutritional Deficiencies</p> <ul style="list-style-type: none"> ● Dietary management of Micronutrient Deficiencies- Vitamin A, Vitamin D, Vitamin C, Vitamin B12, Iron, Calcium
Unit 2	<p>Nutrition in G.I. Tract Disorders</p> <p>Pathophysiology and Dietary management in</p> <ul style="list-style-type: none"> ● Disorders of Esophagus ● Disorders of Stomach ● Disorders of Small intestine ● Disorders of Large intestine
Unit 3	<p>Nutrition in Liver, Pancreas and Biliary System disorders</p> <p>Pathophysiology and Dietary management in</p> <ul style="list-style-type: none"> ● Viral Hepatitis, Cirrhosis of Liver, Hepatic Encephalopathy, Wilson's disease.

	<ul style="list-style-type: none"> ● Pancreatitis, Zollinger- Ellison Syndrome. ● Cholelithiasis, Cholecystitis, Cholecystectomy
Unit 4	<p>Nutrition in Renal Disorders</p> <ul style="list-style-type: none"> ● Classification of Kidney Diseases ● Pathophysiology and Dietary management in ● Renal calculi ● Glomerulonephritis – Acute and Chronic ● Nephrotic syndrome ● Acute renal failure ● Chronic renal failure ● ESRD ● Dialysis
Unit 5	<p>Nutrition in Stress and Trauma</p> <p>Pathophysiology and Dietary management in</p> <ul style="list-style-type: none"> ● Burns ● Surgery & SIRS/MODS
Unit 6	<p>Food Allergy</p> <ul style="list-style-type: none"> ● Definitions, symptoms, Mechanism of food allergy ● Diagnosis – History, Food record, Biochemical and immune-testing ● Elimination diet
Unit 7	<p>Nutrition in Cancer/HIV/AIDS</p> <p>Types, symptoms, detection, Cancer therapies and treatment – side effects and nutritional implications</p>
<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. Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins. 3. Escott-Stump, S. (1998): Nutrition and Diagnosis Related Care, 4th Edition, Williams and Wilkins. 	

4. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone.
5. Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing.
6. Davis, J. and Sherer, K. (1994): Applied Nutrition and Diet Therapy for Nurses, 2nd Edition, W.B. Saunders Co.
7. Walker, W.A. and Watkins, J.B. (Ed) (1985): Nutrition in Pediatrics, Boston, Little, Brown & Co.
8. Guyton, A.C. and Hall, J.E. (1999): Textbook of Medical Physiology, 9th Edition, W.B. Saunders Co.
9. Ritchie, A.C. (1990): Boyd's Textbook of Pathology, 9th Edition, Lea and Febiger, Philadelphia.
10. Fauci, S.A. et al (1998): Harrison's Principles of Internal Medicine, 14th Edition, McGraw Hill.
11. World Cancer Research Fund (1997). Food, Nutrition and the Prevention of Cancer- A Global perspective, Washington E.D. WCRF.

TEACHING METHODOLOGY

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

MASTER IN NUTRITION AND DIETETICS
SEMESTER 2
CORE COURSE

FN21090- Sports Nutrition (Th)	
<p>Course Objectives This course will enable students to</p> <ol style="list-style-type: none"> 1. To Develop an understanding of human physiology during exercise regimes. 2. To understand various aspects of health and fitness 3. To adopt a holistic approach towards health management and disease prevention. 4. To develop the ability to provide guidance on a healthy diet, exercise & lifestyle modifications for disease prevention and management. 	
<p>Course Outcome: This course will enable the students to understand the body's response to exercise and its implications for various preventive and therapeutic conditions.</p>	
FN21090- THEORY COURSE CONTENT(5 CREDIT)	
S.No.	STRUCTURE
Unit 1	<p>Concepts of Sports Nutrition</p> <ul style="list-style-type: none"> ● Introduction to Exercise, Nutrition, and Fitness ● Benefits of Physical Activity and Exercise ● Types of Exercises ● Intensity of Exercise ● Physical activity guidelines for Indians ● Safety concerns in Exercise and Physical activity
Unit 2	<p>Exercise Physiology Exercise and its effects on</p> <ul style="list-style-type: none"> ● Cardiovascular system ● Respiratory system ● Digestive system ● Urinary system ● Endocrine system ● Nervous system ● Muscular system

<p>Unit 3</p>	<p>Principles of Nutrition in Sports</p> <ul style="list-style-type: none"> ● Energy ● Carbohydrates ● Fat ● Protein ● Vitamins ● Minerals ● Fluid and electrolyte balance
<p>Unit 4</p>	<p>Nutrient timing and Carbohydrate Loading</p> <ul style="list-style-type: none"> ● Importance of Nutrient timing ● Carbohydrate loading ● Eating to competing ● Sports drinks, gels, bars ● Ergogenic aids and supplementation
<p>REFERENCES</p> <ol style="list-style-type: none"> 1. Elenaor N., Whitney S., Rady R. (1993): Understanding Nutrition, West Publishing Company, Minneapolis 2. Wardlaw (1993): Perspectives in Nutrition, Paul Insel Mosby. 3. Robinsson, and Lawler. (1986) Normal and Therapeutic Nutrition. MacMillan Pub.Co. 4. McArdle, William D; (2010): Exercise Physiology, Lippincott, William and Wilkins, Philadelphia. 5. Sharkey, Brian J and Gaskill, Steven E. (2007): Fitness and Health; 6th Edition; Human Kinetics. 	
<p>TEACHING METHODOLOGY</p> <ul style="list-style-type: none"> ● Powerpoint presentations ● Videos ● Chalk and talk method ● Guest Lectures ● Group discussions ● Quiz and Debate ● Field visits ● Exhibition 	

MASTER IN NUTRITION AND DIETETICS
SEMESTER II
GENERIC ELECTIVE

FN32010- Nutritional Supplements (Th)	
Course Objectives The course will enable the students to	
<ol style="list-style-type: none"> 1. Understand the need of supplements by different groups of people to maintain a healthy life. 2. Understand the outcome of deficiencies in dietary supplements. 3. Appreciate the components in dietary supplements and the application. 4. Appreciate the regulatory and commercial aspects of dietary supplements including health claims. 	
Course Outcomes: This subject covers foundational topics that are important for understanding the need and requirements of dietary supplements among different groups in the population.	
FN32010- THEORY COURSE CONTENT (6 CREDIT)	
S.No.	STRUCTURE
Unit 1	<p>Definitions of Functional foods, Nutraceuticals and Dietary supplements Classification of Nutraceuticals, Health problems and diseases that can be prevented or cured by Nutraceuticals i.e. weight control, diabetes, cancer, heart disease, stress, osteoarthritis, hypertension etc. Nutraceuticals/functional foods: Spirulina, Soyabean, Ginseng, Garlic, Broccoli, Gingko, Flaxseeds and their chemical nature, Medicinal uses and health benefits</p>
Unit 2	<p>Phytochemicals as nutraceuticals: Occurrence and characteristic features (chemical nature medicinal benefits) of following:</p> <ul style="list-style-type: none"> ● Carotenoids- α and β-Carotene, Lycopene, Xanthophylls, leutin ● Sulfides: Diallyl sulfides, Allyl trisulfide. ● Polyphenolics: Resveratrol ● Flavonoids- Rutin , Naringin, Quercetin, Anthocyanidins, catechins, Flavones ● Prebiotics / Probiotics.: Fructo oligosaccharides, Lactobacillus ● Phyto estrogens : Isoflavones, daidzein, Geebustin, lignans ● Tocopherols ● Proteins, vitamins, minerals, cereal, vegetables and beverages as functional foods: oats, wheat bran, rice bran, sea foods, coffee, tea and the like.
Unit 3	<p>Introduction to free radicals: Free radicals, reactive oxygen species, production of free radicals in cells, damaging reactions of free radicals on lipids, proteins, Carbohydrates, nucleic acids. Dietary fibers and complex carbohydrates as functional food ingredients.</p>

Unit 4	Antioxidants: Endogenous antioxidants – enzymatic and nonenzymatic antioxidant defense, Superoxide dismutase, catalase, Glutathione peroxidase, Glutathione Vitamin C, Vitamin E, α - Lipoic acid, melatonin Synthetic antioxidants: Butylated hydroxyToluene, Butylated hydroxy Anisole. Functional foods for chronic disease prevention
Unit 5	Introduction of Enteral and Parenteral Feeding, Enteral Feeding: Equipment and Formulas, Advantages and disadvantages Types of feeds available in the market
Unit 6	Effect of processing, storage and interactions of various environmental factors on the potential of nutraceuticals. Regulatory Aspects: FSSAI, FDA, FPO, MPO, AGMARK. HACCP and GMPs on Food Safety. Adulteration of foods. Pharmacopoeial Specifications for dietary supplements and nutraceuticals.

References:

- Dietetics by Sri Lakshmi
- Role of dietary fibers and nutraceuticals in preventing diseases by K.T Agusti and P.Faizal: BSC Publication.
- Advanced Nutritional Therapies by Cooper. K.A., (1996).
- The Food Pharmacy by Jean Carper, Simon & Schuster, UK Ltd., (1988).
- Prescription for Nutritional Healing by James F.Balch and Phyllis A.Balch 2nd Edn., Avery Pub- lishing Group, NY (1997).
- G. Gibson and C.williams Editors 2000 Functional foods Woodhead Publ.Co.London.
- Goldberg, I. Functional Foods. 1994. Chapman and Hall, New York.
- Labuza, T.P. 2000 Functional Foods and Dietary Supplements: Safety, Good Manufacturing Practice (GMPs) and Shelf Life Testing in Essentials of Functional Foods M.K. Sachmidl and T.P. Labuza eds. Aspen Press.
- Handbook of Nutraceuticals and Functional Foods, Third Edition (Modern Nutrition)
- Shils, ME, Olson, JA, Shike, M. 1994 Modern Nutrition in Health and Disease. Eighth edition. Lea and Febiger.
- L.Kathleen Mahan,Sylvia Escott-Stump,(2008) Krause's Food & Nutrition Therapy, 12 edition.
- Merritt, Russell, (2005) the A.S.P.E.N. Nutrition Support Practice Manual 2nd Edition. American Society for Parenteral and Enteral Nutrition.

TEACHING METHODOLOGY

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

MASTER IN NUTRITION AND DIETETICS

**SEMESTER 2
CORE COURSE**

FN21100- Therapeutic Nutrition II (Pr)

Course Objectives

This course will enable students to

1. To understand the basic principles of Diet planning.
2. To plan various diets according to the requirements and disease conditions.

Course Outcome: To help students develop the ability to prepare and present research papers.

FN21100-PRACTICAL COURSE CONTENT(4 CREDIT)

S.No.	STRUCTURE
Unit 1	<p>Dietary management of Micronutrient Deficiencies</p> <ul style="list-style-type: none"> ● Prevention and treatment of Deficiency disorders ● Market Survey of Functional Foods and Supplements
Unit 2	<p>Dietary Management for GI Disorders</p> <ul style="list-style-type: none"> ● Peptic ulcer ● Ulcerative colitis
Unit 3	<p>Dietary Management for Liver disorders</p> <ul style="list-style-type: none"> ● Hepatic encephalopathy ● Cholelithiasis
Unit 4	<p>Protein Modifications and Mineral Modifications in Renal Disease</p> <ul style="list-style-type: none"> ● Nephrolithiasis ● Glomerulonephritis – Acute, and Chronic ● Nephrotic Syndrome ● Renal Failure – Acute and Chronic ● Dialysis <p>Use of Sodium and Potassium Exchange lists in Renal</p>
Unit 5	<p>Elimination diets for Allergy</p>

Unit 6	Immunonutrition
<p>REFERENCE</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. Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins. 3. Escott-Stump, S. (1998): Nutrition and Diagnosis Related Care, 4th Edition, Williams and Wilkins. 4. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone. 5. Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing. 6. Davis, J. and Sherer, K. (1994): Applied Nutrition and Diet Therapy for Nurses, 2nd Edition, W.B. Saunders Co. 7. Walker, W.A. and Watkins, J.B. (Ed) (1985): Nutrition in Pediatrics, Boston, Little, Brown & Co. 8. Guyton, A.C. and Hall, J.E. (1999): Textbook of Medical Physiology, 9th Edition, W.B. Saunders Co. 9. Ritchie, A.C. (1990): Boyd’s Textbook of Pathology, 9th Edition, Lea and Febiger, Philadelphia. 10. Fauci, S.A. et al (1998): Harrison’s Principles of Internal Medicine, 14th Edition, McGraw Hill. 11. World Cancer Research Fund (1997). Food, Nutrition and the Prevention of Cancer- A Global perspective, Washington E.D. WCRF 	
<p>TEACHING METHODOLOGY</p> <ul style="list-style-type: none"> ● Powerpoint presentations ● Videos ● Chalk and talk method ● Guest Lectures ● Group discussions ● Quiz and Debate 	

MASTER IN NUTRITION AND DIETETICS
SEMESTER 2
CORE COURSE

FN21110- Food Analysis (Pr)

Course Objectives

This course will enable the students

1. To impart basic skills to do laboratory work.
2. To teach general principles involved in instrumental methods.
3. To make the students understand the principles involved in the estimations.

Course Outcome: This course will help to get in-depth knowledge about the procedures to estimate nutrients in the food.

FN21110- PRACTICAL COURSE CONTENTS (4 CREDIT)

S.No.	STRUCTURE
Unit 1	<p>General Instrumental methods</p> <ul style="list-style-type: none"> ● Identification, the working principle, and use of various instruments. i.e. Colorimeter, Spectrophotometer, centrifuge machine, Kjeldahl's apparatus, Soxhlet apparatus, Muffle furnace, Water bath, Electric oven, etc.
Unit 2	Estimation of Moisture content
Unit 3	Estimation of Ash content
Unit 4	Estimation of Protein
Unit 5	Estimation of Fat
Unit 6	Estimation of crude fiber

Unit 7	Estimation of Ascorbic acid (Vit. C) from food sources by 2,6 dichlorophenol indophenol method.
Unit 8	Estimation of Iron from given food sample by α - α dipyridyl reagent method.

REFERENCE

1. Harold Egan, Ronald S. Kirk, Ronald Sawyer, David Pearson "Pearson's Chemical Analysis of Foods. 8th Edition, 1981. Churchill Livingstone.
2. C Gopalan; B V Rama Sastri; S C Balasubramanian "Nutritive Value of Indian Foods." 6th Edition, 1996, Reprinted 2011. National Institute of Nutrition.
3. "Official Methods of Analysis of AOAC INTERNATIONAL", 18th Edition, 2005, AOAC INTERNATIONAL.
4. N.Raghuramulu, K.Madhavan, S.Kalyanasundaram. "A Manual of Laboratory Techniques", 2nd Edition, 2003, National Institute of Nutrition.
5. A.Y.Sathe, "A first course in Food Analysis" 1st Edition, 1999. New Age International (P) Limited.
6. Manual of Methods of Analysis of Foods. Directorate General of Health Services, Ministry of Health and Family Welfare Government of India, 2005.
7. Morris Boris Jacobs "The Chemical Analysis of Foods and Food Products". 2nd Edition, 1951. D. Van Nostrand Company , 1951

TEACHING METHODOLOGY

- Powerpoint presentations
- Videos
- Chalk and talk method
- Guest Lectures
- Webinars
- Demonstrations
- Group discussions
- Quiz
- Debates
- Field trips