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

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

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	
	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	24
	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	9	

		FN11330 Nutrition in Critical Care (Th)- 2 FN11340 Hospital Diets(Pr)- 3		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 III
CORE COURSE

FN11190- Food Microbiology I (Th)

Course Objectives

This course will enable students

- To understand the nature and the role of microorganisms in food.
- To have a knowledge of the basic principles of food safety from microbial spoilage.
- To acquire a perspective of the importance of microorganisms in food products.

Course Outcome:

At the end of the course, the students will be able to understand the role of microorganisms in food spoilage as well as fermented food products.

FN11190-THEORY COURSE CONTENTS (2 Credits)

S.No	STRUCTURE
Unit 1	**Food Microbiology –Basic concepts** ● Food as a substrate for microorganisms ● Factors influencing microbial activity ● Inhibitory substances
Unit 2	**Contamination of Foods** ● from animals ● from sewage ● from soil ● from water ● from air ● during handling and processes
Unit 3	**Role of microorganisms in Food fermentation** ● Fermented baked products ● Fermented vegetable foods ● Fermented Soybean products ● Fermented dairy products ● other fermented food products
Unit 4	**Contamination and spoilage** ● Cereal and cereal products ● Sucrose , maple syrup and honey ● Vegetable and vegetable products ● Meat, Milk and eggs ● Canned foods

REFERENCES

1. Food Microbiology by WC Frazier Tata McGraw-Hill, 5th ed, 2017
2. Fundamental Food Microbiology 3rd ed by Bibek Ray, 2005
3. Food Microbiology: Principles into Practice by T. Faruk Bozoglu, 2016
4. Food Microbiology by Neelam Khetarpaul, 2006
5. Food Microbiology: An Introduction 4th ed. by Karl Mathews, 2017

Teaching Methodology

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

BACHELOR IN FOOD AND NUTRITION

SEMESTER III
CORE COURSE

FN11200- Food Psychology (Th)

Course Objectives

This course will enable students to

- To understand the role of psychology in food choices and the relationship between diet and psychological well-being.
- To understand the factors affecting the perception of food and the causes and treatment of emotional eating.
- To explore the principles and strategies of dietary change.
- To create awareness in the community with respect to healthy eating and well-being.

Course Outcome:

At the end of the course, the students will be able to understand the role and importance of psychological factors affecting mood and eating behaviour.

FN11200-THEORY COURSE CONTENTS (2 Credits)

S.No	STRUCTURE
Unit 1	**Basic concept of Psychology** ● Meaning and definition ● Theories and Principles ● Types of Psychology ● Psychology and Counselling
Unit 2	**Emotions and Eating** ● Circadian Rhythm ● Common chemical messengers and their functions ● Science of stress, sleep and Eating ● The stress response ● Food like v/s food wants ● Meaning of emotional and physical hunger
Unit 3	**Psychological needs of food** ● Social and cultural connections ● Nostalgia and memories ● Emotional aspect ● Factors affecting food choices
Unit 4	**Food and Mood** ● The relationship between diet and mental health. ● The role of junk food and nutritional imbalances. ● Sensory perception of food and the experience of taste ● Food that affects mood

REFERENCES

1. Shepherd, R. and Raats, M. (2006). The Psychology of Food Choice. Department of Psychology, University of Surrey. Frontiers in Nutritional Science.
2. Booth, D.A. (1994) Psychology of Nutrition. Taylor and Francis, London.
3. Hetherington, M. M. (2001) Food Cravings and Addiction. Food Research Association, Leatherhead, UK
4. Susan Albers (2003) Eating Mindfully: How to end mindless eating and enjoy a balanced relationship with food. New Harbinger Publications; 1 edition
5. Christensen, L. and Redig, C. (1993) Effect of meal composition on mood. Behavioral Neuroscience 107, 346–353.

6. Smolak, L., & Thompson, J.K.(2009). Body Image, eating disorders and obesity in Youth: Assessment, prevention and Treatment (2nd ed.). Washington DC: APA Publications.
7. Ogden, J (2010). The Psychology of Eating: From Health to disordered behaviour. NJ: Wiley- Blackwell.

Teaching Methodology

- Chalk and talk method
- Powerpoint presentations
- Videos
- Posters
- Visits to health and fitness centers,
- Quiz and Debates

BACHELOR IN FOOD AND NUTRITION
SEMESTER III
CORE COURSE

FN11210- Food Fortification (Th)

Course Objectives

This course will enable students to

- To know the basic concept of fortification.
- To understand the importance of food fortification.
- To get the students acquainted with the latest technology in food fortification.

Course Outcome:

At the end of the course, the students will be able to understand the basic concept of food fortification, its application, and its principles..

FN11210-THEORY COURSE CONTENTS (2 Credits)

S.No	STRUCTURE
Unit 1	● Food fortification- Needs, objectives, principles ● Meaning and definition of fortificants ● Selection and basis of fortificants ● Types of fortification
Unit 2	● Selection of nutrients for fortification- levels to e added ● Methods of fortification ● Health benefits of fortification
Unit 3	● Fortification of bread, pasta, noodles, biscuits and breakfast cereals ● Fortification premixes available in market ● Special fortified food products
Unit 4	● Nutrient interaction and bioavailability during food fortification ● Technology of fortification ● Fortification of iron, iodine and vitamin A in food products

REFERENCES

1. Sri Lakshmi B (2004) Food Science. New Age Int.
2. Pecham GG, Foundation of food preparation.1972. Mac millan Pbs.
3. Subbulakshmi G and Udipi A. 2004. Food Processing and Preservation techniques. New Age Int. 55
4. Swaminathan M (1992) Handbook of Food Science and Experimental foods. 2 nd Ed. Bangalore.
5. Potter NH and Hotchkiss JH (1996) Food Science. 5th ed.. New Delhi, CBS pbs.
6. Sethi M and Rao SE (2001) Food science experiments and application. CBS pbs. New Delhi.

Teaching Methodology

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

BACHELOR IN FOOD AND NUTRITION
SEMESTER III
CORE COURSE

FN11220- Sensory Evaluation (Pr)

Course Objectives
This course will enable students to

- To distinguish between different samples
- To evaluate product acceptance
- To develop new products
- To improve existing products using sensory science

Course Outcome:
At the end of the course, the students will be able to acquire information about product differences, consumer preferences, and attribute intensities.

FN11220- PRACTICAL COURSE CONTENTS (2 CREDIT)

S.No	STRUCTURE
Unit 1	**Introduction to Sensory Evaluation** ● Terminologies, Advantages, Disadvantages, Applications
Unit 2	**The Human Senses in Sensory Evaluation** ● The Senses - An Introduction ● Sense of Sight, Smell, Taste, Hearing, Touch. ● Five Basic Tastes- Sourness, Sweetness, Saltiness, Bitterness, Umami
Unit 3	**Operational Principles of Sensory Testing** ● Sample- Preparation, Selection, Serving Size, Presentation, Serving Temperature ● Physiological and Psychological Factors in Taste Testing ● Selection, Training And Motivation of a Panel member
Unit 4	**Design of A Sensory Testing Area** ● Total Area- General Testing Area, Booths, Group Work Area, Preparation Area, Office Area, Additional Areas, Practical Alternatives
Unit 5	**Simple Difference Test** ● Triangle Test ● Duo-Trio Test
Unit 6	**Specific Test Methods** ● Paired Preference Test- Unilateral And Bilateral ● Ranking For Preference ● Rating For Preference.

References

1. Sensory Evaluation Manual By Richard Mason, 2002
2. Manual on Sensory Testing Methods By Astm, 1968
3. Sensory Evaluation of Food: Theory And Practice By Jellinek, 1985
4. Sensory Evaluation of Food: Principles And Practices By Sensory Evaluation of Food: Principles And Practices 1998

Teaching Methodology-

- Demonstration
- Powerpoint presentations
- Videos

BACHELOR IN FOOD AND NUTRITION
SEMESTER III
CORE COURSE

FN11230- Maternal and Child Nutrition (Th)	
Course Objectives This course will enable students to ● To understand the factors affecting growth & development & nutritional problems in various communities. ● To understand the problems of children and mothers with special needs & techniques to deal with them. ● To emphasize the health and nutritional needs of mothers and infants.	
Course Outcome: ● At the end of the course, the students will be able to assess the various factors that can affect the health and nutritional status of mother and child.	
FN11230-THEORY COURSE CONTENTS (2 Credits)	
S.No	**STRUCTURE**
Unit 1	**Prenatal growth** ● Stages – zygote, embryo & foetus, body growth, body composition and development of different systems. ● Factors affecting prenatal development ● Phases and stages of growth (lag phase, stationary and exponential phase & hyperplasia, hypertrophy and maturation) **Physiological changes and development during pregnancy** ● Changes in various maternal systems ● Blood volume, renal, GI, CV, Weight, nutritional status. ● Placenta and its function
Unit 2	**At risk pregnancy** – Hypertension, Diabetes, Anaemia, Age, Parity, nutritional status, teenage pregnancy, obstetric history and lifestyle **Post Development** ● ·Changes in body composition – fat, water, calcium content, growth pattern, comparative study of infant and child. ● Stages of development for infant, toddler and preschooler
Unit 3	**Breastfeeding and its importance** ● Anatomy and physiology of breastfeeding ● Factors affecting lactation ● Breastfeeding practices and exclusive feeding and methods of Breastfeeding for problematic child or twins ● Advantages of breastfeeding ● Hazards of artificial feeding, contraindications of breastfeeding, supplementary feeding ● At risk lactating women
Unit 4	**Immunization, infection and dietary management of childhood illness** ● Definitions – immunity, antigen, antibody, active – passive immunity, immunization schedule, booster dose, cold chain ● Vaccine preventable diseases – mumps, measles, chicken pox, DPT, hepatitis, meningitis, influenza

	• Common illness, symptoms and dietary management – cold, cough, diarrhoea, constipation

REFERENCES

1. Maternal and Child Nutrition: The First 1000 Days by Zulfiqar Bhutta, 2013
2. Sachdeva, H.P. Nutrition in children. Department of Pediatrics, Maulana Azad Medical College, NewDelhi, 1994
3. Park & Park : Textbook of preventive and Social Medicine, Banarsidas, Bhanot Publication 1995.

Teaching Methodology

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

BACHELOR IN FOOD AND NUTRITION
SEMESTER III
CORE COURSE

FN11240- Malnutrition in Children (Th)

Course Objectives

This course will enable students to

- To explain the basic term of acute malnutrition & chronic malnutrition.
- To list possible approaches for identifying, preventing and managing malnutrition.
- To explain the management of complications and identify and treat the major problems associated with malnutrition.

Course Outcome:

- At the end of the course, the students will be able to assess, diagnose & manage malnutrition cases. They will be able to apply the principles of the management of nutritional deficiencies in children.

FN11240-THEORY COURSE CONTENTS (2 CREDIT)

S.No	STRUCTURE
Unit 1	● Malnutrition in India ● Meaning and Classification malnutrition- Undernutrition and Overnutrition ● Causes and Management of Malnutrition disorders ● Grade of malnutrition, PEM, SAM, MAM
Unit 2	● Forms of Acute Malnutrition ● Causes, Clinical signs and symptoms, dietary modifications and preventive measures for Protein Energy malnutrition. ○ Maramus ○ Kwashiorkor
Unit 3	● MAM and SAM ● Screening and Management ● Feeding formulas- Starter and Catch up formula ● Failure to thrive; Growth faltering and detection, catch up growth
Unit 4	● Overnutrition - factors contributing to overnutrition ● Causes and management ● Consequences in future developments

REFERENCES

1. Gopaldas, T. Seshadri S. (1987) Nutrition monitoring and assessment Delhi: Oxford University Press.
2. Jelliffe, D. (1966) The assessment of Nutritional Status of the Community. Geneva WHO.
3. Park & Park (1995): Textbook of preventive and Social Medicine, Banarsidas, Bhanot Publication.
4. Sachdeva, H.P. (1994) Nutrition in children. Department of Pediatrics, Maulana Azad Medical College, New Delhi.
5. Shukla, P. (1982) Nutritional Problems of India, New Delhi Prentice Hall of India.
6. Wadhwa, A and Sharma S. (2003) Nutrition in the Community, New Delhi: Elite Publishing House Pvt. Ltd.

Teaching Methodology

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

BACHELOR IN FOOD AND NUTRITION
SEMESTER III
CORE COURSE

FN11250- Nutrition in GI Disorders (Th)

Course Objectives

This course will enable students to

- To impart the concept of modifying normal diets to therapeutic diets in GI disorders.
- To enable the students to understand the underlying disease conditions, possible complications and pathological states.
- To learn to plan therapeutic diets for the management of clinical disease conditions
- To enable the students to focus on the preventive role of nutrition in the current lifestyle situations.

Course Outcome:

- At the end of the course, the students will be able to apply recommended dietary adjustments to treat a specific clinical nutritional disorder for better health outcomes and improved quality of life.

FN11250- Theory COURSE CONTENTS (2 CREDIT)

Sr. No.	STRUCTURE
Unit 1	**Introduction to Gastro-intestinal tract** ● Structure and function of GI tract ● Disorders of Upper and Lower GI Tract
Unit 2	**Diet in Upper GI Tract disorders** ● Structure and Function of Stomach ● Gastritis and peptic ulcer- aetiology, symptoms, clinical findings, treatment, dietary modification, amount of food, and intervals of feeding, Chemically and mechanically irritating foods
Unit 3	**Diet in Lower GI Tract disorders** ● Structure and Function of small intestine and colon ● Diarrhoea- classification, modification of diet, fibre and fluids ● Constipation- flatulence - dietary considerations. ● Ulcerative colitis- symptoms, dietary treatment. ● Spruce, Celiac disease- disaccharide intolerance, dietary treatment.
Unit 4	**Diet in disorders of the Liver, Biliary system and Pancreas** ● Liver: Functions of the liver, Assessment of liver function, Etiology, symptoms and dietary treatment in - Jaundice, hepatitis and cirrhosis ● Role of alcohol in liver diseases ● Gallbladder diseases: Functions of the Gallbladder, Dietary treatment in Cholelithiasis and Cholecystitis ● Pancreatic diseases: Function of the pancreas, Pancreatitis (acute and chronic)

REFERENCES

1. Antia F.P. (1997) Clinical dietetics and nutrition. (4th Ed.) New Delhi: Oxford University Press.
2. Bamji, M., Rao, P. N. and Reddy, V. Textbook of Human Nutrition, Oxford: IBH Pub. Co
3. Garrow J.S. (1993). Human nutrition and dietetics. (9th Ed.) New York: Churchill Livingstone.
4. Krause and Mahan. (1996). Foods, nutrition and diet therapy. (10th Ed.) Philadelphia: W.B. Saunders.
5. Robinson: (1989). Normal and therapeutic nutrition. (7th Ed.) New York: Macmillan Pub. Company.
6. Williams, S. (1981) Nutrition and diet therapy, 4th ed., Missouri: The C.V. Masby Co.
7. Whitney E.N. and Rolfes S.R. (2002) Understanding Nutrition. Wadsworth, Thomson Learning.

Teaching Methodology-

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

BACHELOR IN FOOD AND NUTRITION
SEMESTER III
CORE COURSE

FN11260- Maternal Counselling (Pr)

Course Objectives

This course will enable students to

- To understand the normal pattern of growth & nutritional requirements of children.
- To understand the factors affecting growth & development & nutritional problems in various communities.
- To understand problems of children and mothers with special needs & techniques to deal with it.

Course Outcome:

- At the end of the course, the students will be able to solve various issues pertaining to health and nutritional status of mother and children as well.

FN11260- PRACTICAL COURSE CONTENTS (2 CREDIT)

Sr. No.	STRUCTURE
Unit 1	• Antenatal care – Prepare checklist of dos and don'ts • Breastfeeding practices – interview and record
Unit 2	• Preparation of homemade substitutes and ARF • Planning of low cost complementary foods for infants and young children • Analysis of weaning/complementary foods for its nutrient content.
Unit 3	• Survey and identification of at risk pregnant women in the community • Preparation of immunization schedule- community facility, interview
Unit 4	• Collection of local traditional recipes for pregnancy, lactation and infancy • Visit to Anganwadi- Prepare report

REFERENCES

1. Bamji MS, Rao NP & Reddy V.1999. Text Book of Human Nutrition.Oxford & IBH.
2. WHO, UNICEF. Baby-friendly Hospital Initiative revised, updated and expanded for integrated care. Geneva: WHO; 2009.
3. Special issue based on a World Health Organization expert consultation on complementary feeding. Food and Nutrition Bulletin. 2003;24(1)

Teaching Methodology-

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

BACHELOR IN FOOD AND NUTRITION
SEMESTER III
CORE COURSE

SKILL ENHANCEMENT COURSE

FN14010- Nutrition Instrumentation (Th)

Course Objectives

This course will enable students to

- Identify, select and safely operate appropriate equipment for each task
- Demonstration of safety rules in analytical laboratory
- To improve working ability in an analytical laboratory.
- To acquire skills for Laboratory Management

Course Outcome:

- At the end of the course, the students will be able to

FN14010-THEORY COURSE CONTENTS (2 Credits)

S.No	STRUCTURE
Unit 1	Colorimeter ● Introduction, Principle, Working, Uses
Unit 2	Spectrophotometer ● Introduction, Principle, Working, Uses
Unit 3	Muffle Furnace ● Introduction, Principle, Working, Uses
Unit 4	Centrifuge Machine ● Introduction, Principle, Working, Uses
Unit 5	Soxhlet Apparatus ● Introduction, Principle, Working, Uses
Unit 6	Water Bath ● Introduction, Principle, Working, Uses
Unit 7	Balances ● Introduction, Principle, Types, Working, Uses

REFERENCES

1. A Food Technology Laboratory Manual by Rashida Rajuva TA & Joy PP.
2. Instrumental methods of analysis by Dr. B. K. Sharma.

Teaching Methodology

- Lab presentations
- Videos
- Group discussions
- Quiz and Debate

BACHELOR IN FOOD AND NUTRITION
SEMESTER III
CORE COURSE

SKILL ENHANCEMENT COURSE

FN14020- Food Instrumentation(Th)	
Course Objectives This course will enable students to ● Identify, select and safely operate appropriate equipment for each task ● Demonstration of safety rules in Food laboratory ● To improve working ability in a Food laboratory. ● To acquire skills for Laboratory Management	
Course Outcome: ● At the end of the course, the students will be able to	
FN14020- Theory COURSE CONTENTS (2 CREDIT)	
Sr. No.	**STRUCTURE**
Unit 1	**Refrigerator** ● Diagram, definition, functions, working principle, refrigeration cycle system of fridge, uses, components and their working.
Unit 2	**Oven and Microwave** ● Definition, principle, uses, parts, application, procedure, types
Unit 3	**Mixer and Blender** ● Definition, principle, uses, parts, application, procedure, types, advantages and disadvantages
Unit 4	**Dehydrator** ● Definition, principle, uses, parts, application, procedure, types
Unit 5	**Solar Cooker** ● Definition, principle, uses, parts, application, procedure, types
Unit 6	**Steamer** ● Definition, principle, uses, parts, application, procedure, types
Unit 7	**Water Purifier** ● Definition, principle, uses, parts, application, procedure, types
Unit 8	Toaster, Roti maker, Air Fryer and other common equipment used in cooking.
REFERENCES **1. Food mixing principles and applications** Cullen, P. J. (Patrick J.)	
Teaching Methodology- ● Chalk and talk method ● Powerpoint presentations ● Videos ● Posters	

BACHELOR IN FOOD AND NUTRITION
SEMESTER III
CORE COURSE

DEPARTMENT ELECTIVE

FN15010- Growth and Development (Th)

Course Objectives

This course will enable students to

- To recognize the factors that influence the development and understand how they affect individual children, including children with disabilities;
- To understand the development in all domains: physical, social, emotional, cognitive, and aesthetic.
- To explain the impact of early experiences--including the spectrum of child and family diversity on healthy development and learning.

Course Outcome:

- At the end of the course, the students will be able to explain the relationship between biology, maturation and environment, in terms of their impact on growth, development, and learning.

FN15010--THEORY COURSE CONTENTS (2 Credits)

S.No	STRUCTURE
Unit 1	**Growth and Development** ● Concept and principles of development ● Difference between growth and development ● Factors affecting growth and human development. ● The life span approach to human development
Unit 2	**Determinants of Development** ● Nature v/s Nurture ● Developmental Domains (Physical, Cognitive, Language, Emotional and Social)
Unit 3	**Developmental Stages and Developmental tasks across the life span** ● Prenatal development (Menstrual Cycle and Fertilization, Conception). ● Infancy ● Childhood ● Adolescence ● Adulthood ● Old Age

REFERENCES

1. Arya, S.C. (1972) Infant and child care for the mother. New Delhi: Vikas.
2. Berk, L. E. (1996) Child development. New Delhi: Prentice Hall.
3. Hurlock, E.B. (2007) Developmental psychology: A life–span approach. New Delhi : Tata McGraw – Hill.
4. Papalia, D.E., Olds, S.W. and Feldman, R.D. (2006) Human development. 9th Ed. New Delhi: Tata McGraw- Hill.

Teaching Methodology

- Powerpoint presentations

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

BACHELOR IN FOOD AND NUTRITION
SEMESTER III
CORE COURSE

DEPARTMENT ELECTIVE

FN15020- Mass Media and Extension (Th)

Course Objectives

This course will enable students to

- Students will understand the concept of extension education.
- To enable students to acquire knowledge about different methods and materials of communication.
- To enable students to comprehend the skills required for media and message creation.
- Students will gain knowledge about extension planning.
- Students will develop an understanding of different methods and media of Communication for extension education.

Course Outcome:

- At the end of the course, the students will be able to explore community, media, and journalism in a broader way.

FN23020-THEORY COURSE CONTENTS (2 Credits)

S.No	STRUCTURE
Unit 1	**Concept of Extension Education** • Meaning and objectives, needs, principles and philosophy of extension education • Qualities of extension worker **Communication** • Meaning, elements, models, types, barriers and functions of communication • Communication process
Unit 2	**Methods and Media for Communication** • Individual Methods • Group Methods • Mass methods • Audio Visual Aids • Selection and use of methods and media
Unit 3	**Media message creation** • Research inputs • Planning • Scripting /layout • Designing • Presenting • Technical Understanding

Unit 4	**Journalism and society** ● Meaning and importance of journalism ● Ethics and journalism ● Private and public media ● Concept of development ● Role of communication for sustainable society

REFERENCES

1. Dahama, O.P, O.P.Bhatnagar (1995) Education and Communication for Development, Oxford and IBH Publications, New Delhi.
2. Jain, R. (1993) Mass Media and Rural Development, Vol. II, New Delhi, Manak Pub. Pvt.Ltd.
3. Kumar K.J. (2001). Mass Communication in India, Jaico PublishingHouse.
4. Ved Prakash Gandhi, Principles and Practices of Mass Communications, Kanishka Publishers, NewDelhi.
5. Burton, Sam Westman. Disciple mentoring: Theological education by extension. Pasadena, Calif: W. Carey Library, 2000.

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