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UNIVERSITY OF MYSORE

Estd. 1916

VishwavidyanilayaKaryasoudha
Crawford Hall, Mysuru- 570 005

No.AC2(S)/151/2020-21

Dated: 22.11.2023

Notification

Sub:- Syllabus and Scheme of Examinations of Food Science & Nutrition Programme (UG) (1st & 6th Semester) with effect from the Academic year 2023-24 as per NEP-2020.

Ref:- Decision of BOS in Home Science (UG) meeting held on 20.11.2023.

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The Board of Studies in Home Science (UG) which met on 20.11.2023 has resolved to recommend & approved the Syllabus and Scheme of Examinations of Food Science & Nutrition Programme (1st & 6th Semester) with effect from the Academic year 2023-24 as per NEP -2020.

Pending approval of the Faculty of Science & Technology and Academic Council meetings the above said Syllabus and Scheme of Examinations are hereby notified.

The Syllabus and Scheme of Examinations contents may be downloaded from the University website i.e., www.uni-mysore.ac.in.

Registrar 24/11/2023

To;

1. All the Principal of affiliated Colleges of University of Mysore, Mysore.
2. The Registrar (Evaluation), University of Mysore, Mysuru.
3. The Chairman, BOS/DOS, in Home Science, Department of Food Science and Nutrition, Yuvaraja's College, Mysore.
4. The Dean, Faculty of Science & Technology, DoS in Mathematics, MGM.
5. The Director, PMEB, Manasagangothri, Mysore.
6. Director, College Development Council , Manasagangothri, Mysore.
7. The Deputy Registrar/Assistant Registrar/Superintendent, Administrative Branch and Examination Branch, University of Mysore, Mysuru.
8. The PA to Vice-Chancellor/ Registrar/ Registrar (Evaluation), University of Mysore, Mysuru.
9. Office Copy.

Annexure- I (Food Science and Nutrition)

University of Mysore, Mysuru
Syllabus structure for 1st to 6th Semester
Contents of Courses for B.Sc. in Food Science and Nutrition as Major Subject

Semester	Course No.	Course category	Theory/ Practical	Credits	Paper Title	Marks	
						S.A.	I.A.
I	FSNT1.1	DSC	Theory	4	Human Physiology	60	40
	FSNP1.1	DSC	Practical	2	Human Physiology	25	25
	FSNT1.2	OE	Theory	3	A) Basics of Food Science B) Basics of Nutrition	60	40
II	FSNT2.1	DSC	Theory	4	Fundamentals of Human Nutrition	60	40
	FSNP2.1	DSC	Practical	2	Fundamentals of Human Nutrition	25	25
	FSNT2.2	OE	Theory	3	A) Healthy Lifestyle B) Culinary Science	60	40
Exit Option with Certificate in Food Science and Nutrition (52 Credits)							
III	FSNT3.1	DSC	Theory	4	Principles of Food Science	60	40
	FSNP3.1	DSC	Practical	2	Principles of Food Science	25	25
	FSNT3.2	OE	Theory	3	A) Food Adulteration B) Common nutritional problems	60	40
IV	FSNT4.1	DSC	Theory	4	Life Cycle Nutrition	60	40
	FSNP4.1	DSC	Practical	2	Life Cycle Nutrition	25	25
	FSNT4.2	OE	Theory	3	A) Food Safety& Hygiene B) Indian traditional foods	60	40
Exit Option with Diploma (100 Credits)							
V	FSNT5.1	DSC	Theory	4	Food preservation	60	40
	FSNP5.2	DSC	Practical	2	Food preservation	25	25
	FSNT5.3	DSC	Theory	4	Principles of Diet Therapy	60	40
	FSNP5.4	DSC	Practical	2	Principles of Diet Therapy	25	25
	SEC	SEC	Theory/ Practical	3	Employability Skill / Cyber Security	60	40
VI	FSNT6.1	DSC	Theory	4	Food Microbiology	60	40
	FSNP6.2	DSC	Practical	2	Food Microbiology	25	25
	FSNT6.3	DSC	Theory	4	Therapeutic Nutrition	60	40
	FSNP6.4	DSC	Practical	2	Therapeutic Nutrition	25	25
	FSNP6.5	SEC/VOC	Practical	2	Internship	25	25
Exit Option with Bachelor of Science, B.Sc. Degree (144 Credits)							

Syllabus for 5th and 6th Semester

5th Semester

Program Name	**B Sc in Food Science and Nutrition**	Semester	**Fifth Semester**
Course Title	**Food Preservation (Theory)**		
Course Code:	**FSNT 5.1**	No. of Credits	**4**
Contact hours	**60 Hours**	Duration of SEA/Exam	**2.30 hours**
Formative Assessment Marks	**40**	Summative Assessment Marks	**60**

Course Outcomes (COs): After the successful completion of the course, the student will be able to:

CO1.Students will be able to apply a variety of food preservation techniques.
CO2.understand the factors influencing food spoilage and deterioration.
CO3.Students will have a comprehensive understanding of food safety and quality control.
CO4.Students will be knowledgeable about emerging trends and technologies in food preservation.

Theory Contents	**60 Hrs**
Unit1:Introduction to Food Preservation	15 Hrs
Overview of food preservation and its significance Historical background and evolution of food preservation techniques Factors influencing food spoilage and deterioration. Importance of food safety and quality in preservation Introduction to different methods of food preservation (e.g., drying, canning, fermentation, freezing, etc.)	
Unit 2:Traditional Food Preservation Techniques	15 Hrs
Principles and practices of drying and dehydration methods. Canning and bottling techniques for long-term preservation. Fermentation and pickling methods for enhancing food shelf life. Salting and curing processes for meat and fish preservation. Smoking as a preservation technique and flavor enhancer.	
Unit 3: Modern Food Preservation Technologies	15 Hrs
High-temperature methods: Pasteurization and sterilization techniques Introduction to thermal processing methods (e.g., canning, retort processing) Low-temperature methods: Refrigeration and freezing techniques Vacuum packaging and modified atmosphere packaging (MAP) Use of food additives and preservatives	
Unit 4: Emerging Trends in Food Preservation	15 Hrs
Novel techniques: High-pressure processing (HPP) and pulse dielectric field (PEF), Cold plasma, OMF (Oscillating Magnetic Field. Non-thermal processing methods (e.g., irradiation, ultraviolet treatment). Application of hurdle technology in food preservation. Innovative packaging materials for extending shelf life. Use of natural antimicrobials and bioactive compounds for preservation.	

Pedagogy:

Formative Assessment for Theory	
Assessment Occasion/type	**Marks**
Test1	10
Test2	10
Assignment/Seminar	5+5
Project	10
Total	**40 Marks**
Formative Assessments are compulsory	

References	
1	"Food Preservation: Principles and Practices "by S. Shantha andN.R.Reddy,CRCPress,2016
2	"Introduction to Food Engineering and Technology "by P.G. Smith, D.L. Harper, and S.S. Singh, Academic Press, 2019.
3	"Food Packaging Science and Technology "by R. Ahvenainen, CRC Press,2007.
4	"Hand book of Food Preservation" by M. Shafiur Rahman, CRC Press, 2007.
5	"Food Preservation Techniques" by P. Zeuthen and L. Bøgh-Sørensen, Wood head Publishing,2018
6	"Principles of Food Processing" by M.A.Rao, S.S.H.Rizvi, A.K.Datta, and G.Venkateswara Rao, CRC Press, 2014.
7	"Food Processing Technology: Principles and Practice" byP.J.Fellows,WoodheadPublishing,2009
8	"Food Quality Assurance: Principles and Practices" by I.M.Morton and T.J.Bridges, CRC Press,2017
9	"Food Packaging: Principles and Practice"byG.L.Robertson,CRCPress,2012
10	"Hand book of Food Preservation" edited by M.Siddiqui, K.S.Siddiqi, and M.A. Rahman, CRC Press, 2007.
11	"Food Process Engineering and Technology" by Zeki Berk, Academic Press,2013
12	"Microorganisms in Foods 8: Use of Data for Assessing Process Control and Product Acceptance" edited by ICFMH, Springer, 2011.

Course Title	**Food Preservation (Practical)**		Practical Credits	**2**
Course Code	**FSNP 5.2**		Contact Hours	**60 Hours**
Formative Assessment	**25 Marks**	Summative Assessment		**25 Marks**

Practical Content

Drying Fruits and Vegetables:
Use different drying methods such as sun drying, air drying, or using a food dehydrator.
Monitor the drying time and evaluate the texture and taste of the dried products.

Canning and Bottling:
Prepare batch of homemade jam, jelly, or pickles.
Follow the canning process, including sterilizing jars, filling, and sealing. Store the canned products and evaluate their quality overtime.

Fermentation Experiment:
Prepare a small batch of selected fruit/vegetable using different fermentation methods (e.g., salt brine fermentation vs. Whey fermentation).
Monitor the fermentation process and assess the taste, texture, and aroma of the final product.

Smoking and Curing:
Cure a piece of meat or fish using salt or sugar.
Cold smoke or hot smoke the cured product using a smoking apparatus. Evaluate the flavor and texture of the smoked and cured product.

Freezing Techniques: (Demo/Lab visit)
Select various fruits, vegetables, or prepared dishes for freezing
Apply blanching or pre-treatment methods to preserve color and texture. Freeze the samples and assess their quality after thawing

Pasteurization Experiment: (Demo/Lab visit)
Set up a small-scale pasteurization process using milk or fruit juice.
Determine the appropriate temperature and holding time for pasteurization. Evaluate the microbial load before and after pasteurization.

Sterilization using Pressure Canning (Demo/Lab visit)
Select low-acid food products such as vegetables or meat. Use a pressure canner to achieve proper sterilization.
Assess the safety and quality of the canned products.

Vacuum Packaging: (Demo/Lab visit)
Pack different food items using a vacuum sealer.
Compare the shelf life and quality of vacuum-sealed products with traditionally packaged ones.

Pickling Experiment:
Prepare different types of pickles, such as cucumber pickles, carrot pickles, or onion pickles. Experiment with different pickling brines, spices, and flavors.
Evaluate the taste and texture of the pickled products.

High-Pressure Processing (HPP): (Demo/Lab visit)
Observe the HPP process in a commercial facility (if possible).
Learn about the effects of high pressure on food preservation and safety.
Discuss the advantages and limitations of HPP compared to other preservation methods.

Testing Food Additives: (Demo/Lab visit)
Select a few common food additives such as antioxidants or preservatives. Prepare samples with different concentrations of additives.
Analyze the impact of additives on the preservation and quality of food products.

MAP Packaging: (Demo/Lab visit)
Pack perishable foods in modified atmosphere packaging using a MAP system. Monitor the gas composition and adjust as needed.
Assess the impact of MAP on the shelf life and quality of the products.

Hurdle Technology Application: (Demo/Lab visit)
Choose a specific food product and identify potential hurdles for preservation (e.g., pH adjustment, water activity control, thermal treatment, preservatives).

Design and implement a hurdle technology approach for the chosen product.
Evaluate the effectiveness of hurdle technology in extending the shelf life.

Sensory Evaluation of Preserved Foods*:*

Conduct a sensory evaluation of preserved food products (e.g., dried fruits, canned vegetables, fermented foods).
Train participants in sensory evaluation techniques.
Assess attributes such as appearance, taste, aroma, texture, and overall acceptability.

Pedagogy:

Formative Assessment for Practical	
Assessment Occasion/type	**Marks**
Test1	05
Test2	05
Practical Record	10
Participation and Involvement	05
Total	**25 Marks**
Formative Assessments are compulsory	

Program Name	**B.Sc. in Food Science and Nutrition**	Semester	**Fifth Semester**
Course Title	**Principles of Diet Therapy (Theory)**		
Course Code:	**FSNT 5.3**	No. of Credits	**4**
Contact hours	**60 Hours**	Duration of SEA/Exam	**2.30 hours**
Formative Assessment Marks	**40**	Summative Assessment Marks	**60**

Course Outcomes(COs): After the successful completion of the course, the student will be able to:

CO1. Summarize and critically discuss /understand both fundamental and applied aspects of diet therapy.

CO2. Planning and preparation of therapeutic diets.

Theory Contents	**60 Hrs**
Unit I: Principles of Diet Therapy and Hospital Diets	15 Hrs

A. Introduction: Definition, objectives of diet therapy, factors to be considered in planning therapeutic diets Nutritional Assessment in clinical setting (MUST, MNA, SGA etc.,)

Planning of therapeutic diet

Dietician: Role and Responsibilities, Team Approach, Interpersonal relationship, code of ethics, Indian Dietetic Association

B. Types of hospital diet:

- Normal hospital diet
- Modification of normal diet: a)liquid diet{clear fluid diet and full fluid diet}b)soft diet and c) bland diet

C. Nutrition in Eating Disorders – Anorexia Nervosa, Binge Eating, Bulimia Nervosa etc.,

Unit II: Nutrition care in Febrile Conditions, Surgery Burns, Organ Transplant	15 Hrs

Fever - types, Metabolic changes, Host defense mechanisms,

Etiology, Symptoms, Diagnosis, physiological changes, complications, Treatment, General dietary considerations - typhoid, malaria, tuberculosis, Acquired Immuno Deficiency Syndrome(AIDS), COVID, etc.,

Dietary Considerations in Surgical Conditions, Burns, Organ Transplantation

Tube feeding composition, osmolarity, types of formulas, mode of feeding, parenteral nutrition, Total Parenteral Nutrition (TPN), Homecare of patients

Unit III: Nutrition Care in Energy imbalance and Diabetes mellitus	15 Hrs

A. Diet in Obesity and Underweight: Etiology, theories, assessment, types, treatment, complications, weight management guidelines for a dietician, nutritional and food requirements

B. Diabetes Mellitus: Types, Etiology, Symptoms, Diagnosis, physiological changes, complications, Treatment – Diet, Exercise, Drugs, GI Foods, Food exchange list.

Unit IV: Nutrition Care in Gastrointestinal disorders, Liver Pancreas and Gall bladder disease	15 Hrs

A. Etiology, symptoms, diagnosis, treatment and dietary management of Indigestion, peptic ulcer, constipation, diarrhea, lactose intolerance, inflammatory bowel disease, intestinal gas and flatulence, celiac

B. Etiology, symptoms, diagnosis, treatment, and dietary management of Liver Disorders - Jaundice, Non-alcoholic fatty liver disease (NAFLD), Hepatitis, Cirrhosis, hepatic coma, Pancreatitis

Formative Assessment for Theory	
Assessment Occasion/type	**Marks**
Test1	10
Test2	10
Assignment/Seminar	5+5
Project	10
Total	**40 Marks**
Formative Assessments are compulsory	

References	
1	Srilakshmi, B. (2014) Dietetics,4th and 7th Edition, New Age International m Publications, New Delhi
2	Shubhangini A Joshi (2011) Nutrition and Dietetics, with Indian Case Studies, 3rd Edition Tata McGraw Hill Publication, New Delhi
3	Mahan, L. K. & Ecott-Stump, S. (2000):Krause's Food, Nutrition and Diet Therapy,12thEdition, W.B. Saunders Ltd
4	Whitney, E.N. & Rolfes, S. R. (1999): Understanding Nutrition, 8th Edition, West Wadsworth, An International Thomson Publishing Co

Course Title	**Principles of Diet Therapy (Practical)**		Practical Credits	**2**
Course Code	**FSNP 5.4**		Contact Hours	**60 Hours**
Formative Assessment	**25Marks**	Summative Assessment		**25 Marks**
Practical Content				
1. Planning and preparation of hospital diet: Clear fluid, Full fluid, Soft diet, Bland diet etc.. 2. Planning and preparation of a day's diet for different disease conditions: Febrile, Obesity and Underweight, DM , GI disorders, Liver disorder, Pancreas disease, Gall bladder disease**,** Surgery, Burns, Organ Transplant				

Pedagogy:

Formative Assessment for Practical	
Assessment Occasion/type	**Marks**
Test1	05
Test2	05
Practical Record	10
Participation and Involvement	05
Total	**25 Marks**
Formative Assessments are compulsory	

6th Semester

Program Name	**B.Sc. in Food Science and Nutrition**	Semester	**Sixth Semester**
Course Title	**Food Microbiology (Theory)**		
Course Code:	**FSNT 6.1**	No. of Credits (Theory + Practical)	**4**
Contact hours	**60 Hours**	Duration of SEA/Exam	**2 hours**
Formative Assessment Marks	**40**	Summative Assessment Marks	**60**

Course Pre-requisite(s):

Course Outcomes (COs): After the successful completion of the course, the student will be able to:

CO1. Develop a comprehensive understanding o food microbiology:

CO2. Identify and manage food borne pathogens:

CO3. Evaluate food preservation and processing techniques:

CO4. Ensure food safety and quality assurance: Ensure food safety and quality assurance:

CO5. Apply critical thinking and problem-solving skills in food microbiology:

Theory Contents	**60 Hrs**
Unit1: Introduction to Food Microbiology	15 Hrs

Basic concepts and scope of food microbiology, Microorganisms in food: bacteria, viruses, yeasts, molds, and parasites. Sources of microorganisms in food: soil, water, air, animals, humans. Factors influencing microbial growth in food: temperature, pH, water activity, nutrient availability. Food spoilage: causes, signs, and effects

Unit2: Food borne Pathogens	15 Hrs

Introduction to food borne illnesses and outbreaks.Common food borne pathogens: *Salmonella, Campylobacter, Escherichia coli, Listeria monocytogenes, Staphylococcus aureus, Clostridium botulinum,* etc. Pathogenesis of food borne infections and intoxications, Methods for detection and identification of food borne pathogens. Control measures to prevent food borne illnesses: food safety regulations, good manufacturing practices, hazard analysis critical control point (HACCP) system

Unit3: Food Preservation and Processing	15 Hrs

Principles of food preservation: physical, chemical, and biological methods,
Heat processing: Pasteurization, sterilization, canning. Drying and dehydration
Refrigeration and freezing, Fermentation and curing,

High-pressure processing (HPP) and other emerging technologies,

Packaging and its role in food preservation

Unit4: Food Quality and Safety	15 Hrs

Microbiological criteria for food safety, Indicator organisms and their significance, Spoilage organisms and their detection, Food borne toxins and their detection, Food spoilage and quality indicators, Risk assessment and management in food microbiology, Emerging issues in food microbiology: antimicrobial resistance, food fraud, genetically modified organisms (GMOs), nanotechnology

Formative Assessment for Theory	
Assessment Occasion/type	**Marks**
Attendance	10
Seminar	10
Debates and Quiz	10
Test	10
Total	**40 Marks**
Formative Assessments are compulsory	

References	
1	"Food Microbiology: Fundamentals and Frontiers "by Michael Doyle, Robert L. Buchanan, and Arnold L. Demain. Publisher: ASM Press. Publication Year: 2013.
2	"Food Microbiology: An Introduction "by Thomas J. Montville, Karl R. Matthews, and Martin B. Doyle. Publisher: ASM Press. Publication Year: 2005.
3	"Food Microbiology: Principles into Practice "by Osman Erkmen and Turgut Cabuk. Publisher: Wiley-Blackwell. Publication Year: 2016.
4	"Food Microbiology: A Laboratory Manual "by Ahmed E. Yousef and Carolyn Carlstrom. Publisher: Wiley- Blackwell. Publication Year: 2019.
5	"Food Microbiology: An Introduction" by M.P.Doyle.Publisher: Springer.PublicationYear:2020.
6	"Modern Food Microbiology" by James M. Jay, Martin J. Loessner, and David A. Golden. Publisher: Springer. Publication Year: 2005.
7	"Food Microbiology: An Introduction" by Thomas V. Mc Meekin, Tony Ross, and Richard A. Olley. Publisher: Springer. Publication Year: 2000.
8	"Food Microbiology: Principles and Explorations" by Margaret Barth, Thomas Montville, and Cindy Cox. Publisher: Wiley. Publication Year: 2007.
9	"Food Microbiology: A Laboratory Manual" by Lynne McL and sborough. Publisher: Wiley. Publication Year: 2017.
10	"Microorganisms in Foods 8: Use of Data for Assessing Process Control and Product Acceptance" by International Commission on Microbiological Specifications for Foods (ICMSF). Publisher: Springer. Publication Year: 2011.

Course Title	**Food Microbiology (Practical)**	Practical Credits	**2**
Course Code	**FSNP 6.2**	Contact Hours	**60 Hours**
Formative Assessment	**25 Marks**	Summative Assessment	**25 Marks**

Practical Content

1. **Microbial Enumeration**: Perform serial dilution and plate count techniques to determine the microbial load in food samples. Students can practice using agar plates and counting colony-forming units (CFUs).
2. **Pathogen Detection (Laboratory visit)**: Use molecular biology techniques, such as PCR or ELISA, to detect specific food borne pathogens in food samples. Students can learn how to extract DNA or antigens from samples and perform specific assays.
3. **Microbial Isolation and Identification**: Isolate and identify different microorganisms from food samples using selective and differential media. Students can learn how to culture bacteria, perform Gram staining, and identify specific microorganisms.
4. **Food Spoilage Examination**: Examine spoiled food samples and identify the microorganisms responsible for spoilage. Students can observe different types of spoilage, such as mold growth, off-flavors, and sliminess, and perform microbial analysis.
5. **HACCP Plan Development (Industrial / laboratory visit)**: Develop a Hazard Analysis Critical Control Point (HACCP) plan for a specific food product. Students can identify critical control points, establish critical limits, and develop monitoring and corrective action procedures.
6. **Fermentation Process**: Design and carry out a fermentation process to produce a traditional Indian food products. Student's can monitor microbial growth, pH changes, and sensory attributes during fermentation.
7. **Antibiotic Sensitivity Testing (Laboratory visit)**: Perform antibiotic susceptibility testing on bacterial isolates obtained from food samples. Students can learn about the mechanisms of antibiotic resistance and interpret the results of sensitivity tests.
8. **Challenge Testing (Demo)**: Conduct challenge tests to determine the effectiveness of food preservation methods. Students can inoculate food samples with specific microorganisms and monitor their growth under different conditions.
9. **Environmental Monitoring (Demo / Industrial visit):** Set up an environmental monitoring program in a food processing facility. Students can design sampling plans, collect samples from different areas, and analyze them for indicator organisms.
10. **Quality Assurance Audits**: Conduct quality assurance audits of food facilities, focusing on microbiological aspects. Students can assess the implementation of food safety practices, evaluate annotation procedures, and identify areas for improvement.

Formative Assessment for Practical	
Assessment Occasion/type	**Marks**
Test1	05
Test2	05
Practical Record	10
Participation and Involvement	05
Total	**25 Marks**
Formative Assessments are compulsory	

Program Name	**B Sc in Food Science and Nutrition**	Semester	**Sixth Semester**
Course Title	**Therapeutic Nutrition (Theory)**		
Course Code:	**FSNT 6.3**	No. of Credits	**4**
Contact hours	**60Hours**	Duration of SEA/Exam	**2hours**
Formative Assessment Marks	**40**	Summative Assessment Marks	**60**

Course Pre-requisite(s):

Course Outcomes (COs): After the successful completion of the course, the student will be able to:

CO1. Describe the methods used to adapt a normal diet to treat a specific clinical nutritional disorder.

CO2. Apply recent methods and techniques in the field of therapeutic nutrition.

CO3. Lists methods for preparation of normal food to adjust various pathological conditions.

CO4. Recommend dietary adjustments leading to better health outcomes and improved quality of life.

Theory Contents	**60 Hrs**
Unit–1 Nutritional care in CVD and Renal Disorder	15 Hrs

A. Etiology, Symptoms, Diagnosis, Treatment, Risk Factors, and dietary management of Hypertension, Coronary artery disease, Myocardial Infarction, Congestive heart failure, Stroke

B. Etiology, Symptoms, Diagnosis, Treatment, Risk Factors, and dietary management of Nephrosis and Nephritis, Renal Failure and Renal Calculi, Dialysis –Types and Dietary Treatment

Unit II - Nutritional Care in Neurological disorder and Cancer	15 Hrs

A. Definition, Etiology, Symptoms, Therapies, Dietary Management of Migraine, Alzheimer's Disease, Multiple Sclerosis, ALS, Ataxia, Cerebral Aneurysm, Epilepsy and Seizures and Psychotic disorders

B. Cancer - Definition, Etiology, Symptoms, Therapies, Dietary Management, Role of Functional Foods in Prevention of Cancer

Unit III - Nutritional Care in Respiratory Disorders and Reproductive disorder	15 Hrs

A. Etiology, Symptoms, Diagnosis, Treatment, and dietary management of - COPD, Asthma, Chronic Bronchitis, Emphysema, Cystic Fibrosis, Pneumonia. Pleural Effusion

B. Etiology, Symptoms, Diagnosis, Treatment, and dietary management of - Endometriosis, Uterine Fibroids, Interstitial Cystitis, Polycystic Ovary Syndrome (PCOS),

Unit IV Nutrition care in Allergy and Drug and Nutrient Interactions	15 Hrs

A. Etiology, Symptoms, Diagnosis, Treatment, and dietary management of Food Allergy (Milk, egg, peanut, fish, tree nut, soy, wheat). Restricted diet, elimination diets,

B. Effects drugs on ingestion, digestion, absorption, and metabolism of nutrients, nutritional status, organ function,

Drug dosage and efficacy, drug abuse and drug resistance

Formative Assessment for Theory	
Assessment Occasion/type	**Marks**
Test1	10
Test2	10
Assignment/Seminar	5+5
Project	10
Total	**40 Marks**
Formative Assessments are compulsory	

References	
1	B.Srilakshmi-Dietetics,7th Ed New Age publication
2	Gopalan, C. et.al: Nutritive value of Indian Foods, NIN, Indian Council of Medical Research.
3	Clinical Nutrition & Dietetics- F. P. Antia and Philip Abraham, Oxford University Press
4	Anderson, L., Dibble, M.V., Tukki, P.R., Mitchall, H.S., and Rynbergin H.J.: Nutrition in Health and Disease, 17th edition, J. B. Lippincott & Co. Philadelphia.
5	Robinson.C.H.Lawler,M.R.Chenoweth,W.L.,andGarwick,A.E.(1986):NormalandTherapeuticNutrition.17th edition, Mac Milian Publishing Co.
6	Williams. S. R.: Nutrition & Diet Therapy, 6th edition, Times Mirror/Mosby College Publishing St. Louis.
7	Raheena, Begum: A text book of food, nutrition and dietetics Sterling Publishers, New Delhi
8	Joshi, S.A.: Nutrition and Dietetics, Tata McGraw Hill, Publications, New Delhi.
9	Khanna K, Gupta S, Seth R, Passi SJ, MahnaR, PuriS (2013). Text book of Nutrition and Dietetics. Phoenix Publishing House Pvt. Ltd. Stacy Nix (2009).
10	William's Basic Nutrition and Diet Therapy, 13th Edition. Elsevier Mosby.
11	Wadhwa A and Sharma S (2003). Nutrition in the Community- A Text book. Elite Publishing Pvt Ltd, New Delhi.
12	ICMR (2011) Nutritive value of Indian Foods. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.
13	ICMR (2011) Dietary Guidelines for Indians – A Manual. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.
14	Seth V and Singh K (2007). Diet Planning through the Life Cycle Part II: Diet Therapy. A Practical Manual, 4th edition. Elite Publishing House Pvt. Ltd.
15	Mahan L K and Escott- Stump S. (2007): Krause's Food and Nutrition Therapy.12thEd. WB Saunders Company, London.

Course Title	**Therapeutic Nutrition (Practical)**	Practical Credits	**2**
Course Code	**FSNP 6.4**	Contact Hours	**60 Hours**
Formative Assessment	**25 Marks**	Summative Assessment	**25 Marks**
Practical Content			
Planning and preparation of Therapeutic diets for respective diseases and disorder: Cardio vascular, Kidney, Neurological, Respiratory, Reproductive r, Cancer, Allergy etc....			

Pedagogy:

Formative Assessment for Practical	
Assessment Occasion/type	**Marks**
Test1	05
Test2	05
Practical Record	10
Participation and Involvement	05
Total	**25 Marks**
Formative Assessments are compulsory	

Course Title	**Internship (Practical)**	Practical Credits	**2**
Course Code	**FSNP 6.5**	Contact Hours	**60 Hours**
Formative Assessment	**25 Marks**	Summative Assessment	**25 Marks**
Practical Content			
Students to be sent to different industries/laborites/health centers etc, weekly 4 hrs and study the processing/analytical techniques/observation of patient's health and nutrition status depending on the accessibility and permission from the concerned authorities. Prepare and submit a report			

Scheme of evaluation for Internship work (2 Credits)

C1 & C3- Evaluation (25 Marks)

Components	Details of work	Marks
C1	Internship - Preliminary work	15
C2	Draft submission	10
Total		25

C3 Evaluation (25 Marks)

Components	Details of work	Marks
C3	Final Report submission	15
	Presentation PPT	10
Total		25