ST. PHILOMENA'S COLLEGE (AUTONOMOUS)

Affiliated to University of Mysore
Accredited by NAAC with 'B^{++}'
Grade Bannimantap, Mysore,
Karnataka, India-570015

DEPARTMENT OF FOOD SCIENCE AND NUTRITION

The Board of Studies in Food Science & Nutrition which met on 22/08/2024 has approved the syllabus and pattern of examination for Semesters V and VI for the Academic Year 2024-25 onwards.

BOS COMMITTEE MEMBERS

Sl. No.	Name	Designation
1	Ms. Mary Irene J	Chairman
2	Dr. Komala M	University Nominee
3	Dr. Anitha C	External member
4	Dr. Shweatha H.E	External member
5	Ms. Pooja H R	Internal member

V SEMESTER

Course Title: Food Preservation (Theory)	**Course Credits**: 4(Theory) +2(Practicals) = 6
Course Code: FSNDSC501	**L-T-P per week**: 3:0:2
Total Contact Hours: (4+4=8Hrs per week)	
Formative Assessment Marks: 40	**Summative Assessment Marks**: 60

Pedagogy: Regular Lecturers, Demonstrations, Exercises on observation and follow up with group Discussions, case studies, ICT enabled teaching and learning experience in terms of video Lessons and documentary films shows.

Course Objectives: The course aims to:

1. Understand the Principles of Food Preservation
2. Explore Traditional and Modern Preservation Techniques
3. Study the Role of Microorganisms in Food Spoilage
4. Learn Preservation Techniques for Different Food Categories
5. Understand the Impact of Preservation on Nutritional Quality
6. Develop Practical Skills in Food Preservation
7. Promote Food Safety and Quality Control.
8. Foster Sustainable Food Preservation Practices

Course Outcomes:

Upon successful completion of this course, students will be able to:

1. Students will be able to apply a variety of food preservation techniques.
2. Understand the factors influencing food spoilage and deterioration.
3. Students will have a comprehensive understanding of food safety and quality control.
4. Students will be knowledgeable about emerging trends and technologies in food preservation

Theory Contents	**64 Hrs**
Unit1:Introduction to Food Preservation	15 Hrs
Overview of food preservation and its significance Principles of food preservation techniques **Difference between food spoilage and deterioration.** Importance of food safety and quality in preservation methods Introduction to different methods of food preservation (e.g., drying, canning, fermentation, freezing)	

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 flavour enhancer.	
Unit 3: Food Preservation Processing	15 Hrs
Thermal processing methods : High-temperature methods- Pasteurization and sterilization techniques Non-thermal processing methods (e.g., irradiation, ultraviolet treatment). Low-temperature methods: Refrigeration and freezing techniques **Different types of food packaging and functions**	
Unit 4: Food Additives and Sensory Evaluation	4Hrs
Food Adulteration - Classification & detection methods of Food adulterants **Use of natural antimicrobials and bioactive compounds for preservation.** Use of food additives and preservatives Sensory Evaluation of Foods - Subjective and objective methods of evaluating food acceptability	
Unit 5: **Emerging Trends In Food Preservation**	15Hrs
Novel techniques: High-pressure processing (HPP) and pulse dielectric field (PEF), **Ozone processing technology,** OMF (Oscillating Magnetic Field), **Role of Nanotechnology in food preservation & Fortification** Application of hurdle technology in food preservation.	

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. "Hand book of Food Preservation" by M. Shafiur Rahman, CRC Press, 2007
4. "Food Packaging Science and Technology "by R. Ahvenainen, 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,
7. CRC Press, 2014.
8. "Food Processing Technology: Principles and Practice" byP.J.Fellows,WoodheadPublishing,2009
9. "Food Quality Assurance: Principles and Practices" by I.M.Morton and T.J.Bridges, CRC Press,2017
10. "Food Packaging: Principles and Practice"byG.L.Robertson,CRCPress,2012
11. Microorganisms in Foods 8: Use of Data for Assessing Process Control and Product Acceptance"
12. edited by ICFMH, Springer, 2011.

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Course Title	**Food Preservation (Practical)**	Practical Credits	**2**
Course Code	**FSNDSCP501**	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. (Preparation of papad using sun drying method.)

Monitor the drying time and evaluate the texture and taste of the dried products.

Canning and Bottling:

Preparation of product by using Sugar as a preservative. 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:

Prepare a small batch of selected **foods using fermentation method.**

Monitor the fermentation process and assess the taste, texture, and aroma of the final product.

Pickling Experiment:

Preparation of product by using Salt as preservative

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. (Sensory Evaluation)

Sensory Evaluation of Preserved Foods:

Sensory methods of evaluating Food Quality – Recognition, Threshold & other simple tests

Conduct a sensory evaluation of preserved food products e.g., dried fruits, canned vegetables, fermented foods. (This will be performed at the end of each experiment.)

Train participants in sensory evaluation techniques.

Assess attributes such as appearance, taste, aroma, texture, and overall acceptability.

Detection of Food Adulterants. Identification of adulterants in common foods **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.

Visit to food industry/research centers to observe the MAP, Hurdle technology, HPP, Vacuum packeging etc……

V SEMESTER

Course Title: Principles of Diet Therapy (Theory)	**Course Credits**: 4(Theory) +2(Practicals) = 6
Course Code: FSNDSC502	**L-T-P per week**: 3:0:2
Total Contact Hours: (4+4=8Hrs per week)	
Formative Assessment Marks: 40	**Summative Assessment Marks**: 60

Pedagogy: Regular Lecturers, Demonstrations, Exercises on observation and follow up with group Discussions, case studies, ICT enabled teaching and learning experience in terms of video Lessons and documentary films shows.

Course Objectives

1. To provide an understanding of the fundamental principles of diet therapy and its application in health and disease management.
2. To enable students to assess dietary needs and design therapeutic diets for various medical conditions.
3. To familiarize students with the role of diet in prevention, treatment, and recovery from diseases.
4. To develop practical skills for modifying normal diets into therapeutic diets based on clinical requirements.
5. To create awareness about the significance of individualized dietary planning and counseling.

Course Outcomes

After completing this course, students will be able to:

1. Explain the basic concepts of diet therapy and its importance in clinical settings.
2. Identify dietary requirements for specific diseases and tailor meal plans accordingly.
3. Demonstrate skills in planning and preparing therapeutic diets for different health conditions.
4. Analyze the impact of diet modifications on patient recovery and overall health.
5. Develop effective communication and counseling strategies to assist patients in adhering to dietary recommendations.

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.

B. **Nutrition Care Process: Components and steps of the NCP**

C. Planning of therapeutic diet

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

D. 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

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), refeeding syndrome (Brief).

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

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

B. Metaboloic Syndrome: Definition, Risk Factors, Diagnostic Criteria, Health Risks and Complications.

C. 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, **Anti-inflammatory diet, avoiding trigger foods.**

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

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References

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

Course Title	**Principles of Diet Therapy** (P**ractical)**	Practical Credits	**2**
Course Code	**FSNDSCP502**	Contact Hours	**60 Hours**
Formative Assessment	**25 Marks**	Summative Assessment	**25 Marks**

Practical Content

Practical Objectives

- To develop skills in planning and preparing therapeutic diets.
- To assess dietary requirements for different medical conditions.
- To analyze and evaluate the impact of dietary modifications on health outcomes.

1. Assessment and Planning of Therapeutic Diets (15 hours)

- Use of dietary guidelines and exchange lists for therapeutic diet planning.
- Calculation of nutrient requirements based on medical conditions.
- Case study-based diet planning for conditions such as obesity, underweight, diabetes mellitus, Digestive diseases, and febrile conditions.

2. Diet Preparation and Modification (20 hours)

- **Liquid Diets:** Preparation of clear and full liquid diets for post-surgery or febrile patients.
- **Soft Diets:** Development of soft diets for gastrointestinal issues like peptic ulcers and indigestion.
- **Diabetic Diets:** Low glycemic index meal preparation with carbohydrate counting.
- **High-Calorie Diets:** For underweight or malnourished patients, including protein-rich recipes.

3. Industrial/Clinical Visits: Exposure to diet therapy implementation in hospitals or nutrition clinics.

4. **Case Discussions:** Collaborative learning through patient case studies and recovery outcomes.

5. **Role-Play Counseling:** Simulated diet counseling sessions focusing on therapeutic interventions.

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Program Name	**B.Sc. in Food Science and Nutrition**	Semester	**Fifth Semester**
Course Title	**Diet Counseling (SEC) (Theory)**		
Course Code:	**FSNT 5.3a**	No. of Credits	**3**
Contact hours	**45Hours**	Duration of SEA/Exam	**2 hours**
Formative Assessment Marks	**40**	Summative Assessment Marks	**60**

Theory Contents	**45 Hrs**
Unit1	15hrs

A. Basic Concepts of Counseg

Definition of counseling, Models for behavioral change, trans theoretical model of behavior change
Motivational interview: Principles, motivational intervention model
Fundamentals of food behavior. Assessment of readiness to change, Client counsel or relationship.

B. Communication skills

Objectives, Verbal, nonverbal communication skills

Skills - Listening, response, action process, sharing response, observing, paraphrasing & reflecting.

Behavior change: Counseling skills for resistance behavior

Cultural competence in counseling – ABCDE approach

C. Components of counseling process

Strategies to promote change-Food management tools, Behavior change strategy, cognitive restructuring, and education during counseling.
Making behavior change last-social network, stress management, relapse prevention, counseling evaluation.

D. **Counseling sessions**: Not ready to change, unsure about change, Ready to change, skill development for OARS (open end questions, affirmations, reflective listening, summary statements, Client rights)

Unit2	15 Hrs

- Preparation of Nutrition Care Plan (ABCD model)
- Analysis and interpretation of SOAP format, SGA

Preparation of counseling aids for the following conditions Diabetes mellitus (IDDM/NIDDM/GDM), Obesity and underweight, hypertension, atherosclerosis, renal calculi, hepatitis/cirrhosis, GIT (Gastro intestinal disorders).

Unit3	15 Hrs

Conducting counseling sessions for a given condition using Open-ended questions, Affirming, Reflective listening, and Summarizing (OARS) along with counseling aids for

- Obesity; Underweight; Diabetes mellitus (IDDM/NIDDM/GDM); GIT disorders; Liver disorders ; Renal disorders; Cardiovascular disorders

References
Bauer Kathleen D, Sokolik Carol, Loiu Doreen., Nutrition Counseling and Education Skill Development, Wadsworth Thomson Learning, 2002
Bauer Kathleen D, Sokolik Carol, Basic nutrition counseling skill development, Wadsworth Thomson Learning, 2002
Gail Morrison & Lisa Hark., Medical Nutrition & Disease, Blackwell Science Inc
Herrin.M.,NutritionCounsellingintheTreatmentofEatingDisorders.NewYork,NY,Brunner- Routledge,2003
KingKathy,KlawitterBridget.,NutritionTherapy:AdvancedCounsellingSkillsLippincottWilliams& Wilkin,2007
Snetsellar, LindaG., Nutrition counseling skills for the nutrition care process, 4th Edition Jones & Bartlett Publishers, 2009

VI SEMESTER

Course Title: Food Microbiology (Theory)	**Course Credits**: 4(Theory) +2(Practicals) = 6
Course Code: FSNDSC601	**L-T-P per week**: 3:0:2
Total Contact Hours: (4+4=8Hrs per week)	
Formative Assessment Marks: 40	**Summative Assessment Marks**: 60

Pedagogy: Regular Lecturers, Demonstrations, Exercises on observation and follow up with group Discussions, case studies, ICT enabled teaching and learning experience in terms of video Lessons and documentary films shows.

Course Objectives

1. To introduce the fundamentals of microbiology and its relevance to food safety and quality.
2. To understand the role of microorganisms in food production, preservation, and spoilage.
3. To explore the relationship between foodborne pathogens and public health concerns.
4. To develop knowledge of microbiological techniques for detecting and controlling microbes in food.
5. To provide insights into the application of beneficial microbes in food fermentation and biotechnology.

Course Outcomes

After completing this course, students will be able to:

1. Explain the role and significance of microorganisms in food systems.
2. Identify different types of microorganisms involved in food spoilage, fermentation, and foodborne diseases.
3. Apply microbiological methods to assess the microbial quality and safety of food products.
4. Design and implement strategies to prevent contamination and control microbial growth in food.
5. Evaluate the applications of beneficial microbes in the food industry and biotechnology.

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. Significance of microorganisms in foods	
Unit2: Food borne Pathogens	15 Hrs
a. Introduction to food borne illnesses and outbreaks. b. Common food borne pathogens:*Salmonella, Campylobacter, Escherichia coli, Listeria monocytogenes, Staphylococcus aureus, Clostridium botulinum*, etc. **c.** Pathogenesis of food borne infections and intoxications. Methods for detection and identification of food borne pathogens and food born toxins. Control measures to prevent food borne illnesses.	
Unit3: Microbiology of different foods	15 Hrs
Spoilage and contamination, sources, types effects on the following • Milk and milk product • Cereal and cereal products • Sugar and sugar products • Vegetables and fruits • Meat and meat products, egg, poultry, fish and other sea foods • Canned foods • Food spoilage and quality indicators	
Unit4: Food Quality and Safety	15 Hrs
a. Microbiological criteria for food safety, Food safety regulations, good manufacturing practices (GMP), hazard analysis critical control point (HACCP) System, Risk assessment and management in food microbiology**,** Application of packaging to prevent food contamination and spoilage. Emerging issues in food microbiology: antimicrobial resistance, food fraud, genetically modified organisms (GMOs), nanotechnology	

References
"Food Microbiology: Fundamentals and Frontiers "by Michael Doyle, Robert L. Buchanan, and Arnold L. Demain. Publisher: ASM Press. Publication Year: 2013.
"Food Microbiology: An Introduction "by Thomas J. Montville, Karl R. Matthews, and Martin B. Doyle. Publisher: ASM Press. Publication Year: 2005.
"Food Microbiology: Principles into Practice "by Osman Erkmen and Turgut Cabuk. Publisher: Wiley-Blackwell. Publication Year: 2016.
"Food Microbiology: A Laboratory Manual "by Ahmed E. Yousef and Carolyn Carlstrom. Publisher: Wiley- Blackwell. Publication Year: 2019.
"Food Microbiology: An Introduction" by M.P.Doyle.Publisher: Springer.PublicationYear:2020.
"Modern Food Microbiology" by James M. Jay, Martin J. Loessner, and David A. Golden. Publisher: Springer. Publication Year: 2005.
"Food Microbiology: An Introduction" by Thomas V. Mc Meekin, Tony Ross, and Richard A. Olley. Publisher: Springer. Publication Year: 2000.

Course Title	**Food Microbiology (Practical)**	Practical Credits	**2**
Course Code	**FSNDSCP601**	Contact Hours	**60 Hours**
Formative Assessment	**25 Marks**	Summative Assessment	**25 Marks**

Practical Content

1. **Staining procedures by preparation of:**
    - **Bacterial smear by simple staining method & Grams staining technique by differential staining**
2. **Observation of motility of bacteria by hanging drop preparation**
3. **Observation of permanent slides of pathogenic bacteria, protozoa, yeast and molds.**
4. **Food Spoilage Examination**: Examine spoiled food samples and identify the microorganisms responsible for spoilage.
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. Students can monitor microbial growth, pH changes, and sensory attributes during fermentation.
7. **Quality Assurance Audits**: food safety practices in food service institutions/canteen/hospital/hotel/using checklist

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VI SEMESTER

Course Title: Therapeutic Nutrition (Theory)	**Course Credits**: 4(Theory) +2(Practicals) = 6
Course Code: FSNDSC602	**L-T-P per week**: 3:0:2
Total Contact Hours: (4+4=8Hrs per week)	
Formative Assessment Marks: 40	**Summative Assessment Marks**: 60

Pedagogy: Regular Lecturers, Demonstrations, Exercises on observation and follow up with group Discussions, case studies, ICT enabled teaching and learning experience in terms of video Lessons and documentary films shows.

Course Objectives

1. To understand the principles and concepts of therapeutic nutrition in the prevention and management of diseases.
2. To provide in-depth knowledge of nutrient metabolism and its role in disease conditions.
3. To equip students with the skills required to develop and implement individualized therapeutic diets.
4. To familiarize students with dietary modifications for various health conditions, including chronic diseases.
5. To highlight the importance of nutritional counseling and its role in patient recovery and adherence.

Course Outcomes

After completing this course, students will be able to:

1. Explain the fundamental principles of therapeutic nutrition and their application in clinical nutrition.
2. Identify specific dietary requirements for patients with acute and chronic medical conditions.
3. Plan and evaluate therapeutic diets tailored to individual health needs.
4. Analyze the impact of therapeutic nutrition on disease management and recovery.
5. Develop effective nutritional counseling strategies to promote better health outcomes and adherence to dietary recommendations.

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. Epilepsy and the ketogenic diet, Alzheimer's disease and nutritional interventions, Role of antioxidants, omega-3 fatty acids, Parkinson's disease and dietary managements, Nutritional strategies to support motor function 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, and dietary management of - COPD, Asthma, Chronic Bronchitis, Emphysema, Cystic Fibrosis, Pneumonia. Pleural Effusion, **Role of specific nutrients (omega-3 fatty acids, antioxidants)** B. Etiology, Symptoms, Diagnosis, and dietary management of - Endometriosis, Uterine Fibroids, Interstitial Cystitis, Polycystic Ovary Syndrome (PCOS),	
Unit IV Nutrition care in Allergy	8 Hrs
A. Etiology, Symptoms, Diagnosis, Treatment, and dietary management of Food Allergy (Milk, egg, Peanut, fish, tree nut, soy, wheat). Restricted diet, elimination diets.	
Unit V Drug and Nutrient Interactions	**7 Hrs.**
A. Effects drugs on ingestion, digestion, absorption, and metabolism of nutrients, nutritional status, organ function, B. Drug dosage and efficacy, drug abuse and drug resistance	

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	**FSNDSCP602**	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....

Course Title	**Internship (Practical)**	Practical Credits	**2**
Course Code	**FSNP 6.3**	Contact Hours	**60 Hours**
Formative Assessment	**25 Marks**	Summative Assessment	**25 Marks**
Practical Content			
Students to be sent to different industries/ laboratories/health centers etc., weekly 4 hours 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

Blueprint of End semester examination

St. Philomena's Degree College (Autonomous), Mysuru

III, IV, V, VI Semester B.Sc – Examination

Subject: Food Science and Nutrition

Title:

Time:$2^{1}/_{2}$ Hours Max Marks:60

	PART A	
	Answer any TEN of the following:	10x2=20
1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.		
	PART B	
	Answer any FOUR of the following:	4x4=16
13. 14. 15. 16. 17. 18.		
	PART C	
	Answer any THREE of the following:	3x8=24
19. 20. 21. 22. 23.		

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