



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Home Science
Choice Based Credit System (CBCS) in Light of NEP-2020
MSc. Food and Nutrition Sem III (2021-2023)

Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								
			Theory			Practical		L	T	P	CREDITS
			End Sem University Exam	Two Term Exam	Teachers Assessment	End Sem University Exam	Teachers Assessment				
MFSN 301	CC	Clinical Nutrition	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit.

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The Students will -

CEO1: comprehend about clinical nutrition, role of dietician in hospitals, role of diet in reviving health after clinical manifestations.

CEO2: gain knowledge about therapeutic nutrition, dietary management for prevention of diseases.

Course Outcomes (COs): Student should be able to -

CO1: understand about clinical nutrition concept, its application in reviving optimum health and interrelationship between food, nutrition and health.

CO2: gain knowledge about role of dietician in facility-based care, importance of counseling in improving patient health.

CO3: acquired knowledge to assess the nutritional status and health problem persist with focus on medical records and personal attributes.

CO4: develop skills to plan various dietary interventions by using standard dietary guidelines.

CO5: learns attributes to evaluate nutritional care plan and planning for differentially abled and other disorders

Syllabus

UNIT I

Introduction to Clinical Nutrition: definition, principle and history of clinical nutrition. Dietetics contemporary in medical management. Concepts of a desirable diet for optimum health. Interrelationship between food, nutrition and health.

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UNIT II

Nutrition counseling: definition, concept, role of clinical dietician, the recipient and counseling environment and goals of counseling. Role of dietician in hospital- specific functions, team approach in patient care, psychological consideration, interpersonal relationship with patients. Nutrition and medical ethics. Hospital - dietary- scope and importance, types of food service, quality management.

UNIT III

Assessment of nutritional status and development of nutrition care plan: Clinical situations for hospitalized and outpatients. Somatic, biological, clinical and dietary assessment, environmental and behavioral data analysis and interpretation. Nutritional and health conditions including body care- skin, hair, face, hands, feet etc. Aging, gender related problems. Medical records-types and uses.

UNIT IV

Principles of planning a normal diet: characteristics of a normal diet, meeting nutrient requirements of individuals and family. Use of Dietary guidelines for Indians. Objectives of diet therapy. Enteral and Parenteral feeding: principles, types, methods of administration, monitoring, and complications. Dietary principles and management of special conditions. Food supplements, Enteral formulas, Functional foods, and therapeutic foods.

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UNIT V

An overview of systems approach to nutritional care and its components - planning, implementation, and evaluation. Drug and nutrient interaction: drug – drug/drug-nutrient interaction – effect on ingestion, digestion, absorption, and metabolism of nutrients. Nutrition care in immune deficiency diseases. Care during HIV and cancers, children with special needs- spastic, polio affected, preterm infants and other conditions.

Suggested reading:

- Eastwood, M.A., & Passmore, R. (2020). *Human Nutrition and Dietetics*. London: ELBS Churchill Livingstone.
- Bamji, M.S., Rao, N.P. & Reddy, V. (2019). *Textbook of Human Nutrition*. New Delhi: Oxford & IBH Publishing Co. (P) Ltd.
- Garrow, J.S., & James, W.T. (2001). *Nutrition and Dietetics*. Edinburgh: Churchill and Livingstone.
- Khanna, K. (2016). *Textbook of Nutrition and Dietetics*. New Delhi: Elite publishing house.
- Robinson, C.H., & Lawler, M.R. (2012). *Normal and Therapeutic Nutrition*. New Delhi: Oxford & IBH Pub. Co.
- Shils, M.E. (2006). *Modern Nutrition in Health and Disease*. USA: Lippincott, Williams & Williams.
- Whitney, E.R., & Rodney, R. S. (2018). *Understanding Nutrition*. USA: West Publishing Company, New York.
- Antia, F.P., & Abraham, P. (1997). *Clinical Dietetics and Nutrition*. New Delhi: Oxford University Press.

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MFSN 303 E1	DSE	Public Health Nutrition	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
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Course Educational Objectives (CEOs): The students will -

- CEO1:** ingrain the understanding for Public Health Nutrition and Health Care System, population dynamics, structure, and policy.
- CEO2:** comprehend about malnutrition and various approaches to improve economy, productivity, and population at large.

Course Outcomes (COs): Student should be able to -

- CO1:** develop profound knowledge of public health nutrition and health care system.
- CO2:** comprehend with population dynamics, structure and policy.
- CO3:** enhance knowledge about how malnutrition creating impact on National economy and productivity
- CO4:** learn various approaches in improving nutrition and health status of community.
- CO5:** understand for food and nutrition security.

Syllabus

UNIT I

Public Health Nutrition and Health Care System: aim, scope and content of public health nutrition. Current concerns in public health nutrition: an overview. Role of public health nutritionists in national development. Health - definition, dimensions, determinants and indicators.

UNIT II

Population dynamics and demographic transition. Population structure: implications on quality of life and population policy.

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Unit III

Community health care and national health care delivery system. Economics of malnutrition. Impact of malnutrition on productivity and national development.

Unit IV

Approaches for improving nutrition and health status of the community. Health based interventions including immunization, provision of safe drinking water/sanitation, prevention and management of diarrheal diseases. Food based interventions including food fortification, dietary diversification, supplementary feeding and biotechnological approaches. Education based interventions including growth monitoring and promotion (GMP), health/nutrition related social and behavior change communication.

Unit V

Food and Nutrition Security: Concepts and definitions of food and nutrition security at national, regional, household and individual levels. Impact of food production losses, distribution, access, availability, consumption on food and nutrition security and critical appraisal of the current scenario. Emergency rationing and food surveillance system.

Suggested readings:

- Achaya, K.T. (1984). *Interface Between Agriculture, Nutrition and Food Science*. The United National University.
- Beaton, G.H.& Bengoa, J.M. (1996). *Nutrition in Preventive Medicine*, WHO.
- Gibney M.J., Margetts, B.M., Kearney, & J.M. Arab, I. (2004). *Public Health Nutrition*. NS Blackwell Publishing.
- Gopalan, C. (1987). *Combating Under nutrition – Basic Issues and Practical Approaches*. New Delhi. Nutrition Foundation of India.

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- Kaufman, M. (2007). *Nutrition in promoting the public health strategies, principles and Practice*. Jones and Bartlett Publishers.
- Park, K. (2021). *Textbook of Preventive and Social Medicine*. Jabalpur. Banarsidas Bhanot .
- Vir, S. (2011). *Public health nutrition in developing countries Part-1 & 2*. Woodhead Pvt.
- Judith L. B., Ailsa, A.W., & John, M.K. (2017). *Public Health Nutrition*. UK: Wiley Blackwell.

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MFSN 303 E2	DSE	Food Product Development	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will -

- CEO1:** understand the latest consumer demand for novel food products
- CEO2:** learn and develop novel technology to develop new products.
- CEO3:** learn cost analysis and feasibility of new product development
- CEO4:** knowledge of sensory and shelf-life evaluations foods.

Course Outcomes (COs): Student should be able to -

- CO1: understand the need of new food product development.
- CO2: gain knowledge of market survey of new food product development.
- CO3: understand the stages and different additives used development of food product.
- CO4: get acquaint with different types of packaging, cost analysis and investment.
- CO5: familiarize with shelf-life studies of food products.

Syllabus

UNIT I

Food needs and consumer preferences, need for new products, innovations in product development, need, classification, characterization, needs and types of foods consumption trends. Economic, psychological, anthropological and sociological dimensions of food consumption.

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UNIT II

Factors to be considered new product development: social concerns, health concerns, impact of technology, market influence, advertising, market sector perspective and market research. Consumer research and the market. Trends in social change and its role in diet pattern, Identifying the need for new products. Designing need based new products and the R & D Process.

Unit III

Phases of food product development- introductory phase, growth phase, maturity phase and decline phase. Developing standard products, Types of products and logistics. Processing- primary and secondary, various food ingredients used, use of food additives. Standardization and large-scale preparation. Safety and regulatory aspects, sanitation and waste disposal.

UNIT IV

Packaging - Development of suitable packaging material, management. Design and package graphics. Labelling, and testing. Storage, transportation, product costing, plant location, investment and financing of project.

UNIT V

Chemical and physical properties of foods, Shelf-life studies and shelf-life prediction. Planning for the food product to be developed, Processing steps, ingredients required, equipment required, standardization, evaluation, large scale production, packaging and shelf-life studies. Drawing up a working plan and time schedule.

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MFSN 303 E2	DSE	Food Product Development	60	20	20	0	0	3	0	0	3

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Suggested readings:

- Fuller, G.W. (2011). *New food product development from concept to marketplace*. CRC Press.
- Gothelf, J., & Seiden, J. (2017). *Sense and Respond: How Successful Organizations Listen to Customers and Create New Products Continuously*. USA: Harvard Business Review Press.
- Graf, I.E., & Saguy, S. (2020). *Food product development: from concept to the Marketplace*. New Delhi. Springer.

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MFSN 302	CC	Food Processing and Technology I	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C- Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The Students will -

- CEO1:** understand the basic composition and structural parts of food grains.
- CEO2:** aware the importance nutritional value of food grains.
- CEO3:** understand the basics of milling operations for food grains.
- CEO4:** know the processing food grains and oil seeds with its value-added products.

Course Outcomes (COs): Student should be able to-

- CO1:** understand different types of grain with its milled products.
- CO2:** familiarize with rice and barley processing.
- CO3:** acquaint with processing of baked goods.
- CO4:** understand pulses and legumes processing and its products.
- CO5:** learn the different types of oil seeds, its processing and their products.

Syllabus

UNIT I

Introduction to cereals: structure, types/varieties, composition and commercial value of wheat, rice, maize, oats, rye, corn, with their nutritional importance and commercial value. Milling of wheat and corn. Different types of wheat, corn and oats products.

Unit II:

Paddy processing and treatment for quality improvement. Puffed rice, rice flakes, parboiling of rice, extruded and fortified rice. Barley, malt and millets with their nutritional importance and value-added products.

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Unit III

Introduction to Baking technology: Types of bakery products, standards & regulations. Bread, cakes, biscuits /crackers: role of ingredients & processes, equipment used, product quality characteristics, scoring of quality parameters, faults and corrective measures.

UNIT IV

Types of pulses and legumes their nutritional value. Milling and processing of major pulses and legumes. Modern techniques in dal mills. Fermented products of legumes. Methods of cooking - sprouting, puffing, roasting and parboiling of legumes, physical and bio-chemical changes during these processes. Quick cooking dal, instant dal and dal products.

UNIT V

Oilseeds processing for oil Extraction: preparation of oilseeds, mechanical and solvent extraction methods of oil extraction, oil refining, hydrogenation, utilization of deoiled cake. Soy processing: soya as a source of protein and oil; soya milk, soy protein Isolate, soy concentrates, soya paneer, soya sauce and production of textured vegetable proteins.

Suggested readings:

- Chakravarti, A. (2004). *Post-harvest technology of Cereals, Pulses and Oilseeds*. Oxford Publishing.
- Khatarpaul, N., Grewal, R., & Jood, D. (2018), *Bakery Science & Cereal Technology*. New Delhi Daya publishing house.
- Matz, S. (2000). *Bakery Technology and Engineering*. CBS Publication.
- Singh, K.M., & Sahay, K.K. (2017). *Unit Operations of Agricultural Processing*. Daya publishing house.

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MFNL 304	III	Food Nutrition Lab	0	0	0	30	20	0	0	4	2

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***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will -

- CEO1:** acquire knowledge by surveying various therapeutic commercial products and by preparing bakery food items
- CEO2:** learn testing techniques for wheat flour, bread processing and development of functional foods.

Course Outcomes (COs): Student should be able to-

- CO1:** learn the available commercial therapeutic products in the market and planning of different need-based diet plans and counseling sessions.
- CO2:** acquire skill for testing of wheat flour and bread processing.
- CO3:** comprehend with preparation of various bakery food items.
- CO4:** develop functional foods.

List of Practicals:

a) Clinical Nutrition

1. Market survey for commercial nutritional clinical and therapeutic products.
2. Planning and preparation of recipes of following type – normal, soft, semisolid, low fat, low calorie, high fibre, low fibre, low residue, bland, high protein, low protein etc.
3. Planning & preparation of diets for disorders covered in theory with introduction to mixed / multiple disorders and complications.
4. Diet counseling for disorders covered in theory.

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MFNL 304	III	Food Nutrition Lab	0	0	0	90	60	0	0	4	2

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b) Food Processing and Technology

1. Quality testing of wheat flour: gluten quality and quantity, moisture, ash, water absorption power (WAP), pekar color test, maltose value, falling number, Dough Raising Capacity (DRC).
2. Bread Processing: straight dough method, sponge & dough method (delayed salt method) and use of improvers in bread.
3. Preparation of sweet buns/pizza base/ Nan/Pav.
4. Biscuits: short and hard dough biscuits, their quality parameters packaging and shelf-life study.
5. Cakes: sponge and cream cakes/ eggless cakes and their quality parameters.
6. Preparation of cookie, donuts and nan-khatai.
7. Formulation of any two functional foods.

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MFNP 305	III	Dissertation I	0	0	0	30	20	0	0	0	2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will -

CEO1: acquire knowledge regarding identification and formulation of the problem.

CEO2: learn techniques for questionnaire formulation and data analysis.

Course Outcomes (COs): Student should be able to-

CO1: familiarize the students with the process of research with focus on operations research.

CO2: train the students to identify Public Health Problems in national & state context and identify knowledge gaps for research.

CO3: train the students on all steps of research process from problem identification to data dissemination.

List of work under dissertation

- Identification of problem of Research in Foods & Nutrition.
- Collecting relevant Review of Literature and developing the experimental design.
- Tool development for Research and pilot testing / standardization of techniques.
- Data Collection.
- Data entry - Statistical analysis
- Scientific Writing.

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Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								
			Theory			Practical		L	T	P	CREDITS
			End Sem University Exam	Two Term Exam	Teachers Assessment	End Sem University Exam	Teachers Assessment				
MFNP 305	III	Dissertation I	0	0	0	30	20	0	0	0	2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Suggested readings:

- Indian Journal of Community Medicine, Medknow publications & media Pvt. Ltd, Mumbai.
- Indian Journal of Public Health published by Indian Public Health Association.
- Thyroid Research and Practice, Medknow publications & media Pvt. Ltd, Mumbai.
- Indian Journal of Public Health published by Indian Public Health Association.
- Webliography of Journal : www.emeraldinsight.com/journals.htm (Emerald - Nut. and Food Science)

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Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								
			Theory			Practical		L	T	P	CREDITS
			End Sem University Exam	Two Term Exam	Teachers Assessment	End Sem University Exam	Teachers Assessment				
MFNV 306	CV	Comprehensive Viva	0	0	0	60	40	0	0	0	2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks. Comprehensive Viva of the candidates in presence of subject expert and faculty members.

Course Educational Objectives (CEOs): The students will -

CEO1: learn to reflect their work, leaning and experiences.

CEO2: develop skills for being tech-savvy.

Course Outcomes (COs): Student should be able to-

CO1: learn to showcase their leaning obtained from research work.

CO2: understand the logic behind various food processing and product development.

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