



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 (2022-2024)

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 clinical nutrition concept, its application in reviving optimum health and interrelationship between food, nutrition and health.

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

CO3: acquired knowledge to assess nutritional status and health problems 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 types of food service, quality management and Nutrition and medical ethics.

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 readings:

- 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;
***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:** 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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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.

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 include 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 include 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:

- Gopalan, C. (1987). *Combating Under nutrition – Basic Issues and Practical Approaches*. New Delhi. Nutrition Foundation of India.
- 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.

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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.

- Kaufman, M. (2007). *Nutrition in promoting the public health strategies, principles and Practice*. US. 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 for new food product development.

CO2: gain knowledge of market survey of new food product development.

CO3: understand the stages and different additives used for the development of food product.

CO4: get acquainted 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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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.

UNIT II

- Factors to be considered for 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.

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

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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.

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.

Suggested readings:

- Fuller, G.W. (2011). *New food product development from concept to marketplace*. USA. 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 on the 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 of 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, composition and commercial value of wheat, rice, maize, oats, rye, corn, with their nutritional importance and commercial value.
- Milling 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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***Teacher Assessment** shall be based on the following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks.

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 have 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 biochemical changes during these processes.

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*. Noida. CBS Publication.
- Singh, K.M., & Sahay, K.K. (2017). *Unit Operations of Agricultural Processing*. Delhi. Daya publishing house.

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MFNL 304	III	Food Nutrition Lab	0	0	0	30	20	0	0	4	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 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: comprehending 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 the 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

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.

b) Food Processing and Technology

1. Quality testing of wheat flour: gluten quality and quantity, moisture, ash, water absorption power (WAP) and 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. Cakes: sponge and cream cakes/ eggless cakes and their quality parameters.
5. Preparation of cookies and biscuits.
6. 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 the 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 experimental design.
- Tool development for Research and pilot testing / standardization of techniques.
- Data Collection.
- Data entry - Statistical analysis
- Scientific Writing.

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Choice Based Credit System (CBCS) in Light of NEP-2020

MSc. Food and Nutrition Sem III (2022-2024)

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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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, learning 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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