



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

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				
MFSN301	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.

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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.

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MFSN304	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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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 systems.

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Suggested readings:

- Gibney M.J., Margetts, B.M., Kearney, & J.M. Arab, I. (2004). *Public Health Nutrition*. NSBlackwell Publishing.
- Beaton, G.H.& Bengoa, J.M. (1996). *Nutrition in Preventive Medicine*, WHO.
- Gopalan, C. (1987). *Combating Under nutrition – Basic Issues and Practical Approaches*. New Delhi. Nutrition Foundation of India.
- Park, K. (2021). *Textbook of Preventive and Social Medicine*. Jabalpur. Banarsidas Bhanot .
- Judith L. B., Ailsa, A.W., & John, M.K. (2017). *Public Health Nutrition*. UK: Wiley Blackwell.
- Vir, S. (2011). *Public health nutrition in developing countries Part-1 & 2*. Woodhead Pvt.
- Kaufman, M. (2007). *Nutrition in promoting the public health strategies, principles and Practice*. US. Jones and Bartlett Publishers.

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MSc. Food and Nutrition Sem III

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MFNL302	CC	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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MSc. Food and Nutrition Sem III

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			End Sem University Exam	Two Term Exam	Teachers Assessment	End Sem University Exam	Teachers Assessment				
MFNL302	CC	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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			End Sem University Exam	Two Term Exam	Teachers Assessment	End Sem University Exam	Teachers Assessment				
MFNP305	Project	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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MFNP305	Project	Dissertation I	0	0	0	30	20	0	0	0	2

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

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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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MFSN303	CC	Nutritional Biochemistry	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 regarding macronutrients and their metabolism.

CEO2: comprehend about different pathways for macronutrients.

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

CO1: develop profound knowledge regarding macronutrients in respect of biochemistry.

CO2: comprehend carbohydrate metabolism by learning various cycles.

CO3: enhance knowledge about lipids.

CO4: learn protein metabolism.

CO5: understand nucleic acid and nucleoproteins.

Syllabus

UNIT I

Definition, classification, structure, functions, digestion and absorption.

- Carbohydrates,
- Proteins and
- Lipids

UNIT II

Carbohydrate metabolism:

- Glycolysis, TCA cycle & energy generation, HMP Shunt pathway, gluconeogenesis, glycogenesis, glycogenolysis.
- Blood sugar regulation.
- Chemistry of starch, glycogen, cellulose, mucilage and crude fibre.

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UNIT III

Lipids:

- Oxidation and biosynthesis of fatty acids (saturated & mono-unsaturated).
- Synthesis and utilization of ketone bodies, Ketosis, fatty livers.
- role of essential Fatty acids (Omega 3 and Omega 6 Fatty acid).

UNIT IV

Metabolism of proteins:

- Biologically important peptides and their role in the regulation of amino acid metabolism.
- Trans-amination, deamination, and decarboxylation.
- Amino acid sequence of proteins.
- Purines, Pyrimidines and Nucleic acids: introduction, chemistry, and its biological importance

UNIT V

Vitamins and Minerals

- Fat soluble vitamins (Structure and biochemical role) – A and D
- Water soluble vitamins (Structure and biochemical role) – B1, B2, niacin, pyridoxine, folic acid, B12 and C
- Biological role and occurrence of inorganic elements – iron, calcium, phosphorous, iodine, selenium and zinc.

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Suggested reading:

- Robbins, D. (2022). *Nutritional Biochemistry and Metabolism*. Wilmington: Kaufman Press.
- Nayak, S. (2021). *Handbook of Biochemistry and Nutrition*. India: Jaypee Brothers Medical Publishers.
- Brody, T. (2015). *Nutritional Biochemistry*. India: Elsevier Science Publishing.
- Satyanarayana, U., & Chakrapani, U. (2021). *Biochemistry*. Kolkata. Books and Allied (P) Ltd Elsevier.
- Sharma, D.C. (2017). *Nutritional Biochemistry*. Kolkata: CBS Publishers & Distributors.
- Murray, R. K. 1. (2012). *Harper's illustrated biochemistry* (28th ed.). New York: McGraw-Hill.

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MFNV306	CC	Comprehensive Viva	0	0	0	60	40	0	0	0	2

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: 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 developmen

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