



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Home Science
DUAL DEGREE PROGRAM (B.Sc-M.Sc Food and Nutrition)
M. Sc Food and Nutrition Sem II (2020-2021)

Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								
			Theory			Practical		Th	T	P	CREDITS
			End Sem University Exam	Two Term Exam	Teachers Assessment	End Sem University Exam	Teachers Assessment				
MFSN 201	II	Community Health and Nutrition	60	20	20	0	0	4	0	0	4

Abbreviation		Teacher Assessment (Theory) based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall exceed 10 Marks).
Th	Theory	Teacher Assessment (Practical) based on following components: Viva/ File/ Participation in Lab work (Given that no component shall exceed 50% of Marks).
T	Tutorial	
P	Practical	

Course Objective

- To enable the students to understand the nutritional problems of the community and gain skills in planning, executing and evaluating community nutrition services and planning.
- To orient the students with the strategies for improving the nutritional status of communities.

Course Outcome

- To develop a keen insight to observe, assess and critically evaluate the nutritional status of the community so that remediation of these problems may be sought in future perspective.



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MFSN 201: Community Health and Nutrition

UNIT I

Concept of community, Community development, Social and cultural perspectives in relation to food preferences and health.

Nutritional epidemiology: Indices of Population health status: Birth rates, mortality rates, parity, sex ratio, life expectancy etc. Case control and Cohort studies. Nutritional Assessment and Methods of identification of Nutritional Problems: Salient features, Techniques of dietary survey, limitations and interpretation of data, Anthropometrical, biochemical, clinical and radiological techniques - limitations and interpretation.

UNIT II

Assessment of Nutritional Status: Developmental milestones: Gomez and Water low classifications of growth. Standard norms for evaluation of growth. Growth charts. Vulnerable or at-risk groups. Nutritional problems of the Indian community: Etiology, Government intervention / combat strategies for: Low birth weight infants, protein-energy malnutrition, kwashiorkor and marasmus. Vitamin A deficiency, nutritional anemia, iodine deficiency disorders, endemic flourosis, lathyrism.

UNIT III

Community Nutrition Services: Role of National Nutrition Monitoring Bureau. National Sample Survey in assessment of geographical distribution of dietary patterns in India. National and International Services. Governmental and Non-Governmental organizations. Health care delivery systems in rural and urban India. Immunization. Supplementary feeding programs, reasons for their success and failure. I.E.C. activities in relation to Nutrition. Panchayati Raj Institutions and Nutrition services. Nutrition Education. Objectives, channels, methods and evaluation of communication.

UNIT IV

Nutrition and Policy Planning: National nutritional policy and the State nutritional policy: Development, aims, Government guidelines and policies. Ministries involved. Public Distribution system and Administration. Food Production in relation to needs of the country, food security, food economics. Global perspectives in malnutrition. Global environmental problems: Global warming and its impact on agriculture. World food problems: Prevalence, indicators of economic and social statistics of nations, combat strategies. Role of Science and Technology.



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UNIT V

Participatory techniques for community based programs: Participatory learning and action: Definition and foundations. Techniques: Time line, seasonal calendars, diagramming, focus group discussions. Transect walks and observation. Ranking, scoring and matrices. Participatory monitoring and evaluation.

Reference Books:

- Gibson, R.S. (1990). Principles of Nutritional Assessment. Oxford University Press. New Delhi.
- Gopaldas, T. & Seshadri, S. (1987). Nutrition – Monitoring and Assessment. Oxford University Press. New Delhi.
- Jelliffe, D.B. Latest Ed. The Assessment of Nutritional Status of Community WHO/FAO Monograph series No.53, WHO Geneva.
- Maclaren, D.S. (1986). Nutrition in the Community 2nd Ed. John Willey and Sons, New York.
- Mann, S.K., Sangha, J.K., Mehta, U. & Jain, R. (1999). Manual on Community Nutrition. College of Home Science, PAU, Ludhiana.
- Obert, J.C. (1986). Community Nutrition. Mac Millan New York.
- Park, K. (2000). Park's Text Book of Preventive and Social Medicine 16th Ed. Banarsidas Bhanot Publishing Jabalpur, India.
- Shukla, P.K. (1982). Nutritional Problems of India. Prentice Hall of India



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MFSN 202	II	Dietetics and Therapeutic Nutrition	60	20	20	0	0	4	0	0	4

Abbreviation		Teacher Assessment (Theory) based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall exceed 10 Marks).
Th	Theory	
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P	Practical	

Course Objective

- To familiarize students about estimation of RDA, deficiency of nutrients, estimation of different nutrients in normal and diseased conditions.
- Plan and prepare suitable therapeutic diets based on patient needs for various diseases/disorders.
- Provide dietary counseling for prevention / treatment of various diseases / disorders.
- Prepare special therapeutic / health foods.

Course Outcome

- To make students competent in planning menus involving judicious modification of macro and micronutrients for various physiological and pathological conditions.



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MFSN 202: Dietetics and Therapeutic Nutrition

UNIT I

Life cycle nutrition: Nutrient requirements and diet plans for different stages of life: Pregnancy, Lactation, Infancy, Childhood, Adolescence, Adulthood, Geriatric group.

UNIT II

In relation to physical activity: Diets for laborers and athletes. Nutrition for weight management: Underweight, Overweight and obesity. Introductory concepts of therapeutic nutrition: Normal diets, Dietary Modifications- soft diets, liquid diets, total parenteral nutrition, other therapeutic diets. Food-based home remedies: Evaluation as scientific facts or food fads.

UNIT III

Classification, etiology, metabolic aberrations, clinical manifestations, complications, dietary management and counseling for: Febrile conditions such as viral fevers, typhoid and tuberculosis. Gastrointestinal diseases such as diarrhea, constipation, gastritis, flatulence, peptic ulcer. Malabsorption syndromes: Coeliac disease. Tropical sprue. Lactose intolerance.

UNIT IV

Classification, etiology, metabolic aberrations, clinical manifestations, complications, dietary management and counseling for: Diabetes: NIDDM, IDDM, GDM. Cardiovascular diseases: Atherosclerosis, hypertension, hypercholesterolemia, hyperlipoproteinemia, congestive heart failure, myocardial infarction. Renal diseases: Nephrotic syndrome. Acute glomerulonephritis. Acute renal failure. Chronic renal failure.

UNIT V

Classification, etiology, metabolic aberrations, clinical manifestations, complications, dietary management and counseling for: Biliary diseases: of liver: Hepatitis. Cirrhosis. Hepatic coma. of gallbladder: Gall stones/Cholelithiasis. of pancreas: Pancreatitis.

Reference Books:

- Antia, F.P. & Abraham, P. (1997). Clinical Dietetics and Nutrition 4th Ed., Oxford University Press, New Delhi.
- Bamji, M.S., Rao, N.P & Reddy, V. (1996). Textbook of Human Nutrition. Oxford & IBH Publishing Co. (P) Ltd. New Delhi.
- Eastwood, M. A. & Passmore, R. (1987). Human Nutrition and Dietetics. 8th Ed. ELBS Churchill Livingstone, London.
- Garrow, J.S. et al. (2001). Nutrition and Dietetics. Churchill and Livingstone, Edinburgh.



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- Khanna, K. (2007). Textbook of Nutrition and Dietetics. Elite publishing house, New Delhi.
- Robinson, C.H. & Lawler, M.R. (1982). Normal and Therapeutic Nutrition. Oxford & IBH Pub. Co. New Delhi.
- Shils, M.E. (2006). Modern Nutrition in Health and Disease. Lippincot, Williams & Williams, USA.
- Whitney, E.R & Rodney Roltes, S. (1996) Under Standing Nutrition. West Publishing Company, New York, USA.



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MFSN 203	II	Food Microbiology and Food Safety	60	20	20	0	0	4	0	0	4

Abbreviation		Teacher Assessment (Theory) based on following components: Quiz / Assignment / Project / Participation in class (Given that no component shall exceed 10 Marks).
Th	Theory	
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P	Practical	

Course Objective

- To acquaint students with different groups of micro-organisms associated with food and food borne diseases, their activities, destruction and detection in food.
- To study the relevance of microbiological safety of Food.
- To study food laws.

Course Outcome

- To realize the significance of food safety and protection of food against the disease outbreaks caused by various microorganisms and contaminants.



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MFSN 203: Food Microbiology and Food Safety

UNIT I

Overview of Basic Microbiology: Definition, Scope of Food Microbiology
An introduction to microbial world: Bacteria, Fungi, Yeast, Viruses, Bacterial groups based on their morphology: Gram +ve/Gram –ve bacteria, Motile/Non-motile bacteria, Sporulating/Non-sporulating bacteria, Bacterial groups based on their physiological growth factors: Temperature, pH, water activity, availability of oxygen. Fungi and Yeast: General features & their importance in food Microbiology. Viruses and Bacteriophages: Definition, their general characteristics & multiplication.

UNIT II

Food Spoilage and Preservation, Food spoilage: Definition, sources of contamination and microorganisms involved in spoilages of various foods: Milk, Bread, Canned food, Vegetables and fruits, Fruit juices, Meat, Eggs and Fish.

Physical and chemical means used in destruction of microbes: Definition of sterilization and disinfection, role of heat, filtration and radiation in sterilization, use of chemical agents-alcohol, halogens and detergents

UNIT III

Microorganisms in Human Welfare: Importance of microbes in food biotechnology: genetically engineered organisms, probiotics and single cell proteins. Dairy products (cheese and yoghurt) and traditional Indian fermented foods and their health benefits.

UNIT IV

Food safety and Quality Control I: Public health hazards due to microbial contamination of foods: Important food borne infections and intoxications due to bacteria, moulds, viruses (Salmonella typhi, Helicobacter pylori, Campylobacter jejuni, Yersinia enterocolitica, Bacillus cereus, Staphylococcus aureus, Clostridium botulinum, Escherichia coli, Mycotoxins, Hepatitis A virus & Rota virus)- Symptoms, mode of transmission and methods of prevention.

UNIT V

Food safety and Quality Control II: Assessing the microbiological quality of food: indicator organisms, microbiological standards, principles of GMP & HACCP in food processing. Safety management at household and industrial level.

Food standards and laws: International – Concept of Codex alimentarius, HACCP, GMP, GHP, USFDA, ISO 9000, ISO 22000, ISO 14000. National – Introduction of BIS/IS, Food Safety and standards – 2006, Food Safety and standard regulation 2010, FPO, MPO, MMPO, Agmark.



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Reference Books:

- Banwart GJ.(1987) Basic Food Microbiology . CBS Publishers and Distributors.
- Frazier WC, Westoff DC.(1998)Food Microbiology. 4th ed. Tata McGraw Hill Publishing Co. Ltd.
- Garbutt John (1997) Essentials of Food Microbiology. Arnold London.
- Jay JM, Loessner DA, Martin J.(2005) Modern Food Microbiology. 7th ed. Springer
- Pelczar MJ, Chan ECS, Krieg N. (1993) Microbiology. 5th ed. Tata McGraw-Hill Publishing Co. Ltd.
- Prescott LM, Harley JP, Klein DA.(2008) Microbiology. 6th ed. WMC Brown publishers.



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MFSN 204	II	Statistics and Computer Applications	60	20	20	0	0	4	0	0	4

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Th	Theory	
T	Tutorial	
P	Practical	Teacher Assessment (Practical) based on following components: Viva/ File/ Participation in Lab work (Given that no component shall exceed 50% of Marks).

Course Objective

- To learn basic statistical procedures for research.
- To understand applications of statistical techniques for analysis and interpretation.

Course Outcome

- The students are expected to have learnt statistical tools for analyzing data.



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MFSN 204: Statistics and Computer Applications

UNIT I

Conceptual understanding of statistical measures. Classification and tabulation of data. Measurement of central tendency, measures of variation.

UNIT II

Frequency distribution, histogram, frequency, polygons, ogive. Binomial distribution. Normal distribution – Use of normal Probability tables.

UNIT III

Parametric, non-parametric tests. Testing of hypothesis, Type I and II errors. Level of significance. Chi-Square test. Goodness of fit independence of attributes 2 X 2 and r X c contingency tables.

UNIT IV

Application of student 't' test for small samples. Difference in proportion for means and difference in means Correlation, Coefficient of correlation, ranks correlation.

UNIT V

Fundamental of computer, History of computer, Generation of computer, Language, Components, Applications of Computers. Operating System & Internet: MS-DOS, MS-Windows, and Internet. MS-Office: MS-Word, MS Excel and Power Point. Introduction to Database Management system, Fox-Pro.

Reference Books:

- Basandra, S.K.: Computer for Managers, Designing An Effective Management Information System, Abhinav Publishing Industries, N. Delhi, 1965.
- Diwan, Parag, Information System Management, Deep & Deep Publications, New Delhi, 1997.
- Laudon, Kenneth C. and London, Jane Price, Management Information System: A Contemporary Perspective, Macmillan Publishing Company, New Delhi.
- Mehta, Versham Management Information System, Anmol Publication, New Delhi, 1998.
- Banerjee, Utpal K. and sachdeva, R.K., Management Information System: A New Framework, Vikas Publishing House, Pvt. Ltd., New Delhi.



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MFNL 205	II	Food and Nutrition Lab	0	0	0	90	60	0	0	12	6

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Abbreviation		Teacher Assessment (Practical) based on following components: Viva/ File/ Participation in Lab work (Given that no component shall exceed 50% of Marks).
Th	Theory	
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Course Objective

- To learn nutritional survey techniques.
- To evaluate the nutritional status of the community.
- Planning menus involving judicious modification of macro and micronutrients for various physiological and pathological conditions.
- To perform microbiological tests.



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MFNL: 205 Food and Nutrition Lab

List of Practicals:

1. Diet and Nutrition Survey techniques:
2. Development and pilot testing of a questionnaire for socio-economic measures
3. Conduction of diet survey for the assessment of per capita food availability by using standard bowl measurements and preparation of food frequency questionnaire.
4. Anthropometric survey techniques. Measurement and significance of height, weight, mid upper arm circumference (MUAC), waist-hip ratio, chest circumference, head circumference, sitting height / standing height ratios.
5. Calculation of health indicators.
6. Use of growth charts in assessing the growth pattern of children.
7. Calculation of Body Mass Index (BMI) of the class and categorizing them into its respective grades.
8. Clinical survey techniques:
9. Identification and recognition of signs and symptoms of common macronutrient deficiencies like Protein Energy malnutrition (Kwashiorkar and Marasmus).
10. Identification and recognition of signs and symptoms of common micronutrients such as
11. anemia, dermatitis, xerophthalmia, bitot's spot etc.
12. Techniques used in Community Nutrition and Epidemiology:
13. Preparation of IEC tools for nutrition education and use of audio visual aids in community.
14. Preparation of seasonal calendars and time line charts.
15. Conduction of a Focus group discussion
16. Computation and tabulation of indices used in assessing the status of community nutrition
17. (Morbidity rate, Mortality rates, parity, Hospital Prognostic Index etc.)
18. Use of exchange lists for diet planning for various life stages including calculation and discussion of macronutrients and micronutrients along with dietary counseling for the following: Pregnancy and lactation, Infancy and weaning, Preschool and School age groups including packed lunches, Adolescents, Adults , Old age group, Athletes and laborers.
19. Diet Planning for various deficiency conditions: Protein energy malnutrition ,Vitamin A deficiency, Iron deficiency anemia, Osteoporosis and osteomalacia.
20. Diet planning for special conditions: Diarrhea, constipation, gastritis, flatulence, peptic ulcer with special regard to fibre content. Viral fevers, typhoid, and tuberculosis with special reference to fluids, energy, protein. Hepatitis with special reference to protein and fat, especially invisible fat. Diabetes with special reference to energy, protein, carbohydrate and fibre. Chronic heart diseases with special reference to energy, fat,



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protein, carbohydrate and fiber. Hypertension with special reference to sodium and potassium Renal diseases with special reference to energy, protein, sodium, potassium and other minerals.

21. Practical's related to food microbiology.



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MFNP 206	II	Presentation	0	0	0	30	20	0	0	0	2

Note: Power point presentation based on any topic of the theory papers of current sem syllabus.



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MFNV 207	II	Comprehensive Viva	0	0	0	60	40	0	0	0	4

Note: Comprehensive Viva of the candidates in presence of subject expert and faculty members.