



**Programme outcome:**

The programme outcome of M.Sc. (Home Science) is to instill professional, practical and entrepreneurship skills for improvement in the quality of life of family and community.





**Course specific outcomes (Foods and Nutrition):**

- To impart knowledge related to fundamentals of Biochemistry, Molecular Nutrition, Medical Nutrition Therapy, Food Science, Nutraceuticals, Community Nutrition and Food Quality Assurance through theoretical and practical skills.
- To familiarize the students with government programmes and schemes related to public health nutrition.
- To train the students to become registered dietitians as well as professionals of Food and Nutrition services/industries and nutripreneurs.
- To train the students to take up jobs in nutrition related state, national and international health and welfare programmes.
- To acquire skills to undertake systematic and independent research in the area of Foods and Nutrition.





**SARDAR PATEL UNIVERSITY**  
**Vallabh Vidyanagar, Gujarat**  
 (Reaccredited with 'A' Grade by NAAC (CGPA 3.25))  
 Syllabus with effect from the Academic Year 2022-2023



**SARDAR PATEL UNIVERSITY**  
**Programme – M.Sc.**  
**(Under Choice Based Credit Scheme)**  
**Semester – IV**  
**Structure with effect from: 2021-22**  
**M. Sc H.Sc Foods and Nutrition**



Sr. No.	C	Course No	Title	T/P	Credit	Contact hrs/ week	Exam Duration in hrs	Marks		
								Internal	External	Total
<b>Core Course</b>										
1	C	PH04CFDN51	Molecular Nutrition - II	T	4	4	3	30/10	70/28	100/40
2	C	PH04CFDN52	Medical Nutrition Therapy - II	T	4	4	3	30/10	70/28	100/40
3	C	PH04CFDN53	Dissertation & Viva Voce*	--	14	21	-	100	250 (150** +100***)	350
4	C	PH04CFDN54	Seminar	--	2	4	-	50	-	50
<b>Viva Group</b>										
5	C	PH04CFDN55	Comprehensive Viva Voce	--	1	2	-	25	-	25
			<b>Total</b>		<b>25</b>	<b>35</b>	<b>-</b>	<b>235</b>	<b>390</b>	<b>625</b>

\*One contact hour per week per student

\*\*150 – Dissertation Evaluation

\*\*\*100 – Viva Voce





(Master of Science-Home Science) (Foods and Nutrition)  
(M.Sc.-H.Sc.) (Foods and Nutrition) Semester (IV)

Course Code	PH04CFDN51	Title of the Course	Molecular Nutrition – II
Total Credits of the Course	04	Hours per Week	04

Course Objectives:	<ol style="list-style-type: none"><li>1. Gain knowledge about the physiological and metabolic role of vitamins and minerals in the human body</li><li>2. Learn the requirements of vitamins and minerals for various age groups and factors affecting it</li><li>3. Understand the molecular action of vitamins and minerals in health and diseases</li><li>4. Acquaint with the role of the immune system in gastrointestinal health</li></ol>
--------------------	---

Course Content		
Unit	Description	Weightage* (%)
1.	Fat Soluble vitamins (Vitamin A, D, E & K): (a) Functions, deficiency, RDA, food sources, digestion, absorption and metabolism of fat soluble vitamins (b) Role of fat soluble vitamins in gene expression (c) Molecular action of fat soluble vitamins in health and disease	30
2.	Water soluble vitamins (Vitamin B-complex and vitamin C): (a) Functions, deficiency, RDA, food sources, digestion, absorption and metabolism of water soluble vitamins (b) Role of water soluble vitamins in gene expression (c) Molecular action of water soluble vitamins in health and disease	25
3.	Major minerals: (a) Functions, deficiency, RDA, food sources, digestion, absorption and metabolism of major minerals (b) Role of major minerals in gene expression (c) Molecular action of major minerals in health and disease	15
4.	Trace Elements: (a) Functions, deficiency, RDA, food sources, digestion, absorption and metabolism of trace elements (b) Role of trace elements in gene expression (c) Molecular action of elements health and disease	15
5.	Immunity: (a) The immune system associated to mucous and adverse food	15





	<p>reactions. The role of mucous in the defense system, (intestinal flora), Probiotic food and prebiotics</p> <p>(b) The intestinal immune system: Intestinal barrier and its functions, the intestine as effector in inflammatory reactions. Control of absorption of antigens in the intestine. Oral tolerance and allergic sensitivity</p> <p>(c) Immunological reactions (allergies) and non-immunological reactions (intolerances) to foods, causes, pathogenesis and symptoms of food allergies and intolerances, allergens</p>	
--	---	--

Teaching-Learning Methodology	Classroom lectures (Blackboard/Power Point Presentations), Discussion on recent updates with related examples
-------------------------------	---

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Discuss about the functions and deficiencies of vitamins and minerals.
2.	Describe the molecular action of vitamins and minerals.
3.	Describe the role of vitamins and minerals in health and disease.

Suggested References:	
Sr. No.	References
1.	Kaput, J., & Rodriguez, R. L. (2006). <i>Nutritional Genomics: Discovering the Path to</i>





	<i>Personalized Nutrition</i> (1st ed.). Wiley-Interscience.
2.	Brigelius-Flohé, R., & Joost, H. (2006). <i>Nutritional Genomics: Impact on Health and Disease</i> (1st ed.). Wiley-Blackwell.
3.	Cde, K. R. L., Csg, J. R. L., & Ldn, E. S. M. R. (2007). <i>Krause's Food &amp; Nutrition Therapy</i> (12th ed.). Saunders.
4	Shils, M. E. (2005). <i>Modern Nutrition In Health And Disease (Modern Nutrition in Health &amp; Disease (Shils))</i> (10th ed.). Jones & Bartlett Learning.

On-line resources to be used if available as reference material
On-line Resources
<a href="http://www.annualreviews.org/journal/Nutrition">www.annualreviews.org/journal/Nutrition</a>
Nutrition Research, Elsevier
Nutrition Reviews, Oxford University Press
British journal of Nutrition, Cambridge University
The <i>American Journal of Clinical Nutrition</i> , American Society for Nutrition
Annual review of Nutrition, Annual Reviews
Foods and Function, Royal Society of Chemistry
Nutrition and reviews, Wiley Blackwell
Nutrition Research Reviews, Cambridge University Press
Nutrition and Metabolism, Springer

\*\*\*\*\*





(Master of Science - Home Science) (Foods and Nutrition)  
(M.Sc. - H.Sc.) (Foods and Nutrition) Semester (IV)

Course Code	PH04CFDN52	Title of the Course	Medical Nutrition Therapy - II
Total Credits of the Course	04	Hours per Week	04

Course Objectives:	<ol style="list-style-type: none"> <li>1. To understand the etiology and metabolic variations in acute and chronic diseases related to the G.I. tract and accessory organs, the kidneys, in allergies, in cancer, and in physiological stress.</li> <li>2. To understand the effect of the above diseases on the nutritional status and on nutritional and dietary requirements.</li> <li>3. To plan and provide appropriate nutritional care for the prevention and treatment of the above diseases.</li> </ol>
--------------------	--

Course Content		
Unit	Description	Weightage (%)
1.	<p>Diet in diseases of the G. I. system:</p> <p>(a) Pathogenesis of G.I. disease with special reference to the upper G. I. tract and ulcers, diseases of the esophagus and the stomach and dietary care, gastric and duodenal ulcers -predisposing factors, treatment - brief medical therapy (rest, antacids and other drugs), dietary recommendations, liberal approach vs. traditional approach.</p> <p>(b) Food acidity, foods that cause flatulence, factors that damage G. I. mucosa, foods stimulating G. I. secretion.</p> <p>(c) Intestinal diseases such as flatulence, constipation, diarrhoea, irritable bowel syndrome, hemorrhoids, steatorrhea, diverticular disease, inflammatory bowel disease, ulcerative colitis - treatment and dietary care. Malabsorption syndrome, celiac sprue, tropical sprue, intestinal brush border deficiencies (acquired disaccharide intolerance), protein losing enteropathy – treatment and dietary care.</p>	32
2.	<p>Diet in diseases of the liver, pancreas and biliary system:  Dietary care &amp; management in viral hepatitis, cirrhosis of the liver, hepatic encephalopathy, Wilson's disease. Dietary care and management in diseases of the gall bladder and pancreas. Biliary dyskinesia, cholelithiasis, cholecystitis, cholecystectomy, pancreatitis, Zollinger - Ellison syndrome.</p>	12





3.	<p>Renal diseases:</p> <p>(a) Functions of a normal kidney - a brief review.</p> <p>(b) Glomerulo nephritis - acute and chronic - etiology, characteristics, principles of dietary treatment and management.</p> <p>(c) Acute renal failure - causes, dietary management.</p> <p>(d) Chronic renal failure - medical treatment, renal transplants, dialysis - types of hemodialysis (peritoneal dialysis &amp; Continuous Ambulatory Peritoneal Dialysis [CAPD]), dietary management in conservative treatment, dialysis and after renal transplantation, chronic renal failure in children.</p> <p>(e) Use of sodium and potassium exchange lists in renal diseases.</p> <p>(f) Nephrotic syndrome - principles of dietary treatment and management.</p> <p>(g) Nephrolithiases - etiology, types of stones, nutritional care, alkaline- ash diets.</p>	32
4.	<p>Allergy:</p> <p>Definition, symptoms, mechanism of food allergy. Diagnosis - history, food record, etc. Biochemical and immunotesting (brief). Elimination diets, food selection, etc. Food Allergy in infancy - milk sensitive enteropathy, colic, intolerance to breast milk. Prevention of food allergies.</p>	8
5.	<p>Nutrition in cancer:</p> <p>Types, symptoms, detection. Cancer therapies and treatment - side effects and nutritional implications. Goals of care and guidelines for oral feeding. Enteral tube feeding - nasogastric, gastrostomy, jejunostomy. Parenteral nutrition.</p>	8
6.	<p>Nutrition in Physiological Stress :</p> <p>Physiological stress and its effect on the body, nutritional implications. Fevers and infections. Surgery and management of surgical conditions. Parenteral Nutrition. Tube feeding. Burns - metabolic implications, nutritional requirement, management and nutritional care. Nutritional management of patients with HIV, AIDS.</p>	8

Teaching-Learning Methodology	Classroom lectures (Blackboard/Power Point Presentations), Discussion on recent updates with related examples.
-------------------------------	--

Evaluation Pattern		
Sr.	Details of the Evaluation	Weightage







**SARDAR PATEL UNIVERSITY**  
**Vallabh Vidyanagar, Gujarat**  
**(Reaccredited with 'A' Grade by NAAC (CGPA 3.25))**  
**Syllabus with effect from the Academic Year 2021-2022**

No.		
1.	Internal Written Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcome: Having completed this course, the learner will be able to

- |    |   |
|----|---|
| 1. | Recommend and provide appropriate nutritional care for the prevention and treatment of diseases related to the G.I. tract and accessory organs, and in kidney diseases, allergies, cancer and physiological stress. |
|----|---|

Suggested References:

Sr. No.	References
1.	Anderson L., Dibble M. V., Turkki P. R., Mitchell H. S. and Rynbergen H. J. (1982). <i>Nutrition in Health and Disease</i> . (17th edition). J. B. Lippincott Co., Philadelphia.
2.	Antia F. P. (1989). <i>Clinical Dietetics and Nutrition</i> . (3rd edition). Oxford University Press, Delhi.
3.	Kraus, M. V. and Mann, L. K. (1984). <i>Food, Nutrition and Therapy</i> . W. B. Saunders Company, London.
4.	Passemore, R. and Eastwood, M.A. (1986). <i>Human Nutrition and Dietetics</i> . (8 <sup>th</sup> edition). ELBS, Churchill Livingstone.
5.	Robinson, C. H, Lawler M. R., Chenoweth W. L. and Garwick A. E. <i>Normal and Therapeutic Nutrition</i> . (17 <sup>th</sup> edition). Macmillan.
6.	Suitor, C. W. and Crowley M. F. (1984). <i>Nutrition, Principles and Application in Health Promotion</i> . (2 <sup>nd</sup> Edition). Lippincott Williams and Wilkins.
7.	Williams, S. R. (1986). <i>Essentials of Nutrition and Diet Therapy</i> . (4 <sup>th</sup> edition). Mosby.
8.	<b>IGNOU</b>
9.	Journal of American Dietetic Association.





On-line resources to be used if available as reference material
<a href="https://epgp.inflibnet.ac.in/">https://epgp.inflibnet.ac.in/</a>
<a href="http://idaindia.com/">http://idaindia.com/</a>
<a href="https://www.eatrightpro.org/">https://www.eatrightpro.org/</a>
Journal of American Dietetic Association, Science direct
Nutrition and dietetics, wiley Blackwell
Nutrition and Cancer, Taylor and Francis
British journal of Nutrition, Cambridge University
<i>The American Journal of Clinical Nutrition</i> , American Society for Nutrition
Kompass Nutrition and dietetics, Kargers
Case report and clinical Nutrition, Kargers
The American Journal of Clinical Nutrition, Oxford University
<a href="#"><u>Journal of Human Nutrition and Dietetics - Wiley</u></a>
Gut microbiome, Cambridge University press





(Master of Science –Home Science) (Foods and Nutrition)  
(M.Sc.-H.Sc.) (Foods and Nutrition) Semester (IV)

Course Code	PH04CFDN53	Title of the Course	Dissertation & Viva Voce
Total Credits of the Course	14	Hours per Week	21

Course Objective:	To develop research skills in the student.
-------------------	--

Course Content		
	Description	Weightage (%)
	Review the related literature, carryout the laboratory/field work to fulfil the objectives of the research plan, apply the relevant statistical tools, write a detailed thesis and finally to defend the research work in a viva voce examination.	100

Teaching-Learning Methodology	Literature search, demonstration and then actual performance by students, discussion on recent update with related examples, discussion of results.
-------------------------------	---

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Continuous Assessment in the form of Practical, Attendance (As per CBCS R.6.8.3)	30%
2.	University Examination in the form of thesis of appraisal and viva voce	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Identify research areas of his or her own interest pertaining to the latest developments in the field food biotechnology.
2.	Explore the research area in depth.
3.	Conduct the research project after identifying the appropriate research tool.





4.	Apply appropriate statistical analysis to the data collected.
5.	Write a scientific report (dissertation) after the completion of the work.
6.	Face an examination in the form of a viva-voce and defend the research work conducted.

Suggested References:

Sr. No.	References
1.	Kothari, C.K. (1990). <i>Research Methodology: Methods and Techniques</i> . New Delhi: Wiley Eastern Ltd.
2.	Sarangi, P.(2010). <i>Taxman's Research Methodology</i> . New Delhi: Taxman Publications (P) Ltd.
3.	Oliver, P. (2008). <i>Writing your Thesis</i> . Delhi: Sage Publication.
4.	Hart, C. (2005). <i>Doing your Master's Dissertation</i> . New Delhi: Vistaar Publications.

On-line resources to be used if available as reference material

On-line Resources

Journal of Biosciences, Indian Academy of Sciences

*Journal of Biosciences, Springer*

*Food Biotechnology, Springer*

Food Science and Biotechnology, Home - Springer

Food Biotechnology, Taylor & Francis Online

SPSS:20

\*\*\*\*\*





**SARDAR PATEL UNIVERSITY**  
**Vallabh Vidyanagar, Gujarat**  
**(Reaccredited with 'A' Grade by NAAC (CGPA 3.25))**  
**Syllabus with effect from the Academic Year 2021-2022**

(Master of Science –Home Science) (Foods and Nutrition)  
(M.Sc.-H.Sc.) (Foods and Nutrition) Semester (IV)

Course Code	PH04CFDN54	Title of the Course	Seminar
Total Credits of the Course	02	Hours per Week	04

Course Objective:	To expose students to the scientific literature available through online and offline resources in order to appreciate the current research going on in the field of food biotechnology.
-------------------	---

Course Content		
	Description	Weightage (%)
1.	Student will select a current research topic related to food biotechnology	25
2.	Student will review research papers related to the selected topic and make a presentation	75

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal continuous Assessment in the form of seminar presentation and attendance (As per CBCS R.6.8.3)	100%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Improve his/her ability in the critical assessment of the available scientific literature.
2.	Use various resources to locate and extract information using offline and online tools.
3.	Obtain experience in the preparation and presentation of scientific papers.

\*\*\*\*\*





(Master of Science –Home Science) (Foods and Nutrition)  
(M.Sc.-H.Sc.) (Foods and Nutrition) Semester (IV)

Course Code	PH04CFDN55	Title of the Course	Comprehensive viva-voce
Total Credits of the Course	01	Hours per Week	02

Course Objectives:	<ol style="list-style-type: none"> <li>7. To assess the student's ability to communicate the knowledge he has gained.</li> <li>8. To assess the student's understanding of the concepts and the depth of knowledge of the various courses he/she has studied.</li> </ol>
--------------------	--

Course Content		
	Description	Weightage (%)
	At the end of the semester the student will appear for a viva voce based on the course content covered in all the theory and practicals of all the four semesters.	100

Teaching-Learning Methodology	Literature search, lectures, practicals
-------------------------------	---

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal viva voce (As per CBCS R.6.8.3)	100%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Gain confidence in communicating the knowledge he/she has learnt.
2.	Strengthen the understanding of the concepts he/she has studied.

\*\*\*\*\*





**UGC-MOOC COURSES IN THE SUBJECT OF HOME SCIENCE  
FOODS AND NUTRITION**

<b>Sr. No.</b>	<b>Title of MOOC</b>
1	Food Microbiology and Food Safety
2	Research Methodology
3	Biostatistics
4	Analytical techniques
5	Communication research
6	Functional Foods and Nutraceuticals
7	Academic Writing
8	Biomolecules: Structure, Function in Health and Disease

