



**Criterion** : I – Curricular Aspects

**Metric** : 1.1.1 – Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) – M.Sc. HUMAN NUTRITION AND NUTRACEUTICALS

**Year** : 2015 - 2020



### FATIMA COLLEGE (AUTONOMOUS), MADURAI – 625018

**NAME OF THE PROGRAMME: M. SC HUMAN NUTRITION AND NUTRACEUTICALS**

**PROGRAMME CODE: PSNN**

#### PROGRAMME OUTCOMES:

Students will be able to

- PO1:** Apply acquired scientific knowledge to solve major and complex issues in the society/industry.
- PO2:** Attain research skills to solve complex cultural, societal and environmental issues.
- PO3:** Employ latest and updated tools and technologies to solve complex issues.
- PO4:** Demonstrate Professional Ethics that foster Community, Nation and Environment Building Initiatives.

#### PROGRAMME SPECIFIC OUTCOMES:

- PSO1:** Advanced scientific knowledge in food, nutrition and nutraceuticals
- PSO2:** Professional competence in planning therapeutic diets and counselling
- PSO3:** Social responsibilities by participating in community health programmes
- PSO4:** Enterprising – by developing innovative value added food products
- PSO5:** Environmental concerns – by understanding the role of microbes in human health and diseases



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**PSO6:** Acquisition of skills in analysing food components and blood constituents

**PSO7:** Desire for knowing more about nutraceuticals from familiar and unfamiliar foods

**PSO8:** Creative thinking in choosing the appropriate research design

**2019 - 2020**

COURSE CODE	COURSE TITLE	NATURE OF THE COURSE (LOCAL/ NATIONAL/ REGIONAL/ GLOBAL)	COURSE DESCRIPTION	COURSE OUTCOMES
19PG1N1	Advanced Human Nutrition	Local, National & Regional	The course provides the knowledge on classification, functions, metabolism and deficiency of macro and micro nutrients and its	CO1: Recall the functions of nutrients in human body. CO2: Explain the digestion, absorption, sources & requirements of different nutrients CO3: Compare the energy value of



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			interrelationship.	<p>foods by using different calorimetry</p> <p>CO4: Build the knowledge of nutrient and drug interrelationship</p> <p>CO5: Summarize the importance of fluid and electrolyte balance in human body</p>
19PG1N2	Advanced Dietetics	Local, National & Regional	<p>The course explains the medical nutrition therapy for normal life cycle, common diseases, and special conditions like sports, space, deep sea and air travel.</p>	<p>CO1: The students will be able to Describe nutritional care process</p> <p>CO2: Recognize the nutritional needs of different stages of life cycle</p> <p>CO3: Explain medical nutritional management.</p> <p>CO4: Plan therapeutic interventions for traumatic conditions.</p> <p>CO5: Categorize meal planning for</p>



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				sports, sea and air travel.
19PG1N3	Applied Physiology	Local, National & Regional	The course provides a detailed insight on the anatomy and functions of the various systems of the human body.	CO1: Identify and recall the aspects of human physiology CO2: Illustrate the anatomy of the various organ systems of the body CO3: Categorize the functions of all the systems CO4: Describe the interrelationship of nutrition and physiology CO5: Compare the alterations in organ systems during disease conditions
19PG1N4	Advanced Dietetics Lab	Local, National & Regional	The practical course offers hands-on experience in the planning, preparation and calculation of nutrients for the menu planned for various stages of normal life cycle, deficiency	CO1: Plan and prepare menu for normal life cycle. CO2: Choose appropriate supplementary foods for infants. CO3: Solve problems of nutritional deficiency disorders with modified diets. CO4: Differentiate the various hospital diets. CO5: Construct diets for sports, burns and weight management.





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			disorders, hospital diets, sports and space nutrition.	
19PG1N5	Clinical Laboratory Techniques Lab	Local, National & Regional	The course provides hands on training on the estimation of the qualitative and quantitative analysis of blood and urine constituents.	CO1: Identify organic, inorganic and abnormal constituents of urine CO2: Explain the quantitative analysis of urine CO3: Describe the haematological examination CO4: Organize the examination of blood glucose and lipid profile CO5: Recognize the serum constituents
19PGNEDC1	Nutrition & Dietetics	Local, National & Regional	This course offers the scientific understanding of how nutrition can impact the health of individuals and the role of diet in treatment of diseases.	CO1: Define the different terms in nutrition and food. CO2: Classify the food and nutrients CO3: Describe the functions of macro and micro nutrients. CO4: Choose the food sources of micro



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				and macronutrients CO5: Illustrate food pyramid and explain the food groups.
19PG2N6	Clinical Nutrition & Diet Therapy	Local, National & Regional	The course provides a comprehensive knowledge required for the prevention and treatment of various diseases	The students will be able to CO1: Identify the characteristics of various disease conditions. CO2: Describe the medical nutritional management of different disease. CO3: Plan diets for degenerative diseases. CO4: Categorize the foods used in the treatment of diseases. CO4: Summarize the treatment strategies for food allergy and food intolerance.
19PG2N7	Functional Foods and	Local, National	The course contents are	CO1: Define and understand the



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	Nutraceuticals	& Regional	an eye opener to students on the terminologies, importance, therapeutic applications of nutraceuticals from sources through plant, animal and microbes.	<p>concepts of functional foods.</p> <p>CO2: Categorize the bioactive components of functional foods.</p> <p>CO3: Distinguish the role of prebiotics, probiotics &amp; synbiotics as functional ingredients.</p> <p>CO4: Explain the efficacy of herbs and flowers as functional foods</p> <p>CO5: Build knowledge on the role of Nutraceuticals in treating diseases</p>
19PG2N8	Research Methodology	Local, National & Regional	The course provides a detailed insight on the types of research, methods of collecting data, sampling techniques, framing	<p>CO1: Classify the types of research based on intent and methods</p> <p>CO2: Restate in own words the significance and formulation of research</p> <p>CO3: Categorize methods of data</p>



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			hypothesis and ultimately preparing the research report.	collection CO4: Distinguish the sampling techniques CO5: Summarize the steps in formulation of hypothesis and tabulation
19PG2N9	Clinical Nutrition and Diet Therapy Lab	Local, National & Regional	The course provides skill in assessment, estimation of nutritional requirement, planning and evaluation of menus for various diseases.	CO1: Recall the dietary principles for the planning and preparation of diet for metabolic disorders. CO2: Demonstrate therapeutic diet for cardiovascular disorders. CO3: Demonstrate therapeutic diet for cardiovascular disorders. CO4: Focus on the aspects of planning and preparation of diet for kidney disorders CO5: Indicate the dietary principles in





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				the preparation of diet for cancer and AIDS.
19PG2N10	Functional Foods and Nutraceutical Lab	Local, National & Regional	The practical course provides hands –on training in the use of hi-tech precision equipments to identify and analyze the specific nutraceuticals present in the respective functional food.	<p>CO1: Identify the various nutraceutical components present in functional foods.</p> <p>CO2: Choose the appropriate methods to analyze the specific nutraceutical component.</p> <p>CO3: Construct the experimental research with the knowledge of the analytical methods.</p> <p>CO4: Draw conclusions on the therapeutic availability of nutraceuticals.</p>
19PGNEDC 2	Nutrition & Dietetics	Local, National & Regional	This course offers scientific understanding of the role of nutrition in health diseases.	<p>CO1: Define the different terms in nutrition and food.</p> <p>CO2: Classify the food and nutrients</p>



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				<p>CO3: Describe the functions of macro and micro nutrients.</p> <p>CO4: Choose the food sources of micro and macronutrients</p> <p>CO5: Illustrate food pyramid and explain the food groups.</p>
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19PG3N11	Functional Foods & Nutraceuticals in Preventive Dietetics	Local, National & Regional	The course elicits the role of various bioactive components in the prevention and treatment of therapeutic conditions.	<p>CO1: Identify the role of functional foods and nutraceuticals in oral, gut and renal health.</p> <p>CO2: Describe the importance of functional foods in weight management and CVD</p>



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				<p>CO3: Categorize the functional foods for bone health and diabetes</p> <p>CO4: Summarize the effect of functional foods and Nutraceuticals in cancer</p> <p>CO5: Choose the functional foods for the management of nervous and respiratory disorders</p>
19PG3N12	Community Nutrition	Local, National & Regional	<p>The course imparts the knowledge on various national nutritional problems and its implications, nutrition awareness among various sections of the population.</p>	<p>CO1: Identify National Nutritional problems</p> <p>CO2: Recognize the relation of nutrition in national development</p> <p>CO3: Explain the strategies to overcome malnutrition</p> <p>CO4: Categorize nutrition intervention programmes and organization</p>



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				CO5: Describe national nutrition policy and nutrition surveillance system
19 PG3N13	Analytical Instrumentation	Local, National & Regional	The course offers the understanding of the principles, instrumentation and analytical techniques of food	<p>CO1: Explain the principles of analytical instrumentation techniques.</p> <p>CO2: Choose the relevant analytical techniques for food.</p> <p>CO3: List the applications of different analytical instruments.</p> <p>CO4: Categorize the different types of isotopes and its application</p> <p>CO5: Describe the principles and application of microbial assays.</p>
19PG3NE1	Food Product Development And Sensory Evaluation	Local, National & Regional	This course gives in-depth knowledge	CO1: Identify the food needs and consumer demands in the society





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				<p>CO2: Explain the classification, characteristics and future trends in food product development</p> <p>CO3: Choose the different sensory tests employed for food evaluation</p> <p>CO4: Build knowledge on the marketing and evaluation of food products</p> <p>CO5: Categorize the food products according to the product cost</p>
19 PG3NE2	Institutional Management	Local, National & Regional	The course will describe the concepts of organization and management approaches of food service establishment.	<p>CO1: Recognize the key areas of food service institutions.</p> <p>CO2: Identify the theories and concepts of institutional management.</p> <p>CO3: Analyse the scope and theories of personnel management.</p> <p>CO4: Explain the aspects of food cost</p>



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				management. CO5: Categorize the different laws governing food service establishment.
19PG3N14	Community Nutrition Lab	Local, National & Regional	The practical course provides hands -on training on assessing the nutritional status, preparation of supplementary foods and imparting nutritional education for the vulnerable groups in the community.	CO1: Identify the nutritional status of various age groups CO2: Classify and construct audio visual aids CO3: Organize nutrition awareness programmes for community CO4: Categorize and plan supplementary foods for the vulnerable groups in the community
19PG3N15	Techniques for Experimental Nutrition Lab	Local, National & Regional	The practical course provides hands –on training in the use of hi-tech precision equipments to identify	CO1: Recall the principles of analytical techniques



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			and analyze the various nutrients present in the food.	<p>CO2: Identify the amount of ascorbic acid in foods</p> <p>CO3: Explain the procedure for the estimation of <math>\beta</math>-carotene</p> <p>CO4: Compare the amount of free fatty acid and peroxide values in fats and oil</p> <p>CO5: Choose the method of analyzing amount of antioxidant present in foods</p>
19PG4N16	Food Microbiology	Local, National & Regional	The course outlines the role of micro-organism in food spoilage, preservation and processing.	<p>CO1: Recall the basic concepts of food microbiology</p> <p>CO2: Describe the principles of food preservation</p> <p>CO3: Distinguish the contamination and spoilage of foods</p> <p>CO4: Choose the appropriate method</p>



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				of food preservation CO5: Explain the food and water borne diseases and enumerate the microbes in the food.
19PG4N17	Nutritional Biochemistry	Local, National & Regional	The course provides understanding on the structure, metabolism and energetic of macro and micro nutrients and the integration of metabolic systems.	CO1: Identify the structure of biomolecules CO2: Explain cellular respiration CO3: Construct the metabolic pathways of biomolecules CO4: Categorize the inborn errors of metabolism of biomolecules CO5: Compute the energetic of metabolism of biomolecules
19PG4N18	Advanced Food Science and Processing Techniques	Local, National & Regional	The course offers the understanding of processing techniques involved to transform raw ingredients into processed food products	CO1: Illustrate the structure and milling of cereals. CO2: Explain the processing methods





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			for human consumption.	<p>of pulses and oilseeds.</p> <p>CO3: Choose the methods of harvesting &amp; storage of vegetables and fruits</p> <p>CO4: Classify the processing &amp; preservation methods of flesh foods</p> <p>CO5: Identify the processing &amp; preparation of milk &amp; egg products</p>
19PG4NE3	Food Safety And Quality Control	Local, National & Regional	The course provides an outline on the standards, tools and techniques to ensure safety and integrity of foods in food preparation and processing.	<p>CO1: Define the concept of food safety and food laws.</p> <p>CO2: Explain the toxicants in animal and plant foods.</p> <p>CO3: Classify the food additives.</p> <p>CO4: Plan the various quality assurance systems in food</p>



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				industries. CO5: Categorize the packaging materials and properties.
19PG4NE4	Nutrition In Critical Care And Disasters	Local, National & Regional	The course offers a comprehensive knowledge on the assessment and management of nutritional support system for critically ill.	CO1: Identify nutritional screening and nutritional status assessment. CO2: Recognize nutritional support system for critically ill. CO3: Summarize the role of immune enhancers, suppressants and special diets in critical care CO4: Classify rehabilitation diets CO5: Describe the patho-physiology in critical illnesses
19PG4N19	Food Microbiology Lab	Local, National & Regional	The course gives the clear idea of assessing the microbes present in foods causing spoilage	CO1: Describe the working principle of compound microscope CO2: Compare the culturing



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				<p>techniques</p> <p>CO3: Choose the appropriate method of media preparation</p> <p>CO4: Identify and enumerate the microbes in food.</p>
19PG4N20	Nutrient Analysis Lab	Local, National & Regional	<p>The practical course provides hands –on training in the use of hi-tech precision equipments to identify and analyze the various nutrients present in the food.</p>	<p>CO1: Identify the calorific value of foods.</p> <p>CO2: Explain the protein estimation procedure</p> <p>CO3: Choose the analytical methods of minerals</p> <p>CO4: Build knowledge on the estimation of moisture content in foods</p> <p>CO5: Compare the amount of crude fibre present in foods.</p>



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**2018 – 2019**

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PG1N1	Advanced Human Nutrition	Local, National & Regional	<ul style="list-style-type: none"> <li>To enable the students to</li> <li>Gain in depth knowledge in the study of major and minor nutrients.</li> <li>Understand the recent trends in the study of nutrients</li> <li>Develop competence for undertaking nutritional investigations.</li> </ul>
PG1N2	Advanced Dietetics	Local, National & Regional	<p>To enable students</p> <ul style="list-style-type: none"> <li>To identify and describe the nutritional needs through life cycle.</li> <li>To identify and describe various disease conditions.</li> <li>To gain knowledge on appropriate nutritional management.</li> </ul>





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			<ul style="list-style-type: none"> <li>To develop the attitude and capacity for taking up dietetics as a profession.</li> </ul>
PG1N3	Advanced Food Science and technology	Local, National & Regional	<p>To enable students</p> <ul style="list-style-type: none"> <li>To study the technological know-how's of food.</li> </ul>
PG1N4	Community Nutrition	Local, National & Regional	<p>To enable students</p> <ul style="list-style-type: none"> <li>To understand national nutritional problems and their implications.</li> <li>To become familiar with the national and international contributions towards improvement of nutrition in India.</li> <li>To become better prepared to evaluate nutrition projects in the community.</li> </ul>
PGNEDC1	Nutrition & Dietetics	Local, National & Regional	<p>To enable students</p> <ul style="list-style-type: none"> <li>To understand the basics of nutrition.</li> <li>To learn the menu planning methods for family members</li> </ul>



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			<ul style="list-style-type: none"> <li>To learn the clinical aspects of disease conditions and manage the same through the diet therapy</li> </ul>
PG2N7	Clinical Nutrition & Diet Therapy	Local, National & Regional	<p>To enable students</p> <ul style="list-style-type: none"> <li>To identify and describe the nutritional needs through life cycle.</li> <li>To identify and describe various disease conditions.</li> <li>To gain knowledge on appropriate nutritional management.</li> <li>To develop the attitude and capacity for taking up dietetics as a profession.</li> </ul>
PG2N8	Functional Foods and Nutraceuticals	Local, National & Regional	<p>To enable students</p> <ul style="list-style-type: none"> <li>To understand the relation between Functional Foods, Nutraceuticals to Food and Drugs</li> <li>To introduce them to various functional food groups and products</li> <li>To enable students understand the regulatory aspects of Functional Foods and</li> </ul>



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			Nutraceuticals.
PG3NE1	Food Safety and Quality Control	Local, National & Regional	<p>To enable students</p> <ul style="list-style-type: none"> <li>• Develop approaches to identify food safety hazards in food processing</li> <li>• Apply preventive measures and control methods to minimize microbiological hazards and maintain quality of foods.</li> <li>• Identify the wide variety of parameters affecting food quality.</li> <li>• Develop quality control strategies</li> </ul>
PG4N18	Thesis & Viva Voce	Local, National & Regional	<p>To enable students</p> <ul style="list-style-type: none"> <li>• Dissertation topics chosen on socially relevant feasible topics</li> <li>• Formulation and standardization of food products</li> <li>• Packaging of developed products in various packing materials.</li> <li>• Supplementation of prepared nutrient dense food products to vulnerable section of the population</li> </ul>



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			<ul style="list-style-type: none"> <li>• Projects taken up at industry or research institutes.</li> <li>• External Viva Voce enables the students to defend their work</li> </ul>
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