



**Children's University**  
**School of Nutrition and Health**  
**Department of Home Science**  
**Gandhinagar**

**ACADEMIC YEAR**  
**2020-2021**

**M.Sc.- FN**

<b>Year</b>	<b>I</b>	<b>Course Type: Core Compulsory</b> <b>Course No:CCFN101</b> <b>Course Title: Human Nutrition</b>	<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>I</b>		<b>Hours/wk</b>	<b>4</b>
<b>Objectives</b>		<ol style="list-style-type: none"><li>1. To enable the students to understand Needs of nutrition for human and their role in living healthy life</li><li>2. To present and discuss methods of determining nutrient requirements for humans and discuss the current figures of nutritional requirements</li><li>3. To enable them to translate the knowledge into practical guidelines for dietary needs of humans at different stages of life</li><li>4. To enable them to understand the application of the recent knowledge of nutrition.</li></ol>		

**COURSE CONTENT / SYLLABUS-THEORY & PRACTICAL**

<b>Unit I</b>	<p><b>Energy Metabolism &amp; Carbohydrates</b></p> <ol style="list-style-type: none"><li><b>1. Energy:</b><ul style="list-style-type: none"><li>• Definition and Components of Energy Requirement</li><li>• Factors Affecting Energy Expenditure and Requirement</li><li>• Methods of Estimation of Energy Expenditure and Requirements</li><li>• Current recommendations for energy intake of different age, sex groups</li><li>• Disorders of energy metabolism : Obesity and under nutrition</li><li>• Short term and long term weight maintenance (Gut fill cues, Glucostat theory, Lipostattheory)</li></ul></li><li><b>2. Carbohydrates</b><ul style="list-style-type: none"><li>• Digestion, absorption and utilization ,</li><li>• Functions&amp;Classification of Carbohydrates</li><li>• Regulation of Blood Glucose Concentration</li><li>• Simple and Complex carbohydrates, Non-starch polysaccharides and fibre constituents and their role in Nutrition.</li><li>• Glycaemic Index , Glycaemic load and Satiety index: Clinical implications</li><li>• Disorders related to carbohydrate metabolism</li><li>• Modification of Carbohydrate Intake for Specific Disorder</li></ul></li></ol>
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<p><b>UnitII</b></p>	<p><b>Proteins&amp; Lipids</b></p> <p><b>1. Proteins</b></p> <ul style="list-style-type: none"> <li>• Classification, Food Sources</li> <li>• Digestion, Absorption and Transport, Functions</li> <li>• Improvement of Quality of Protein in the Diet</li> <li>• Human requirements for proteins (RDA)</li> <li>• Methods of Estimating and Assessing protein Requirements at Different StagesLife Cycle</li> <li>• Protein Deficiency</li> </ul> <p><b>2. Lipids</b></p> <ul style="list-style-type: none"> <li>• Basic Facts</li> <li>• Types of Fats and its Metabolism (digestion, absorption, transport)</li> <li>• Functions of Fat and Oils</li> <li>• Assessment of Lipid status</li> <li>• Nutritional Requirements of Fats and Oils, Visible and invisible fats in diets</li> <li>• Excessive Fat Intake: Changing Trends in Dietary IntakeEating Out</li> <li>• Diseases: Association and Preventive Measures</li> </ul>
<p><b>UnitIII</b></p>	<p><b>Fat Soluble Vitamins – A, D, E, K&amp; Water Soluble Vitamins (Thiamine, Riboflavin Niacin, Pyridoxine, Folic acid, Ascorbic acid, Biotin</b></p> <p><b>1. Fat Soluble Vitamins – A, D, E, K</b></p> <ul style="list-style-type: none"> <li>• Basic Facts</li> <li>• Structures of vitamins</li> <li>• Digestion, absorption, transport and metabolism</li> <li>• Food Sources of Vitamins</li> <li>• Bioavailability : Modulators</li> <li>• Function</li> <li>• Assessment of vitamin status</li> <li>• Interaction with other nutrients</li> <li>• Toxicity and deficiency</li> <li>• RDA</li> </ul> <p><b>2. Water Soluble Vitamins (Thiamine, Riboflavin ,Niacin, Pyridoxine, Folic acid, Ascorbic acid, Biotin</b></p> <ul style="list-style-type: none"> <li>• Basic Facts</li> <li>• Structures of vitamins</li> <li>• Digestion, absorption, transport and metabolism</li> <li>• Food Sources of Vitamins</li> <li>• Bioavailability : Modulators</li> <li>• Function</li> <li>• Assessment of vitamin status</li> <li>• Interaction with other nutrients</li> <li>• Toxicity and deficiency</li> <li>• RDA</li> </ul>

<b>Unit IV</b>	<b>Minerals (Calcium, Phosphorous, Iron, Copper, Zinc, Iodine)&amp; Trace elements (Selenium, Chromium, sodium, Potassium)</b> <ul style="list-style-type: none"> <li>• Sources</li> <li>• Digestion, absorption, transport, metabolism</li> <li>• Biochemical function</li> <li>• Deficiency and toxicity</li> <li>• RDA</li> <li>• Interaction with other nutrients</li> </ul>
<b>References</b>	
<b>Books</b>	
<ol style="list-style-type: none"> <li>1. Mahan KL and Stump SE (2007). Krause's Food and Nutrition Therapy (12thed.).</li> <li>2. Saunders Publishing Shils ME, Olson JA, Shike M, Ross AC, Cabellaro B and Cousins RJ (2006). Modern nutrition in health and diseases. (10<sup>th</sup> ed.). Lippincott, Williams and Wilkins publications.</li> <li>3. Indian Council of Medical Research. Nutrient requirements and Recommended Dietary Allowances for Indians. Latest edition.</li> <li>4. Bredanier C. Advanced Nutrition</li> <li>5. Human energy requirement (2004). Report of a joint FAO/WHO/UNU Expert consultation, Rome, 17-24 October 2001. FAO, Food &amp; Nutrition technicalReport series 1.</li> <li>6. Longvah, T., Ananthan, R., Bhaskarachary, K., &amp; Venkaiah, K. (2017). Food Composition Tables. Hyderabad: National Institute of Nutrition.</li> <li>7. కండమెంటల్స్ యొక్క క్లీన్స్ యెండ్ న్యూట్రిషన్</li> </ol>	
<b>Journals</b>	
<ol style="list-style-type: none"> <li>1. Journal of Nutrition</li> <li>2. American Journal of Clinical Nutrition.</li> <li>3. International Journal of Food Science and Nutrition.</li> <li>4. Nutrition Research.</li> </ol>	