


## CHILDRENS UNIVERSITY COURSE TEMPLATE

### SEMESTER-WISE DISTRIBUTION OF CREDITS FOR PG DIPLOMA IN NUTRITION AND DIETETICS COURSES

Course No.	Course Title	Credits
	<b>SEMESTER I</b>	
NDC 101	Human Nutrition	4
NDC 102	Advance Clinical Nutrition	4
NDC 103	Practical 1	4
NDE104-A NDE 104-B	Food Microbiology or Nutritional Biochemistry	4
NDG 105	Human Physiology	4
	<b>SEMESTER II</b>	
NDC 201	Community Nutrition	4
NDC 202	Dietetics & Diet Counseling	4
NDC 203	Practical 2	4
NDE 204-A NDE 204-B	Project OR Food Production & Hospital Management	4
NDG 205	Internship	4
<b>TOTAL</b>		<b>40</b>

**COURSE OUTLINES FOR COURSES OFFERED IN  
SEMESTER I**

		<b>Children's University</b> <b>School of Nutrition and Health</b> <b>Department of Home Science</b> <b>Gandhinagar</b>		<b>ACADEMIC YEAR</b>  <b>2020-2021</b>	
<b>P.G.Diploma in Nutrition and Dietetics</b>					
<b>Year</b>	<b>I</b>	<b>Course Type: Core Compulsory</b> <b>Course No:NDC101</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>		1. To enable the students to understand Needs of nutrition for human and their role in living healthy life 2. To present and discuss methods of determining nutrient requirements for humans and discuss the current figures of nutritional requirements 3. To enable them to translate the knowledge into practical guidelines for dietary needs of humans at different stages of life 4. To enable them to understand the application of the recent knowledge of nutrition.			
<b>COURSE CONTENT / SYLLABUS-THEORY &amp; PRACTICAL</b>					
<b>Unit I</b>		<b>Energy Metabolism and Carbohydrates</b>  1. <b>Energy:</b> Basic Concepts <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> 2. <b>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>			
<b>Unit II</b>		<b>Proteins&amp; Lipids</b> 1. <b>Proteins</b> <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> 2. <b>Lipids</b> <ul style="list-style-type: none"><li>• Basic Facts</li></ul>			

	<ul style="list-style-type: none"> <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 Intake Eating Out</li> <li>• Diseases: Association and Preventive Measures</li> </ul>
<b>Unit III</b>	<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>	<p><b>Minerals (Calcium, Phosphorous, Iron, Copper, Zinc, Iodine) &amp; Trace elements (Selenium, Chromium, sodium, Potassium)</b></p> <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>


## References

### Books

1. Mahan KL and Stump SE (2007). Krause's Food and Nutrition Therapy (12th ed.).
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.
3. Indian Council of Medical Research. Nutrient requirements and Recommended Dietary Allowances for Indians. Latest edition.
4. Bredanier C. Advanced Nutrition
5. Human energy requirement (2004). Report of a joint FAO/WHO/UNU Expert consultation, Rome, 17-24 October 2001. FAO, Food & Nutrition technical Report series 1.
6. Longvah, T., Ananthan, R., Bhaskarachary, K., & Venkaiah, K. (2017). Food Composition Tables. Hyderabad: National Institute of Nutrition.
7. ફેડમેન્ટેશ ઓફ ફૂડ એન્ડ ન્યુટ્રિશન

### Journals

1. Journal of Nutrition
2. American Journal of Clinical Nutrition.
3. International Journal of Food Science and Nutrition.
4. Nutrition Research.

		<b>Children's University</b> <b>School of Nutrition and Health</b> <b>Department of Home Science</b> <b>Gandhinagar</b>		<b>ACADEMIC YEAR</b> <b>2020-2021</b>	
<b>Year</b>	<b>I</b>	<b>Course Type: Core Compulsory</b> <b>Course No: NDC 102</b> <b>Course Title: Advance Clinical Nutrition</b>		<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>I</b>	<b>P.G.Diploma in Nutrition and Dietetics</b>		<b>Hours/wk</b>	<b>4</b>
<b>Objectives</b>		1. To enable the students to understand processes involved in nutritional care, 2. To enable them to know purpose(s) of therapeutic diet adaptations, 3. To enable them to understand relationship between nutrition and infection, 4. To enable them to understand protocol for prescribing these nutritional support			
<b>COURSE CONTENT / SYLLABUS-THEORY</b>					
<b>UNIT - I</b>		<b>Adaptation of Therapeutic Diet</b> <ul style="list-style-type: none"><li>• Normal Nutrition: A Base of Therapeutic Diet</li><li>• Diet Prescription</li><li>• Constructing Therapeutic Diets</li><li>• Routine Hospital Diet<ul style="list-style-type: none"><li>• Normal or General Diets</li><li>• Liquid Diets</li><li>• Soft Diets</li></ul></li><li>• Mode of Feeding<ul style="list-style-type: none"><li>• Oral Feeding</li><li>• Tube or Enteral Feeding</li><li>• Peripheral Vein Feeding</li><li>• Total Parenteral Nutrition</li></ul></li></ul> <b>Medical Nutritional Therapy in Critical Care</b> <ul style="list-style-type: none"><li>• Nutritional management of Critically Ill</li><li>• Special feeding method in nutritional Support<ul style="list-style-type: none"><li>• Enteral Nutrition(EN)</li><li>• Parenteral Nutrition Nutritional</li></ul></li></ul>			
<b>Unit II</b>		<b>Management in Fever and infection</b> <ul style="list-style-type: none"><li>• Defence Mechanism in the Body</li><li>• Nutrition and Infection</li><li>• Metabolic Changes during Infection</li><li>• Classification and Etiology of Fever infection</li><li>• Typhoid</li><li>• Chronic Fever / Infection<ul style="list-style-type: none"><li>• Tuberculosis</li><li>• HIV (Human Immuno Deficiency Virus) Infection and AIDS (Acquired Immune Deficiency Syndrome)</li></ul></li></ul>			

<b>Unit III</b>	<b>Pediatric Problems and Nutritional Management</b> <ul style="list-style-type: none"> <li>• Congenital Heart Disease (CHD)</li> <li>• Preterm /Low Birth Weight</li> <li>• Lactose Intolerance</li> <li>• Celiac Disease</li> <li>• Inborn Errors of Metabolism               <ul style="list-style-type: none"> <li>• Phenylketonuria (PKU)</li> <li>• Tyrosinemia</li> <li>• Maple Syrup Urine Disease (MSUD)</li> <li>• Homocystinuria</li> <li>• Galactosemia</li> </ul> </li> </ul>
<b>Unit IV</b>	<b>Nutritional Management inWeight ImbalanceandAdverse Food Reactions</b> <ul style="list-style-type: none"> <li>• Weight Imbalance -Prevalence and Classification               <ul style="list-style-type: none"> <li>• Guidelines for Calculating ideal Body Weight</li> <li>• Obesity</li> <li>• Etiology</li> <li>• Energy Balance</li> <li>• Management of Obesity</li> <li>• Dietary and Lifestyle Modifications</li> <li>• Preventive Aspects</li> <li>• Underweight</li> <li>• Etiology</li> <li>• Dietary Management</li> </ul> </li> <li>• Adverse Food Reactions               <ul style="list-style-type: none"> <li>• Food Allergy (Hypersensitivity)</li> <li>• Food Intolerance</li> </ul> </li> <li>• Adverse Food Reactions-The Diagnosis Process</li> <li>• Treatment and Management of Adverse Food Reactions</li> <li>• Prevention of Adverse Food Reactions</li> </ul>
<b>Reference</b>	
<ol style="list-style-type: none"> <li>1. Robinson CH, Laer MR, Chenoweth WL and Garovich AE (1998). Normal and Therapeutic Nutrition (17thed.). Macmillan Publishing Company, New York</li> <li>2. Mahan KL and Stump SE (2007). Krause's Food and Nutrition Therapy (12thed.)Saunders Publishing</li> <li>3. Association of Physicians of India (1998). API Textbook of Medicine, Vol. I and II. Published by Association of Physicians of India</li> <li>4. થેરાપ્યુટિક ન્યુટ્રિશન</li> <li>5. ફન્ક્શનલ ઓફ ફૂડ્સ એન્ડ ન્યુટ્રિશન</li> </ol>	




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

**ACADEMIC  
YEAR  
2020-2021**


**P.G.Diploma in Nutrition and Dietetics**

<b>Year</b>	<b>I</b>	<b>Course Type: Core Compulsory Course No: NDC 103 Course Title: Practical-1</b>	<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>I</b>		<b>Hours/wk</b>	<b>8</b>
<b>COURSE CONTENT / SYLLABUS- Practical</b>				
<b>Unit I</b>	<b>Human Nutrition</b> <ol style="list-style-type: none"> <li>1. Plan and prepare normal Balance diet sheet.(for Adult Male, Female)</li> <li>2. Plan, prepare Recipe with low and high glycemic index foods and calculate its nutritive value</li> <li>3. Plan, prepare high Fiber and low Fiber Recipe and calculate its nutritive value</li> <li>4. Plan, prepare low Fat Recipe and calculate its nutritive value</li> <li>5. Plan, prepare high Protein Recipe and calculate its nutritive value</li> </ol>			
<b>Unit II</b>	<b>Advance Clinical nutrition</b> <ol style="list-style-type: none"> <li>1. Market survey of commercial nutritional supplements and nutritional support substrates.</li> <li>2. Planning and preparation of diets for patients <ul style="list-style-type: none"> <li>• Lactose Intolerance</li> <li>• Celiac Disease</li> </ul> </li> <li>3. Planning and preparation of diets for <ul style="list-style-type: none"> <li>• Obesity</li> <li>• Underweight</li> </ul> </li> </ol>			
<b>Unit III</b>	<b>Food Preservation and Basic Microbiology</b> <ol style="list-style-type: none"> <li>1. Instruments used in microbiology laboratory – Incubator, Hot air oven, centrifuge, Ph. meter, Autoclave</li> <li>2. Microscope and its parts</li> <li>3. Gram Staining</li> <li>4. Observation of micro-organism from fruit, vegetables, bread</li> <li>5. Sterilization methods</li> <li>6. Food preparations by using any two physical methods of preservation</li> </ol>			
<b>Unit IV</b>	<b>Physiology (Basic)</b> <ol style="list-style-type: none"> <li>1. Demonstration of Barr body</li> <li>2. Blood Grouping and Rh factor</li> <li>3. Measurement of Blood Pressure (After exercise and during rest)</li> <li>4. Measurement of body temperature and pulse rate (After exercise and during rest)</li> </ol>			




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<b>P.G.Diploma in Nutrition and Dietetics</b>					
<b>Year</b>	<b>I</b>	<b>Course Type: Elective Compulsory</b> <b>Course No: NDE 104A</b> <b>Course Title: Food Microbiology</b>		<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>I</b>			<b>Hours/wk</b>	<b>4</b>
<b>Objectives</b>		1. To provide basic knowledge about microorganisms, their environment and factors affecting their growth 2. To enable students to know about the historical developments and taxonomy of microorganisms 3. To provide knowledge on the principles involved in destruction of microorganisms in meaningful foods 4. To understand role of microorganism in disease and immunity			
<b>COURSE CONTENT / SYLLABUS - THEORY</b>					
<b>Unit I:</b>		<b>Need for Food Preservation</b> <ul style="list-style-type: none"><li>• Food Preservation</li><li>• Food Spoilage</li><li>• Food Infection</li><li>• Taxonomy of microorganisms</li></ul>			
<b>Unit II</b>		<b>Role and Significance of Microorganisms in Foods</b> <ul style="list-style-type: none"><li>• Bacteria</li><li>• Yeast</li><li>• Mold</li></ul>			
<b>Unit III</b>		<b>Methods of Isolation, Detection and Destruction of Microorganism.</b> <ul style="list-style-type: none"><li>• <b>Newer and Rapid Methods of Isolation and Detection of Microorganisms in Foods</b><ul style="list-style-type: none"><li>• Conventional methods</li><li>• Rapid methods (newer techniques)</li><li>• Microbiological criteria for various food products</li></ul></li><li>• <b>Principals Involved in Destruction of Microorganisms for Prolonged Storage of Foods</b><ul style="list-style-type: none"><li>• Physical methods: drying, freezing, cell storage, heat treatment, irradiation, high pressure processing.</li><li>• Chemical preservation and natural antimicrobial compounds.</li></ul></li><li>• <b>Importance of Prebiotics and Probiotics in human health</b></li></ul>			
<b>Unit IV</b>		<b>Immunity</b> <ul style="list-style-type: none"><li>• Definition of antigen and antibody</li><li>• Types of immunity – natural and artificial</li><li>• Three stages of immunity – primary, secondary and tertiary</li><li>• Auto immune disease – rheumatoid arthritis, Type 1 Diabetes, Psoriasis</li></ul>			

	<ul style="list-style-type: none"> <li>• Immune body formation</li> </ul>
	<b>Reference</b>
	<ol style="list-style-type: none"> <li>1. Microbiology by Pelczar and reid</li> <li>2. Microbiology by Pawar and Daginawala</li> <li>3. Microbiology by Chakravorty</li> <li>4. સુક્ષ્મજીવાણુશાસ્ત્રવેબ્કગીરાબેનમાંકડ</li> <li>5. Jay JM (2004). Modern Food Microbiology (7thed.). CBS Publishers and</li> <li>6. Distributors. Springer Publications, Delhi</li> <li>7. Banwart GJ (1998). Basic Food Microbiology (2nded.). CBS Publishers and</li> <li>Distributors, New Delhi</li> <li>8. William Frazier (2008). Food Microbiology (4thed.). The McGraw Hill Co</li> <li>Inc.,New York</li> <li>9. Dr. K. Vijaya Ramesh (2007). Food Microbiology. MJP Publishers, Chennai.</li> <li>10. માઈક્રોબાયોલોજી તથા ખાદ્યવિજ્ઞાનમાં તેની અગત્યતા</li> </ol>


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<b>Year</b>	<b>1</b>	<b>Course Type: Elective Compulsory</b> <b>Course No: NDE 104B</b> <b>Course Title: Nutritional Biochemistry</b>		<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>1</b>	<b>P.G.Diploma in Nutrition and Dietetics</b>		<b>Hours/wk</b>	<b>4</b>
<b>Objectives</b>		<p>.</p> <p>1.Develop an understanding of principles of biochemistry</p> <p>2.Develop an understanding of major nutrients and its physiological importance</p> <p>3.To Understand mechanism of metabolic pathways</p>			
<b>COURSE CONTENT / SYLLABUS - THEORY</b>					
<b>Unit I</b>		<b>Carbohydrates</b> <ul style="list-style-type: none"><li>● Carbohydrates Definition and classification</li><li>● Isomerism in mono saccharides D L form, Optical isomerism, ring structure and aldose ketoses' isomerism</li><li>● Glycolysis and Krebs cycle and its energetics</li><li>● Errors in metabolism of carbohydrates</li><li>● Metabolic disorders Diabetes</li></ul>			
<b>Unit II</b>		<b>Proteins</b> <ul style="list-style-type: none"><li>● Proteins and amino acids definition and classification</li><li>● Structure and functions of Protein and amino acids</li><li>● Urea cycle, Trans amination, deamination and decarboxylation</li><li>● Protein Synthesis</li><li>● Metabolic disorders and errors in protein metabolism</li></ul>			

<b>Unit III</b>	<b>Fats</b> <ul style="list-style-type: none"> <li>● Fatty Acids definition and classification</li> <li>● Fats definition and classification</li> <li>● Some important steroids</li> <li>● <math>\beta</math> oxidation of fatty acids</li> <li>● Ketosis and errors in fat metabolism</li> </ul>
<b>Unit IV</b>	<b>Enzyme</b> <ul style="list-style-type: none"> <li>● Enzyme definition, physical and chemical properties</li> <li>● Factors affecting enzyme reaction</li> <li>● Nomenclature and classification of enzymes</li> <li>● Enzyme Inhibitors</li> <li>● Physiological importance of enzyme in disease condition</li> </ul>
<b>References</b>	
<ol style="list-style-type: none"> <li>1. Biochemistry by A C Deb</li> <li>2. Biochemistry by Lehninger</li> <li>3. Biochemistry by West and Todd</li> <li>4. Biochemistry by Best and Taylor</li> <li>5. Biochemistry by Swaminathan</li> </ol>	

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<b>P.G.Diploma in Nutrition and Dietetics</b>					
<b>Year</b>	<b>1</b>	<b>Course Type: Foundation Course</b> <b>Course No: NDF 105</b> <b>Course Title: Physiology (Basic)</b>		<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>1</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 the relevant issues and topics of human physiology.</li><li>2. To enable them to understand the integrated functions of all systems and the grounding of nutritional sciences in physiology.</li><li>3. To understand general structure and functions of various systems in human body.</li><li>4. To understand structure and functions of various systems in human body under diseased condition.</li></ol>			
<b>COURSE CONTENT / SYLLABUS - THEORY</b>					
<b>Unit I</b>		<b>Digestive and Excretory System</b> <ul style="list-style-type: none"><li>• Homeostasis</li><li>• Regulation of Body temperature</li><li>• Digestion &amp; absorption of food</li><li>• Structure and function of Kidney</li><li>• Nephron and Urine formation</li></ul>			
<b>Unit II</b>		<b>Circulatory and Respiratory System</b> <ul style="list-style-type: none"><li>• Blood, blood groups, blood pressure, blood clotting</li><li>• Structure of Heart and junctional tissues of heart</li><li>• Cardiac cycle and Types of circulation</li><li>• Mechanism of respiration</li><li>• Transport of oxygen and carbon dioxide</li></ul>			
<b>Unit III</b>		<b>Nervous and Endocrine System</b> <ul style="list-style-type: none"><li>• Types of nervous system</li><li>• Types of neuron and Reflex action</li><li>• Transmission of nerve impulse in nerve fiber and synapse</li><li>• Types of endocrine glands and its functions Pituitary, thyroid, para thyroid, and adrenal gland</li><li>• Hormones its action and feedback mechanism</li></ul>			

<b>Unit IV</b>	<b>Reproductive System</b> <ul style="list-style-type: none"> <li>• Types of Chromosome, Kariotype</li> <li>• Spermatogenesis and oogenesis</li> <li>• Male and Female reproductive system</li> <li>• Fertilization of ovum and different stages of fetus Parturition, Stages of labor, Development of breast and secretion of milk</li> </ul>
<b>References</b>	
<ol style="list-style-type: none"> <li>1. Human Physiology by C C Chatterjee</li> <li>2. Textbook of medical physiology by Guyton</li> <li>3. Human physiology by Agrawal</li> <li>4. માનવ શરીર રચના અને શરીર ક્રિયા અને સુતીકા શાસ્ત્ર</li> <li>5. જીવવિજ્ઞાન- લેખક સંધ્યાબેનપરીખ</li> </ol>	


**COURSE OUTLINES FOR COURSES OFFERED IN  
SEMESTER –II**

		<b>Children's University</b> <b>School of Nutrition and Health</b> <b>Department of Home Science</b> <b>Gandhinagar</b>		<b>ACADEMIC</b> <b>YEAR</b> <b>2020-2021</b>	
<b>P.G.Diploma in Nutrition and Dietetics</b>					
<b>Year</b>	<b>1</b>	<b>Course Type: Core Compulsory</b> <b>Course No: NDC 201</b> <b>Course Title: Community Nutrition</b>		<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>II</b>			<b>Hours/wk</b>	<b>4</b>
<b>Objectives</b>		<ol style="list-style-type: none"><li>1. To associate with an existing nutrition health program in the community and conduct situational analysis of the existing program and plan relevant interventions and actions.</li><li>2. To explain the significance of nutritional anthropometry,</li><li>3. To discuss various methods of anthropometric classification, and</li><li>4. To carry out some of the nutritional anthropometric methods</li><li>5. To understand the condition of severe-acute malnutrition (SAM) and its management</li></ol>			
<b>COURSE CONTENT / SYLLABUS - THEORY</b>					
<b>Unit I</b>		<b>Community Nutrition Understanding Public Nutrition Problems and Programmes</b> <ul style="list-style-type: none"><li>• Concept</li><li>• Scope</li><li>• Role of Public Nutritionists in Health Care Delivery</li><li>• Nutritional problems in India<ul style="list-style-type: none"><li>• Anemia,</li><li>• vitamin A- deficiency,</li><li>• PEM,</li><li>• goiter,</li></ul></li><li>• Government programmes for prevention<ul style="list-style-type: none"><li>• National Nutrition Mission</li><li>• NIPI</li><li>• Vit-A prophylaxes programme</li><li>• Goiter control programme</li></ul></li></ul>			



<b>Unit II</b>	<b>Assessment of Nutritional Status –1</b> <ul style="list-style-type: none"> <li>• Goals and Objectives</li> <li>• Methods of Nutritional Assessment <ul style="list-style-type: none"> <li>• Indirect Assessment of Nutritional Status</li> <li>• Direct Assessment of Nutritional Status</li> </ul> </li> <li>• Nutritional Anthropometry <ul style="list-style-type: none"> <li>• Uses of Anthropometry</li> <li>• Common Measurements Used in Nutritional Anthropometry</li> <li>• Methods of Assessing Nutritional Status in Individuals</li> <li>• Determination of Nutritional Status using MUAC</li> <li>• Determination of Nutritional Status using Weight and Height</li> <li>• Methods of Assessment of Nutritional Status of Community</li> <li>• Functional indicators such as grip strength, respiratory fitness, Harvard Step test, squatting test.</li> </ul> </li> </ul>
<b>Unit III</b>	<b>Assessment of Nutritional Status –2</b> <ul style="list-style-type: none"> <li>• Clinical Assessment <ul style="list-style-type: none"> <li>• Training and Standardization</li> <li>• Clinical Signs of Nutritional Disorders</li> </ul> </li> <li>• Biochemical Assessment <ul style="list-style-type: none"> <li>• Biochemical Tests-An Overview</li> <li>• Biochemical Tests for Nutritional Deficiencies</li> </ul> </li> <li>• Dietary Assessment <ul style="list-style-type: none"> <li>• Family Diet Survey</li> <li>• Assessment of Dietary Intakes of Individuals</li> <li>• Qualitative Diet Surveys</li> <li>• Institutional Diet Surveys</li> <li>• Food Balance Sheets (FBS)</li> </ul> </li> </ul>
<b>Unit IV</b>	<b>Sever Acute Malnutrition (SAM) And MAM and its Management</b> <ul style="list-style-type: none"> <li>• Severe Acute Malnutrition (SAM) Moderate Acute Malnutrition (MAM)–prevalence and causes in India <ul style="list-style-type: none"> <li>• Indicators of SAM and MAM</li> <li>• Selective feeding programme guidelines.</li> <li>• Management strategies for addressing SAM -complicated and uncomplicated cases including home based care</li> </ul> </li> <li>• Monitoring of SAM and its treatment <ul style="list-style-type: none"> <li>• A critique of various control strategies for SAM in national programs –</li> <li>• Child Malnutrition Treatment Centres CMTC</li> <li>• Nutrition rehabilitation centres (NRC )in Gujarat)</li> </ul> </li> </ul>
<b>References</b>	
<ol style="list-style-type: none"> <li>1. National guidelines and consensus on Management of SAM-2014</li> <li>2. Community based Management of children with severe acute malnutrition,</li> <li>3. Operational &amp; Technical guidelines, Ministry of health &amp; Family Welfare,Nirman</li> <li>4. Gujarat State Nutrition Policy, Govt of Gujarat, Gandhinagar, 2003</li> <li>5. National Family Health Surveys, IIPS and Macro International, 2005-2006</li> </ol>	

6. Global Nutrition report (Latest)
7. Nutrition & the Post – 2015 Development Agenda: Siezing the opportunity(2015), SCN News, No 41
8. Essential Nutrition Actions: Improving Maternal. Newborn, Infant & YoungChild Nutrition, WHO 2013
9. Food and Nutrition Security, BY Dr. SeemaSankarDorcas L. Essiamah
10. Mason, J.B., Habich, J.P., Tabatabai, H. and Valverde, V. (1984): Nutritional Surveillance, WHO.
11. Lee, R.D. and Nieman, D.C. (1993): Nutritional Assessment, Brown and Benchmark Publishers..
12. FAO Nutritional Studies No.4 (1953): Dietary Surveys: Their Technique and Interpretation, FAO.
13. Bingham, S.A. (1987): The Dietary Assessment of Individuals, Methods, Accuracy, new Techniques and Recommendations. Nutrition Abstracts and Reviews, 57: 705-743.
14. Collins, K.J. (Ed.)(1990) handbook of Methods for the Measurement of work performance, Physical Fitness and Energy Expenditure in Tropical Populations. International Union of Biological Sciences.
15. Lohman, T.G.; Roche, A.F.; and Martorell, R. (Ed.) Anthropometric Standardization Reference manual, Human kinetics Books, Ilinois.

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<b>P.G.Diploma in Nutrition and Dietetics</b>					
<b>Year</b>	<b>I</b>	<b>Course Type: Core Compulsory</b> <b>Course No: NDC 202</b> <b>Course Title: Dietetics &amp; Diet Counseling</b>		<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>II</b>			<b>Hours/wk</b>	<b>4</b>
<b>Objectives</b>		1. The course is aimed at giving advanced knowledge in the field of clinical nutrition and dietetics 2. The course will enable the students to gain current knowledge about classification, pathogenesis, diagnosis, etiology, symptoms and dietetic management of various diseases			
<b>COURSE CONTENT / SYLLABUS- Practical</b>					
<b>Unit I</b>		<b>Concept of Dietetics and Dietary Management in GI Disorders</b> <ul style="list-style-type: none"><li>•The dietitian<ul style="list-style-type: none"><li>• Nutrition and diet clinics.,</li><li>• Classification of dietician</li><li>• Responsibility of specific Dieticians</li><li>• Patients check up and counselling,</li><li>• Education of the patient and follow- up.</li><li>• Indian Dietetic Association</li></ul></li><li>•Nutrient and Drug Interaction: Basic Concept<ul style="list-style-type: none"><li>• Effect of Nutrition on Drugs</li><li>• Drug Effects on Nutritional Status</li><li>• Drug and Drug Interaction</li><li>• Clinical Significance and Risk Factors for Drug-Nutrient Interactions</li><li>• Guidelines to Lower Risk and Wise Use of Drugs</li></ul></li><li>•Gastrointestinal Diseases and Disorders<ul style="list-style-type: none"><li>• Diarrhoea</li><li>• Constipation</li><li>• Oesophagitis</li><li>• Gastro Oesophageal Reflux Disease (GERD)</li><li>• Dyspepsia</li><li>• Gastritis</li><li>• Diverticular Disease</li><li>• Peptic Ulcer</li><li>• Malabsorption Syndrome'</li></ul></li></ul>			


<b>Unit II</b>	<b>Dietary Management in Gout and Diabetes Mellitus</b> <ul style="list-style-type: none"> <li>•Gout <ul style="list-style-type: none"> <li>• Role of Protein and Purines</li> <li>• Etiology</li> <li>• Clinical Features and Complications</li> <li>• Management of Gout</li> </ul> </li> <li>•Diabetes Mellitus <ul style="list-style-type: none"> <li>• Prevalence of Diabetes Mellitus</li> <li>• Classification and Etiology of Diabetes</li> <li>• Factors Affecting Normal Blood Sugar Levels</li> <li>• Diagnosis</li> <li>• Complications of Diabetes</li> </ul> </li> <li>•Management of Diabetes <ul style="list-style-type: none"> <li>• Management of Diet</li> <li>• Food Exchange System</li> <li>• Glycemic Index (GI)</li> <li>• Sweeteners: Nutritive and Non-Nutritive Sweeteners</li> <li>• Dietetic Foods</li> <li>• Beneficial Effect of Some Foods: Supportive Therapy</li> <li>• Exercise and Drugs</li> </ul> </li> </ul>
<b>Unit III</b>	<b>Coronary Heart Diseases and their Management</b> <ul style="list-style-type: none"> <li>• Coronary Heart Diseases (CHD) <ul style="list-style-type: none"> <li>• Prevalence</li> <li>• Etiology: Cardiovascular Risk Factors</li> <li>• Pathophysiology of CHD</li> </ul> </li> <li>• Common Disorders of Coronary Heart Diseases and their Management <ul style="list-style-type: none"> <li>• Dyslipidemia</li> <li>• Atherosclerosis : A Coronary Artery Disease</li> <li>• Hypertension (HT)</li> <li>• Angina Pectoris</li> <li>• Myocardial infarction (MI)</li> <li>• Congestive Cardiac Failure</li> <li>• Rheumatic Heart Disease (RHD)</li> </ul> </li> </ul>
<b>Unit IV</b>	<b>Dietary Management in Liver and Renal Diseases</b> <ul style="list-style-type: none"> <li>• Liver disorders <ul style="list-style-type: none"> <li>• Viral hepatitis types A and B, C,E</li> <li>• Cirrhosis of liver</li> <li>• Hepatic coma</li> </ul> </li> <li>• Kidney Function: Diagnostic Tests <ul style="list-style-type: none"> <li>• Common Renal Diseases Etiology and Dietary Management</li> <li>• General Principle of Dietary Management in Renal Diseases</li> <li>• Acute and Chronic Nephritis</li> <li>• Nephritic Syndrome</li> <li>• Acute Renal Failure (ARF )</li> <li>• Chronic Renal Failure(CRF)</li> <li>• End Stage Renal Disease, (ESRD) and Renal Calculi</li> </ul> </li> </ul>

#### References

1. Mahan KL and Stump SE (2007). Krause's Food and Nutrition Therapy (12thed.).Saunders Publishing
2. B Srilakshmi. Dietetics. New age international publishers.
3. Association of Physicians of India (1998). API Textbook of Medicine, Vol. I andII. Published by Association of Physicians of India
4. Dr(smt.) Vijaya d. JoshiHandbook of nutrition and dietetics.Vora medical publications, Bombay
5. AvantinaSharma Principles of therapeutic nutrition and dietetics


#### Journals

1. Indian Journal of Nutrition and Dietetics.
2. Medical Clinics of North America
3. American Journal of Clinical Nutrition
4. Journal of Human Nutrition
5. Journal of American Medical Association
6. Journal of Ph. Diet. Assoc.
7. Nutrition Reviews
8. World Review of Nutrition and Dietetics.


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<b>P.G.Diploma in Nutrition and Dietetics</b>					
<b>Year</b>	<b>I</b>	<b>Course Type: Core Compulsory</b> <b>Course No: NDC 203</b> <b>Course Title: Practical-1</b>		<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>II</b>			<b>Hours/wk</b>	<b>8</b>
<b>COURSE CONTENT / SYLLABUS- Practical</b>					
<b>Unit I</b>		<b>Community Nutrition I</b> 1. Training in all assessment techniques applicable for individuals and community, including ones used for hospital – based patients, Validity and reliability of these techniques. 2. Community based project for assessment of nutritional status of any vulnerable group. 3. A small evaluation study of a nutrition project.			
<b>Unit II</b>		<b>Community Nutrition II</b> 1. Visit and training in health care Centre run by Government Health Department. 2. Planning, conducting and evaluating nutrition education programmes (in a village/community- through, Demonstration puppet show, skit etc.) for vulnerable group- <ul style="list-style-type: none"><li>• Children</li><li>• Adolescent girl and boy</li><li>• Pregnant women</li><li>• Lactating mothers</li></ul>			
<b>Unit III</b>		<b>Dietetics &amp;Diet Counseling I</b> 1. Dietary Management in GI Disorders 2. Dietary Management in Gout and Diabetes Mellitus 3. Dietary Management in Coronary Heart Diseases 4. Dietary Management inLiver and Renal Diseases			

<b>Unit IV</b>	<b>Dietetics &amp; Diet Counseling II</b>
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|  | <ol style="list-style-type: none"><li>1. Visit to a pathology lab</li><li>2. General , Reference Values and Interpretations<ul style="list-style-type: none"><li>• Hemoglobin</li><li>• Blood glucose</li><li>• Serum total cholesterol</li><li>• Serum triglyceride</li><li>• Albumin test</li><li>• Bilirubin test</li><li>• Kidney function taste</li></ul></li></ol> |
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<b>P.G.Diploma in Nutrition and Dietetics</b>					
<b>Year</b>	<b>I</b>	<b>Course Type: Elective Compulsory</b> <b>Course No: NDE204-A</b> <b>Course Title: Project</b>		<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>II</b>			<b>Hours/wk</b>	<b>4</b>
<b>Objectives</b>		1. To impart knowledge about basic concepts of Project Work. 2. To identify the areas of Research Project and Methods of Foods and Nutrition			
<b>COURSE CONTENT / SYLLABUS</b>					
		1. <b>General Guideline for project work:</b> <ul style="list-style-type: none"><li>● Area and topic to be selected in consultation with the concerned faculty.</li><li>● Project work should be based on primary data collection.</li><li>● Project work should have analysis of data along with other standard inputs.</li><li>● Project report should not be less 30-60 typed pages following APA Style of Report writing.</li><li>● The assessment of project work: 50 Marks for internal viva-voice</li><li>● 50 Marks External (30 Report and 20 External Viva-voice)</li><li>● Assessment pattern:</li><li>● The Project will be examined by two examiners, one internal (Guide) and other external and the average of the Marks given by two examiners will be the final marks.</li><li>● The Viva will be conducted by two examiners who have examined the Project of the student concerned.</li></ul>			



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<b>P.G.Diploma in Nutrition and Dietetics</b>					
<b>Year</b>	<b>I</b>	<b>Course Type: Elective Compulsory</b> <b>Course No: NDE204-B</b> <b>Course Title: Food Production &amp; Hospital Management</b>		<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>II</b>			<b>Hours/wk</b>	<b>4</b>
		To enable the students to : 1. Develop excellent communication skills to disseminate knowledge. 2. Develop entrepreneurship skills.			
<b>COURSE CONTENT / SYLLABUS- Practical</b>					
<b>Unit I</b>		<b>Food Service Establishments</b> <ul style="list-style-type: none"><li>History and Development<ul style="list-style-type: none"><li>Factors Affecting Development</li><li>Recent Trends</li></ul></li><li>Types of Food Service Establishments<ul style="list-style-type: none"><li>Commercial Establishments</li><li>Non-commercial Establishments</li></ul></li><li>Understanding Management</li><li>Approaches to Food Service Management<ul style="list-style-type: none"><li>Traditional Approach</li><li>Classical Approach</li><li>Scientific Approach</li><li>Management by Objectives</li><li>Systems Approach</li><li>Quantitative Approach</li><li>Behavioural and Human Relations Approach</li><li>Contingency Approach</li><li>Just-in-Time</li><li>Total Quality Management Approach</li></ul></li></ul>			

<b>Unit II</b>	<b>The Importance of Menu and Menu Planning in Food Service Organization</b> <ul style="list-style-type: none"> <li>• Definition and Functions of a Menu <ul style="list-style-type: none"> <li>• The Need for Menu Planning</li> <li>• Knowledge and Skills Required for Planning Menu</li> </ul> </li> <li>• The Types of Menu and its Applications <ul style="list-style-type: none"> <li>• Types of Menus</li> <li>• Uses of Menus</li> </ul> </li> <li>• Steps in Menu Planning and its Evaluation <ul style="list-style-type: none"> <li>• Construction of Menu</li> <li>• How to Plan a Menu?</li> <li>• Characteristics of a Good Menu</li> <li>• Display a Menu</li> <li>• Evaluation of Menu</li> </ul> </li> </ul>
<b>Unit III</b>	<b>Organization and Leadership,</b> <ul style="list-style-type: none"> <li>• Organizational Chart, <ul style="list-style-type: none"> <li>• Organizational Charts of Dietary/food service department,</li> <li>• line of staff, authority, responsibility, power, delegation of authority</li> <li>• Centralization and decentralization of food</li> </ul> </li> <li>• Managing an Organization <ul style="list-style-type: none"> <li>• Processes Involved</li> <li>• Principles of Management</li> <li>• Functions of Management</li> </ul> </li> <li>• Leadership, motivation and communication <ul style="list-style-type: none"> <li>• Dietician as a leader, leadership qualities that a dietitian should possess, styles of leadership and their effect on subordinates.</li> <li>• Relation between motivation and performance, Maslow's Theory of Motivation, Fredrik Hedburg Motivation – Hygienic Theory, Application of Above theories to motivate subordinates communication, need for communication, process of communication, upward, downward and lateral communication, barriers to effective communication, listening.</li> </ul> </li> </ul>

Unit IV	<b>Personal Hygiene and Sanitary Practices in Hospital</b> <ul style="list-style-type: none"> <li>• Personal Hygiene and Sanitary Practices <ul style="list-style-type: none"> <li>• Health of Staff</li> <li>• Sanitary Practices</li> </ul> </li> <li>• Sanitation Training and Education for Food Service Workers <ul style="list-style-type: none"> <li>• Sanitation Training and Education</li> <li>• Who should be trained?</li> <li>• What a Training Programme should include?</li> <li>• Employment Practice</li> </ul> </li> <li>• Hazard Analysis and Critical Control Point (HACCP)</li> <li>• Work Place Safety <ul style="list-style-type: none"> <li>• Why Accidents should be prevented?</li> <li>• How Accidents Take Place?</li> <li>• Types of Accidents</li> <li>• Precautions to Prevent Accidents</li> </ul> </li> <li>• Sanitation Regulations and Standards <ul style="list-style-type: none"> <li>• Control of Food Quality</li> <li>• Adulteration and Misbranding</li> </ul> </li> </ul>
<b>References</b>	
<ol style="list-style-type: none"> <li>1. Thangum Philip – (1994) Modern Cookery for Teaching and Trade (Volume 1 &amp; II), Bombay Orient Langman's.</li> <li>2. Shankuntala Mane – (1987) – Food Facts and Principles , Bombay, Willey Eastern Ltd.,</li> <li>3. Angela Kay (1978) – Shining Cook Book, London Octopus Books Ltd.</li> <li>4. B. B. Weste&amp; L. Wood – (4th Ed.) – Food Service in Institutions - New York, John Willey &amp; Sons,</li> <li>5. MohiniSethi&amp;SurjeeetMathan – (1993) – Catering Management &amp; Integrated Approach, Bombay, Willey Eastern. Ltd.</li> </ol>	

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<b>P.G.Diploma in Nutrition and Dietetics</b>					
<b>Year</b>	<b>I</b>	<b>Course Type: Foundation Course</b> <b>Course No:NDF 205</b> <b>Course Title: Internship</b>		<b>Credits</b>	<b>4</b>
<b>Semester</b>	<b>II</b>			<b>Hours/wk</b>	<b>8</b>
<b>Objectives</b>		1. To familiarize the students with the hospital organization 2. To train the students in the dietetics department of hospital 3. To have hands on experience in the various OPD of a hospital			
<b>COURSE CONTENT - PRACTICALS</b>					
		<b>Duration of training :</b> 45 working Days <b>Training:</b> Hospital Setting <b>Norms:</b> As per the norms of the hospital <b>Evaluation:</b> The students will be evaluated by the dietician of the hospital. <b>Note:</b> 1. The student will have to prepare a report and submit to the department 2. A presentation has to be made in seminar on their work experience.			