

Academic Calendar

Department of Food & Nutrition(H&G)
2021 1ST, 3rd, 5thsem , CBCS

Semester/ Year	Syllabus Module/ Unit	Teachers	Tentative period of completion
3rd H	<p>FNTACOR05T: NUTRIENTS METABOLISM(THEORY)</p> <p>1.Carbohydrate Metabolism: Glycolysis & its regulation. Glycogen metabolism. Metabolism of pyruvate. Outline of pentose phosphate pathway. Anaplerotic reactions. Importance of gluconeogenesis.</p> <p>2. Lipid Metabolism : Fatty acid synthase and de novo biosynthesis of fatty acid; regulation and mechanism of chain elongation. Metabolism of cholesterol, its control and pathophysiological importance. β-oxidation of fatty acids.</p> <p>3.Amino acid Metabolism : Essential amino acids. Transamination. Deamination. Transmethylation. Decarboxylation. glucogenic and ketogenic amino acids. Outline of urea cycle. Inborn errors of Metabolism.</p> <p>4. Biological oxidation Mitochondrial electron transport chain. High energy phosphate bond. Formation of ATP.</p> <p>5. Nucleic acid metabolism Chemical structure of purine and pyrimidine, Catabolism and anabolism of pyrimidines. Gout - occurrence, prognosis, progression and therapy.</p> <p>6.Vitamins Classification, characteristics and chemical properties of fat and water soluble vitamins. Functions of fat and water soluble vitamins. Hypervitaminosis. Role of vitamins A, D, C, B1, B2, B6, B12 and folic acid in metabolism.</p> <p>7.Mineral Metabolism Role of minerals in physiology. Trace elements. Sodium potassium balance. Role of calcium, iron and zinc in human body -metabolism, functions, deficiency and toxicity.</p> <p style="color: green;">Internal exam Scripts will be checked by :- SRI DEBASISH MAZUMDAR & DP</p>	<p>Debasish mazumdar</p> <p>Debasish mazumdar</p> <p>Debasish mazumdar</p> <p>Debasish mazumdar</p> <p>DP</p> <p>DP</p> <p>DP</p>	<p>September</p> <p>September-October</p> <p>November</p> <p>November-December</p> <p>December</p> <p>January</p>

Academic Calendar

	<p>FNTACOR05P: NUTRIENTS METABOLISM(PRACTICAL) TOTAL HOURS: 60 2 CREDITS</p> <p>1. Estimation of Vitamin C in citrus fruits. 2. Estimation of calcium in blood (using kit) and drinking water (Complexometry).3.Estimation of sodium and potassium in blood(using kit).4.Estimation of iron in vegetables by</p>	<p>DEBOSMIT hA PATHAK</p>	<p>September -November</p>
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Academic Calendar

Department of Food & Nutrition (Honours)
2020-21 1ST, 3rd, 5thsem , CBCS

	<p style="text-align: center;">Academic Calendar</p> <p>spectrophotometry, PCR, DNA (PDA method) and RNA (Orcinol method) in tissues by spectrophotometry.</p> <p style="text-align: center;">INTERNAL PRACTICAL MARKS WILL BE GIVEN BY : SMT DEBOSMITA PATHAK</p> <p style="text-align: center;">FNTACOR06T: NUTRITION THROUGH LIFE SPAN(THEORY)</p> <p>1. Basics of Meal Planning Principles of meal planning, Food groups and Food exchange list, Factors affecting meal planning and food related behaviour</p> <p>2. Nutrition in Adults and Elderly Physiological changes in elderly.. RDA and nutritional guidelines, nutritional concerns and healthy food choices for: Adult man and woman, Elderly.</p> <p>3. Nutrition during Pregnancy Nutrition During Pregnancy: Factors (non-nutritional) affecting pregnancy outcome, importance of adequate weight gain during pregnancy, antenatal care and its schedule, Nutritional requirements during pregnancy and modification of existing diet and supplementation, Deficiency of nutrients, specially energy, iron folic acid, protein, calcium, iodine. Common problems of pregnancy and their managements, specially - nausea, vomiting, pica, food aversions, pregnancy induced hypertension, obesity, diabetes. Adolescent pregnancy.</p> <p>4. Nutrition during Lactation Nutrition during Lactation: Nutritional requirements during lactation, dietary management, food supplements, galactagogues, preparation for lactation. Care and preparation of nipples during breastfeeding.</p> <p>5. Nutrition during Infancy Nutrition during Infancy: Infant physiology relevant to feeding and care, Breastfeeding, colostrum, its composition and importance in feeding, Initiations of breast feeding. Advantages of exclusive breastfeeding. Basic principles of</p>	<p>SS</p> <p>MS</p> <p>SS</p> <p>SS</p> <p>M.SINHA</p> <p>M.SINHA</p>	<p>September</p> <p>September</p> <p>September</p> <p>October</p> <p>October</p>
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~~breastfeeding, introduction of complementary foods, initiation and management of weaning, Baby-led weaning. Bottle feeding- circumstances under which bottle feeding is to be given. Care & sterilization of bottles. Preparation of formula. Mixed feeding, breast feeding and artificial feeding, Management of preterm and low birth weight babies.~~

6. Nutrition for Children and Adolescents
INTERNAL SCRIPTS WILL BE CHECKED BY: SS AND MS

Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3rd, 5th sem , CBCS

	<p>FNTACOR06P: NUTRITION THROUGH LIFE SPAN(PRACTICAL) TOTAL HOURS: 60 2 CREDITS Meal planning and preparation of adequate meal for different age groups with special reference to different physiological conditions: infants, pre-schooler, school children, adolescents, adults, pregnancy, lactation and elderly. INTERNAL PRACTICAL MARKS WILL BE GIVEN BY: SS AND MS</p> <p>FNTACOR07T: ELEMENTARY DIETETICS AND MENU PLANNING (THEORY)</p> <p>1. Dietetics and Dietician Definition and objective of dietetics, Dieticians-Definition, Classification and Responsibility</p> <p>2. Food groups Four food groups (Caribbean Food Guide; Canadian Food Guide; USA Food Pyramid; British Food Guide; Recommended Nutrient Intake (RNI); Dietary Value Intake; Dietary Reference Value, Five food group system of ICMR. Structure and composition of cereals. Wheat- structure and composition, types (hard, soft/ strong, weak) ,Diagrammatic representation of longitudinal structure of wheat grain. Malting, gelatinization of starch, types of browning- Maillard & caramelization. Rice- structure and composition, parboiling of rice- advantages and disadvantages. Structure and composition of pulses, toxic constituents in pulses, Milk and Milk Products- composition, classification and processing, Eggs- composition, Meat, fish & poultry- Types, composition, Sugar & Sugar products-Types and composition, Fats & Oils-Types & sources, Food adjuncts- spices, condiments, herbs, extracts; concentrates, essences, food colours, origin, classification, convenience foods, Beverages-Tea, Coffee, Chocolate , cocoa powder-composition</p> <p>3. Dietary guidelines Nutritive values as a basis for classification of food, Recommended Daily Allowances (RDA), Dietary guidelines for Indians and food pyramids.</p>	<p>MS & SS</p> <p>BG</p> <p>BG</p> <p>GC</p>	<p>September- November</p> <p>September</p> <p>September -November</p> <p>September</p>
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Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3rd, 5th sem, CBCS

	4. Menu Planning Menu Planning: Rationale for menu planning, Factors affecting food choice, Nutritional factors, other factors; Exchange list and food composition tables for menu planning, Steps in the development of exchange list, Factors to be considered when planning the regular balanced diet: adequacy, balance caloric control, moderation, variety and aesthetics.	SS	September
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Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3rd, 5th sem, CBCS

	<p>5. Basics of diet therapy Basic concepts of diet therapy: Therapeutic adaptations of normal diet, principles and classification of the therapeutic diets, Nutrient modifications.</p> <p>6. Diet for health care Team approach to health care. Assessment of Patient's needs.</p> <p>7. Routine Hospital Diet Routine Hospital Diets: Regular, light, soft, fluid, parenteral and enteral feeding. INTERNAL SCRIPTS WILL BE CHECKED BY: BG AND GC</p> <p>FNTACOR07P: ELEMENTARY DIETETICS AND MENU PLANNING (PRACTICAL) TOTAL HOURS: 60 4 CREDITS</p> <ol style="list-style-type: none"> 1. Planning and preparation of normal diets. 2. Planning and preparation of different fluid diets. 3. Planning and preparation of different soft/semi solid diets. 4. Planning and preparation of different nutrient modified diet. <p>INTERNAL PRACTICAL MARKS WILL BE GIVEN BY :-BG AND GC</p> <p>SEC SYLLABUS</p> <p>FNTSSEC01M: INSTRUMENTATION</p> <ol style="list-style-type: none"> 1. Microscopy Brightfield and darkfield microscopy, Optical Microscopy, Phase contrast Microscopy, Inverted Microscopy 2. Chromatography Principles and applications of paper chromatography (including Descending and 2-D), Thin layer chromatography, HPLC. Separation of mixtures by paper / thin layer chromatography 3. Spectrophotometry Principle and use of study of absorption spectra of biomolecules, Analysis of biomolecules using UV and visible range, Colorimetry. Protein concentration of spectrophotometer/ colorimeter. 4. Electrophoresis Principle and applications of native polyacrylamide gel electrophoresis 5. Centrifugation Preparative and analytical centrifugation, density gradient centrifugation and ultracentrifugation Separation 	<p>GC</p> <p>GC</p> <p>GC</p> <p>BG GC</p> <p>M.SIN HA</p> <p>DP</p> <p>DP</p> <p>BG</p> <p>GC</p>	<p>September</p> <p>October</p> <p>October</p> <p>September- November</p> <p>September</p> <p>September</p> <p>October</p> <p>November</p> <p>October</p>
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Academic Calendar
Department of Food & Nutrition(Honours)
2020-21 1ST ,3rd , 5th sem , CBCS

	<p>of components of a given mixture using a laboratory scale centrifuge</p> <p>6. ECG and EEG Principles of ECG and EEG, application of ECG and EEG</p> <p>7. ELISA Principle and applications of ELISA test</p> <p style="color: green;">INTERNAL SCRIPTS WILL BE CHEKED BY: GC</p> <p style="text-align: center;">3RD SEM G (DSC)</p> <p style="color: red;">FNTGCOR03T: COMMUNITY, NUTRITION AND HEALTH ASSESSMENT (THEORY)</p> <p>1. Concept on Community Concept and types of Community. Concept of community nutrition, Community health, Factors affecting community health.</p> <p>2. Nutritional Assessment Nutritional Assessment: Meaning, need, objectives and importance. Method of assessment of nutritional status – Anthropometry, Clinical, Biochemical, Dietary surveys, Vital health statistics.</p> <p>3. Concept of surveillance system Elementary idea of health agencies - FAO, WHO, ICMR, ICDS, ICAR, CSIR, ANP, VHAI, NIN and CFTRI. Role of voluntary health organisation in the improvement of Community health.</p> <p>4. Nutrition Intervention Programmes Current National Nutrition Intervention Programmes in India- SNP, ANP, Midday meal, NIDDCP, NPPNB, NNAPP. ICDS,</p> <p>5. Nutrition Education Nutrition Education: Definition, objectives of nutrition education. Methods of imparting nutrition education.</p> <p style="color: green;">INTERNAL SCRIPTS WILL BE CHEKED BY: BG AND MS</p> <p>FNTGCOR03P: COMMUNITY, NUTRITION AND HEALTH ASSESSMENT(PRACTICAL) TOTAL HOURS: 60 CREDITS:</p> <p>2 1. Anthropometric Measurement of infant - Height,</p>	<p>M.SINHA</p> <p>SS</p> <p>MS</p> <p>SS</p> <p>M.SINHA</p> <p>SS</p> <p>M SINHA</p> <p>SS</p> <p>GC</p>	<p>November</p> <p>September</p> <p>September</p> <p>September</p> <p>October</p> <p>October</p> <p>November</p> <p>November</p> <p>September</p> <p>November</p>
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Academic Calendar
Department of Food & Nutrition(Honours)
2020-21 1ST ,3rd , 5th sem , CBCS

	<p>weight, circumference of chest, mid - upper arm circumference. Calculation of BMI.</p> <p>2. Clinical assessment and signs of nutrient deficiencies.</p> <p>3. Diet survey by 24 hours recall method.</p> <p>4. Preparation of homemade ORS. 5. Preparation of low cost and medium cost school tiffin.</p> <p style="text-align: center;">INTERNAL PRACTICAL MARKS WILL BE GIVEN BY :GC</p> <p style="text-align: center;">5TH SEM H</p> <p style="text-align: center;">FNTACOR11T: CLINICAL NUTRITION AND DIET FOR SPECIAL SITUATIONS IN LIFE (THEORY)</p> <p>1. Nutritional management of physiological stress Nutrition in wound healing, Surgery: Pre and post surgical dietary management, Burns, Classification, Complication, Dietary management, Trauma: Dietary management, Sepsis: Dietary management.</p> <p>2. Dietary Modification in febrile Condition Acute, chronic and recurrent fevers, typhoid, rheumatic fever, tuberculosis, malaria, H1N1, dengue fever and chikunguinea.</p> <p>3. Nutritional management of GI diseases Diseases of Esophagus and stomach: Esophagitis(GERD), Dyspepsia, Peptic ulcer, Gastritis, Gastrectomy, Dumping syndrome . Intestinal diseases: Flatulence, Diarrhea, Constipation, Hemorrhoids, Diverticular disease, Duodenal ulcer, Inflammatory Diseases of Bowl: Crohn's disease and ulcerative colitis, Irritable bowel Syndrome, Colostomy, Ileostomy</p> <p>4. Malabsorption syndrome Celiac disease (Tropical sprue), Steatorrhea, Intestinal Brush border diseases, Protein losing enteropathy</p> <p>5. Diseases of Gall bladder and pancreas Pathophysiologic changes, etiology and dietary management -(Biliary dyskinesia , Cholelithiasis, Cholecystitis, Cholecystectomy , Pancreatitis)</p> <p>6. Liver diseases Pathophysiology, Progression of liver disease, Role of specific nutrients and alcohol in liver diseases. Nutritional care in liver disease in the context of results of specific liver function tests, Viral hepatitis , cirrhosis of Liver, Hepatic encephalopathy, Wilsons disease.</p>	<p>BG</p> <p>BG</p> <p>BG</p> <p>SS</p> <p>SS</p> <p>SS</p>	<p>September</p> <p>September</p> <p>October-November</p> <p>September</p> <p>October</p> <p>November</p>
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Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3rd, 5th sem , CBCS

	<p>7. Nutrition Management of Renal Disease Etiology and pathogenesis, Clinical and metabolic manifestations Diagnostic tests, Acute and chronic nephritis, Nephrotic syndrome, Renal Failure: Acute and chronic, Nephrolysis, ESRD</p>	GC	September
	<p>8. Nutritional management in Allergy Definition, symptoms mechanism of food allergy, Biochemical and immune testing (short), Elimination diets, Food selection, Food allergy in infancy: Milk sensitive enteropathy, intolerance to breast milk, Prevention of food allergy.</p>	GC	September
	<p>9. Neurological diseases Alzheimer's, Parkinson's disease and Epilepsy, Anorexia nervosa and bulimia.</p>	GC	September
	<p>INTERNAL SCRIPTS WILL BE CHECKED BY: SS AND MS</p> <p>FNTACOR11P: CLINICAL NUTRITION AND DIET FOR SPECIAL SITUATIONS IN LIFE (PRACTICAL) TOTAL HOURS: 60 2 CREDITS Planning and preparation of Diets for the following diseases: i) Peptic ulcer ii) Viral hepatitis iii) Fever iv) Acute and chronic renal failure</p> <p>INTERNAL PRACTICAL MARKS WILL BE GIVEN BY : BG AND GC</p>	MSINHA BG	September- November
	<p>FNTACOR12T: FOOD MICROBIOLOGY AND IMMUNOLOGY (THEORY)</p>		
	<p>1. General Introduction to microbes (Bacteria, Fungus, and Algae) Classification, Nomenclature and Morphology (external and internal features). Principles of staining.</p>	SS	September
	<p>2. Growth kinetics of bacteria Growth kinetics, Factors affecting growth, different nutritional media for growth, methods of media sterilization.</p>	DP	September
	<p>3. Microbiology of food Microbes commonly present in food and the diseases caused by them, microflora present in milk, cereals, vegetables, flesh food. Seafood and Shell fish poisoning. Mycotoxins, Foodborne Diseases, Prions.</p>	DP	October
	<p>4. Microbial Food Spoilage Sources of Microorganisms in foods, Some important food spoilage microorganisms, Spoilage of specific food groups - Milk and dairy products, Meat, poultry and</p>	SS	October

Academic Calendar
Department of Food & Nutrition (Honours)
Department of Food & Nutrition (Honours)
2020-21 1ST, 3RD, 5TH sem , CBCS
2020-21 1ST, 3RD, 5TH sem , CBCS

	<p>seafoods, Cereal and cereal products, Fruits and vegetables and Canned products.</p> <p>5.Food Fermentations Fermentation –definition and types, Microorganisms used in food fermentations, Dairy Fermentations starter cultures and their types , concept of probiotics, Fermented Foods-types, methods of manufacture for vinegar, sauerkraut, tempeh, miso , soya sauce, beer, wine and traditional Indian foods.</p> <p>6.Immunesystem Cells & Organs of the immune system, Innate and Acquired, Primary and secondary immune response, Active and Passive, Antigen, Antibody, Haptens, Adjuvants, Immunoglobulin- classification, polyclonal and monoclonal, basic structure and function, antigen and antibody reactions- RIA, ELISA, Immunoblot. Antibody production -processing and presentation of antigen, MHC, Humoral immune response. Cell mediated immunity, Formation, maturation and activation of B and T cells, Immune effectors system- cytokines complement system, K cells and NK cells, Cell mediated effectors response, Interferons, Immunopathology - basic principles of auto immune disease , Vaccine, toxins, toxoids, antiserum. Basic principles of immunological detection of pregnancy and immunohistochemistry.</p> <p style="text-align: center;">INTERNAL SCRIPTS WILL BE CHEKED BY: DP</p> <p>FNTACOR12P: FOOD MICROBIOLOGY AND IMMUNOLOGY (PRACTICAL) TOTAL HOURS: 60 4 CREDITS 1. Introduction to microbiology: Use of equipments Understanding and use of compound microscope Use of Autoclave Use of Incubator and Inoculation chamber 2. Preparation of different types of media (complex, differential and selective) 3. Preparation of slant, stab and plates using nutrient agar 4. Morphological study of bacteria and fungi using permanent slides 5. Gram staining 6. Bacteriological Analysis of Water by MPN method 7. Ouchterlony double diffusion test in agar-gel.</p> <p style="text-align: center;">INTERNAL PRACTICAL MARKS WILL BE GIVEN BY : DP</p>	<p>SS</p> <p>DP</p> <p>DEB OS MIT A PAT HA K</p>	<p>November</p> <p>November</p> <p>September- December</p>
<p>5th Semester DSE FOR FNTA HONS</p>	<p>FNTADSE02T: ENTREPRENEURSHIP IN FOOD INDUSTRY (THEORY) 1. Entrepreneurial Development CASE STUDIES OF SUCCESSFUL ENTREPRENEURS, EXERCISES ON WAYS OF SENSING OPPORTUNITIES – SOURCES OF IDEA, CREATING EFFORTS, SWOT 49 Analysis, Entrepreneurial Skill Assessment test,</p>	<p>GC , RED PORTI ON PS</p>	<p>September- December</p>

Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1st, 3rd, 5th sem, CBCS

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Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3rd, 5th sem , CBCS

	<p>Techniques of development of entrepreneurial skills, positive self image and locus of control.</p> <p>2. Food BUSINESS management CASE STUDIES of Food PROCESSING BUSINESS and its ASPECTS, Business opportunity Identification and ASSESSMENT techniques, BUSINESS Idea Generation and evaluation EXERCISE, Market ASSESSMENT study Analysis of competitive situation,</p> <p>SWOT Analysis for business and for competitors, Preparation of BUSINESS plan, Preparation of project report, Methods of Arrangement of inputs – finance and material, Tax planning.</p> <p>3. Personality development and communications skills No. of Hours 20 Communications SKILLS and Personality Development, Intra PERSONAL communication and Body Language, Interpersonal Communication and RELATIONSHIPS, Leadership Skills, Team Building and public speaking, Corporate Grooming, Dressing Etiquette, Preparing for Interview, Emotional Quotient.</p> <p>INTERNAL SCRIPTS WILL BE CHECKED BY: GC AND MS</p> <p>FNTADSE02P: ENTREPRENEURSHIP IN FOOD INDUSTRY (PRACTICAL) TOTAL HOURS: 60 CREDITS: 2 1. Preparation of business plan. 2. Preparation of project report. 3. Tax Planning under the head Salary. 4. Visit to a food industry</p> <p>INTERNAL PRACTICAL MARKS :- POULAMI SINHA COMMERCE</p> <p>FNTADSE03T: FOOD BORNE DISEASES AND FOOD TOXICOLOGY (THEORY)</p>	<p>GC</p> <p>MS</p> <p>MS</p> <p>PS COMMERCE</p>	<p>September- December</p> <p>Do</p> <p>Do</p> <p>September- December</p>
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Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3RD, 5TH sem, CBCS

<p>1. Food borne DISEASES Definition related to food borne DISEASES, types of DISEASES with example (Pandemic, Endemic and Epidemic). Infection, contamination, decontamination, disinfection, transmission (direct and indirect). Brief idea about different vector borne DISEASES, mode of TRANSMISSION prevention and control of following DISEASES: Salmonella, Shigella, Typhoid, Botulism, Cholera, E. coli food poisoning, Staphylococcal food POISONING, Clostridium infection, Bacillary infection.</p>	DP	September
<p>2. Lactose intolerance Lactose intolerance-its mechanism and enzyme deficiency.</p>	DP	October
<p>3. Mechanism of food borne DISEASES Molecular mechanism of food borne DISEASES.</p>	DP	November
<p>4. Food Safety Definition: Food safety, TYPES of hazards (Biological, chemical and physical hazards), impact on health, control measures, factors affecting food safety.</p>	BG	September- November
<p>5. Hygiene and sanitation Hygiene and sanitation: Contamination, control methods using physical and chemical agents, use of preservatives, pest control management, personal hygiene.</p>	GC	September- November
<p>6. Food safety management Food safety management: Concept of safe ty management, prerequisites-GHPs, GMP, HACCP etc.</p>	BG	December

Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3RD, 5TH SEM, CBCS

	<p>7. Toxic agents in food: Botulism, Ithyrisim, Ciguatoxins, Tetrodotoxins, Saxotoxins, conotoxins, Antivitamin, Haemagglutins, Cyanogenic glycosides, Strychnine, Solanine, atropine, Muscarine.</p> <p>INTERNAL SCRIPTS WILL BE CHECKED BY: DP</p> <p>FNTADSE03P-FOOD BORN DISEASES AND FOOD TOXICOLOGY (PRACTICAL) TOTAL HOURS: 60 CREDITS: 2 1. Assessment of surface sanitation by swab and rinse method. 2. Assessment of personal hygiene. 3. Designing of various food processing systems and food service areas. 4. Design and layout of cold storage and ware house. 5. Assessment of physico chemical properties of waste water. 6. Isolation and enumeration of bacteria from rotten food bread and vegetables. 7. Testing of sanitizers and disinfectants. 8. Study of phenol coefficient of sanitizers. 9. Visit to Food industry and preparation of report.</p> <p>INTERNAL PRACTICAL MARKS WILL BE GIVEN BY :- DP</p> <p style="text-align: center;">5TH SEM G (DSE 1 SYLLABUS FOR FNTG [ONLY FOR DSC])</p> <p>FNTGDSE02T- FOOD SAFETY AND FOOD PROCESSING</p> <p>1. Food additive and food safety: Concept of food safety, factors affecting food safety, Food additives - various types and their effects on health.</p> <p>2. Food spoilage: Cereals, PULSES, Vegetables & Fruits, Milk & milk products, FLESHY foods, Fats & OILS. Foodborne infections & infestation.</p> <p>3. Food adulterants: PFADefinition of food adulteration, Common adulterants in food and their effects on health, Common household methods to detect adulterants in food.</p> <p>4. Food laws and regulatory authority: No. of Hours 10 Prevention of Food Adulteration (PFA) Act, Regulating authority - Codex Alimentarius, ISI, Agmark, Fruit Products Order (FPO), Meat Products Order (MPO), Bureau of Indian Standards (BIS), MMPO, FSSAI.</p> <p>5. Food Preservation: No. of Hours 10 Food Preservation - Definition, Objectives, Methods - main principle, procedure, common examples. 16</p> <p>6. Food adjuncts and preserved products: No. of Hours 8 Spices (Chilies, Turmeric, Garlic and Ginger), use and nutritional aspect. JAMS, Jellies, Squashes - uses and nutritional aspects.</p> <p>INTERNAL SCRIPTS WILL BE CHECKED BY: BG</p> <p>FNTGDSE02P- FOOD SAFETY AND FOOD PROCESSING (PRACTICAL) TOTAL HOURS: 60 CREDITS: 2 1. Detection of common adulterant in food i) Khesari flour in besan ii) Vanaspati in Ghee/Butter iii) Dried papaya seeds in black pepper iv) Metanil yellow in turmeric or coloured sweet products.v)</p>	<p>GC</p> <p>DP</p> <p>BG</p> <p>BG</p> <p>M.SIN HA</p> <p>SS :</p> <p>M.SIN HA</p> <p>SS</p> <p>GC</p>	<p>September - November</p> <p>September-December</p> <p>September</p> <p>October</p> <p>September</p> <p>September</p> <p>October</p> <p>October</p> <p>September</p>
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Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3rd, 5th sem , CBCS

1ST SEMESTER	Artificially foreign matter in tea (dust/leaves). 2. Preparation of Jam, Jelly, Pickle and Sauce		September- November
	<p style="text-align: center;">INTERNAL PRACTICAL MARKS WILL BE GIVEN BY :- GC</p> <p style="text-align: center;">CORE COURSE (CC) FNTACOR01T: HUMAN NUTRITION (THEORY) TOTAL HOURS: 60 4 CREDITS</p> <p>1. Introduction to Food and Nutrition No. of Hours 10 Foods: Energy giving, body building and protective. Nutrients: macro and micronutrients, Diet and balanced diet, Menu. Health and nutritional status. Malnutrition, functional food, prebiotics, probiotics, 8 phytochemicals, nutraceuticals. Fibre. Functions of foods: physiological, psychological, social. Food groups, food pyramid, Relation between food and nutrition, health and diseases.</p>	GC	
	<p>2. Foods, Nutrients and cooking of food No. of Hours 10 Foods and their nutrient contents: Nutrients present in cereals and millets, pulses, nuts and oil seeds, fruits and vegetables, milk and milk products, flesh food, eggs, Condiment and spices, salt. Nonnutrient components of foods: phytate, tannins, oxalate, trypsin inhibitor, goitrogens and other toxic agents in food. Cooking: Beneficial and adverse effects of cooking. Different methods of cooking-dry, moist, frying, and micro wave cooking-advantage, disadvantage and the effect of various methods of cooking on foods, Solar cooking.</p>	BG	September- November
<p>3. Food energy and energy requirements No. of Hours 15 The energy value of foods: Physical and physiological calories. Bomb calorimeter Energy requirement of an individual: Basal metabolic rate (BMR) and physical activity.. BMR: Measurement (direct and indirect), factors affecting BMR, SDA of foods. physical activity ratio (PAR). Classification of activities based on occupations. Nutritional requirements and Recommended dietary allowances (RDA): factors affecting RDA, Application of RDA, Reference man and woman..</p>	MS	September- November	

Academic Calendar
Department of Food & Nutrition(Honours)
2020-21 1ST,3rd, 5th sem , CBCS

<p>4. Digestion of Foods No. of Hours 25 Components of gastrointestinal tract . Structure of different segments of GI tract. Digestive glands: structure of salivary glands, gastric glands and intestinal glands. Structure of pancreas and liver. Digestive secretions: salivary juice, gastric juice, pancreatic juice and intestinal juices. Bile and bile secretion. Digestion and absorptions of carbohydrate, protein, lipid, fat soluble vitamins, water soluble vitamins (thiamine, riboflavin, niacin, pyridoxine, folate, vit B12, vit C), minerals (Ca, Fe, I, F, Cu, Zn)</p> <p style="color: green; text-align: center;">INTERNAL SCRIPTS WILL BE CHEKED BY: SS</p>	<p>SS</p> <p>Ritwick Acharjee</p>	<p>September-October</p> <p>November</p>
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Academic Calendar
Department of Food & Nutrition(Honours)
2020-21 1ST,3rd, 5th sem , CBCS

<p>FNTACOR01P: HUMAN NUTRITION (PRACTICAL) TOTAL HOURS: 60 2 CREDITS 1. Process involved in cooking, microwave, steaming, grilling, deep fat frying.</p> <p>2.Generalconceptsofweightsandmeasures,Eyeestimationofrawcooked foods</p> <p>3. Preparation of food from different food groups and their significance in relation to health</p> <p>4. Preparation of supplementary food from different age group and their nutritional significance</p> <p>5. Planning and preparation of low cost diet for Grade I and Grade II malnourished child</p>	GC	September
	BG	September
	GC	October
	BG	September
	BG	October- November
INTERNAL PRACTICAL MARKS :- BG AND GC		
<p>FNTACOR02T: PHYSIOLOGY IN NUTRITION (THEORY) TOTAL HOURS: 60 4 CREDITS 1.Unit of Life: Cell and Tissue Structure No. of Hours 12 Differencebetweenprokaryoticandekaryoticcells&plantandanimalcells, Structure and basic functions of animal cell organelles, Structure and functions of plasma membrane, Role of membrane in transport and communications, Importance of cell junction- tight, gap and desmosome, Types of human tissue- location, structure and functions. Structure of muscles, bones, teeth andjoints.</p> <p>2.Blood and body fluids No.ofHours12 Blood and its composition, Morphology, formation and functions of formed elements, Blood groups and its importance in transfusion, hazards of mismatch blood transfusion. Mechanism of blood coagulation, Haemoglobin- structure and function.Extracellular fluid, lymph.</p> <p>3.CardiovascularsystemNo.ofHours12Structureofheart,artery,veinand capillary, Properties of cardiac muscle, Cardiac cycle, cardiac output, heart rate, heart sounds, ECG- normal and abnormal. Systemic and pulmonary circulation.Bloodpressure,pulsepressureRadialpulse,coronarycirculation</p> <p>4. Respiratory system No. of Hours 12 Structure of lungs: alveoli and airways. Respiratory volumes and capacities,Mechanics of breathing. Oxygen and carbon dioxide transport, Neural and chemical control of breathing.</p> <p>5. Renal Physiology, skin and body temperature No. of Hours 12 Anatomy of renal system: kidney, ureter, urethra and urinary bladder, Nephron: structure, JuxtaglomerularapparatusGFR and GFI, Tubular functions,Urine formation: Counter current exchanger and multiplier. Role of kidneyin</p>	SS+ RIT WIC K ACH ARY EE	September- October
	MS	September- October
	BG	September- December
	MSET H	September- November
	GC AN D M	Septemb er- Decemb er

Academic Calendar
Department of Food & Nutrition(Honours)
2020-21 1ST,3rd, 5th sem , CBCS

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Academic Calendar
Department of Food & Nutrition(Honours)
2020-21 1ST,3rd, 5th sem , CBCS

	<p>water and electrolyte balance. pHregulation by kidney. Structure of skin. Sweatandsweatglands.Sebum.Corebo dytemperature,heatlossandheat gain, Regulation of bodytemperature.</p> <p>INTERNAL SCRIPTS WILL BE CHEKED BY: SS, BG.GCMS</p> <p>FNTACOR02P:PHYSIOLOGYINNUTRITIO N(PRACTICAL)TOTALHOURS:602 CREDITS</p> <p>1. Determination of pulse rate in Resting condition and aGer exercise (30 beats/10 beats method)</p> <p>2. DeterminationofbloodpressurebyS phygmomanometer(Auscultatory method).</p> <p>3. InterpretetationognnormalECGcurve with6chestleads.</p> <p>4. MeasumentofPeakExpiratoryflow rate.(Byspirometer)</p> <p>5. DeterminationofBleedingTime(BT)andClottingTime(CT).</p> <p>6. Detection of Blood group (Slidemethod).</p> <p>7. HAEMOGLOBINESTIMATION</p> <p>INTERNAL SCRIPTS WILL BE CHEKED BY: SS AND MS</p> <p>FNTGCOR01T:FOODANDNUTRITION(TH EORY)TOTALHOURS:60CREDITS:</p> <p>4 1. Introduction to Food and Nutrition No. of Hours 4 Definition of Food, Nutrition,Nutrient,Nutritionalstatus,D ietetics,Balancediet,Malnutrition, Energy (Unit of energy – Joule,Kilocalorie).</p> <p>2. FoodandNutrientsNo.ofHours8Carb ohydrate,Protein,Fat,Vitamins and Minerals (calcium, phosphorus,</p>	<p>MS</p> <p>MS</p> <p>MSET</p> <p>H</p> <p>MSET</p> <p>H SS SS M SETH</p> <p>BG</p> <p>BG</p>	<p>September</p> <p>September</p> <p>October</p> <p>November</p> <p>January</p> <p>September</p> <p>October-January</p>
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Academic Calendar
Department of Food & Nutrition(Honours)
2020-21 1ST,3rd, 5th sem , CBCS

	<p>sodium, potassium, iron, iodine, fluorine)- sources,classification,functions,deficienciesofthesenutrients. Functions of water and dietaryfibre.</p> <p>3. FivefoodgroupsNo.ofHours10Basic5 foodgroups:Types,composition, nutritional significance, role of cookery of cereals, pulses, milk & milk products,meat,fish,egg,vegetables&fruits,nuts,oil&sugar.</p> <p>4. FoodChemistryNo.ofHours10Chemistryofcarbohydrate,proteinsand fats. Vitamins andminerals</p> <p>5. Nutrients Metabolism No. of Hours 15 Elementary idea of metabolism, enzymesandhormones-nameandtheirimportantfunctions.Metabolism inbrief(Glycolysis,Glycogenesis,Gluconeogenesis,Cori'scycle,Kreb'scycle, Deamination, Transamination. Role of hormones in carbohydrate metabolism.</p>	<p>GC</p> <p>GC</p> <p>GC</p>	<p>September- November</p> <p>December- January</p> <p>December- January</p>
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Academic Calendar
Department of Food & Nutrition(Honours)
2020-21 1ST,3rd, 5th sem , CBCS

	<p>6. Basic Metabolism Rate (B.M.R) No. of Hours 6 B.M.R: Definition, factors affecting B.M.R. and Total Energy Requirement (Calculation of energy of individuals). 8</p> <p>7. Deficiency diseases No. of Hours 7 Deficiency diseases (Nutritional anaemia, PEM, IDD, VAD)- Aetiology, Prevalence, Clinical findings, Prevention & Treatment.</p> <p>INTERNAL SCRIPTS WILL BE CHECKED BY: BG AND GC</p> <p>FNTGCOR01P: FOOD AND NUTRITION (PRACTICAL) TOTAL HOURS: 60 CREDITS: 2</p> <p>1. Elementary idea of weights & measures.</p> <p>2. Preparation of cereals, pulses, vegetable, egg, milk, fish, nuts dishes.</p> <p>3. Planning and preparation of diet of an adult male/female.</p> <p>4. Planning of a day's diet for pregnant & lactating mother.</p> <p>5. Preparations of supplementary foods for infants.</p> <p>INTERNAL PRACTICAL :- SS</p> <p>NOTE:- ALL THE SYLLABUS MUST BE COMPLETED TENTATIVELY WITHIN:- FEBRUARY 2021</p>	<p>BG</p> <p>BG & GC</p> <p>SS</p> <p>SS</p> <p>MS</p> <p>MS</p> <p>SS</p>	<p>December</p> <p>January</p> <p>September</p> <p>October</p> <p>November</p> <p>December</p> <p>January</p>
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Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3rd, 5th sem , CBCS

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Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3rd, 5th sem , CBCS

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Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3rd, 5th sem , CBCS

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Academic Calendar
Department of Food & Nutrition (Honours)
2020-21 1ST, 3rd, 5th sem , CBCS