## SYLLABUS FOR THREE YEAR B.A/B.Sc MULTI DISCIPLINARY COURSE (MDC) OF STUDIES in FOOD and NUTRITION UNDER CCF, 2022

Semester  Course  Topic  Basic concept on Food, Nutrition and Nutrients. Classification of Food, Classification of Nutrients.  Carbohydrates - Definition, Classification, Structure and properties. Monosaccharides - glucose, fructose, galactose, Disaccharides - Maltose, Iactose, sucrose Polysaccharides - Destrin, starch, glycogen, resistant starch. Carbohydrates - Sources, sucrose Polysaccharides - Destrin, starch, glycogen, resistant starch. Carbohydrates - Sources, sucrose Polysaccharides - Destrin, starch, glycogen, resistant starch. Carbohydrates - Sources, sucrose Polysaccharides - Destrin, starch, glycogen, resistant starch. Carbohydrates - Sources, sucrose Polysaccharides - Destrin, starch, glycogen, resistant starch. Carbohydrates - Sources, sucrose Polysaccharides - Destrin, starch, glycogen, resistant starch. Carbohydrates - Sources, sucrose Polysaccharides - Destrin, starch, glycogen, resistant starch. Carbohydrates - Sources, sucrose Polysaccharides - Destrin, starch, glycogen, resistant starch. Carbohydrates - Sources, Sucrose position of carbohydrate.  Lipids - Definition, Classification, Structure & properties. Amino acids, Classification, types, functions. Proteins - Sources, daily requirements, functions. Effect of too high - too low proteins on health. Digestion & absorption. Assessment of Protein quality (BV, PER, NPU). Factors affecting protein bio-availability including anti-nutritional factor.  MINOR 1-P: BASICFOODSCIENCE -I Identification of Mono, Di and polysaccharides  MINOR 2-PIS BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 2-TH : BASIC FOOD SCIENCE-II (PRACTICAL)  Dietary Fibre-Classification, sources, composition, properties & nutritional significance  MINOR 3-PIS BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 2-PIS BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 2-PIS BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 2-PIS BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 3-PIS B	8  8  8  3  2  10  6  4
Apita Srimani  BINOR 1-TH: BASIC FOD SCIENCE-II (PRACTICAL)  MINOR 2- TH: BASIC FOD SCIENCE-II  MINOR 2- P: BASIC FOD SCIENCE-II  MINO	8 3 2 10 6 4
FIRST SEMESTER  MINOR -1-TH: BASIC FOOD SCIENCE-I(semester II)  MINOR 1-P: BASICFOODSCIENCE -1 (semester III)  MINOR 1-P: BASICFOODSCIENCE -1 (semester III)  MINOR 1-P: BASICFOODSCIENCE -1 (semester III)  MINOR 2- TH: BASIC FOOD SCIENCE-II (practical of Proteins - Sources, daily requirements, functions of Properties. Fatty acids-composition, properties, types. Lipids - Sources, daily requirements, functions. Digestion & Absorption of nutrients. Role & nutritional significances of Put-A, MUFA, SFA, W-3 fatty acid.  Proteins- Definition, Classification, Structure & properties. Amino acids, Classification, types, functions. Proteins - Sources, daily requirements, functions. Effect of too high - too low proteins on health. Digestion & absorption. Assessment of Protein quality (BV, PER, NPU). Factors affecting protein bio-availability including anti-nutritional factors.  MINOR 1-P: BASICFOODSCIENCE -1 (practrical)  MINOR 2- TH: BASIC FOOD SCIENCE-II (practrical)  SECOND SEMESTER  MINOR 2- TH: BASIC FOOD SCIENCE-II (practrical)  MINOR 2- P: BASIC FOOD SCIENCE-II (practrical)  Determination of Ash content in food  Determination of Solontary content in food  Determination of Moisture content in food  Determination of Solontary content in food  Determination of Sukla Ghosh (Chem)	8 3 2 10 6 4
MINOR 1-TH: BASIC FOOD SCIENCE-II   MINOR 1-P: BASIC FOOD SCIENCE-II   Dietary Fibre-Classification, sources, composition, properties & nutritional significance   Sohini Roy   Minor 2-TH: BASIC FOOD SCIENCE-II   Dietary Fibre-Classification, sources, composition, properties & nutritional significance   Sohini Roy   Minor 2-P: BASIC FOOD SCIENCE-II   Minor 2-P: B	8 3 2 10 6 4
MINOR 1-TH: BASIC FOOD SCIENCE-I(semester I / semester III)  FIRST SEMESTER  MINOR 1-TH: BASIC FOOD SCIENCE-I(semester I / semester III)  MINOR 1-P:  MINOR 1-P:  MINOR 1-P:  MINOR 1-P:  BASICFOODSCIENCE -I (perments)  MINOR 1-P:  BASICFOOD SCIENCE -I (perments)  MINOR 1-P:  MINOR 1-P:  BASICFOOD SCIENCE -I (perments)  MINOR 1-P:  BASICFOOD SCIENCE -I (perments)  MINOR 1-P:  MINOR 2-TH: BASIC FOOD SCIENCE -I (perments)  MINOR 2-TH: BASIC FOOD SCIENCE-II (permination of Ash content in food Debarati Mukherjee Debarati	8 3 2 10 6 4
HINOR 1-TH: BASIC FOOD SCIENCE-I(semester I /semester III)  FIRST SEMESTER  MINOR 1-TH: BASIC FOOD SCIENCE-I(semester I /semester III)  FIRST SEMESTER  Lipids - Definition, Classification & Properties. Fatty acids-composition, properties, types. Lipids - sources, daily requirements, functions. Digestion & Absorption of nutrients. Role & nutritional significances of PUFA, MUFA, SFA, W-3 fatty acid.  Proteins- Definition, Classification, Structure & properties. Amino acids, Classification, types, functions. Proteins - Sources, daily requirements, functions. Effect of too high - too low proteins on health. Digestion & absorption. Assessment of Protein quality (BV, PER, NPU). Factors affecting protein bio-availability including anti-nutritional factors.  Dietary Fibre- Classification, sources, composition, properties & nutritional significance  Continuous Internal Evaluation (VVA-VOCE)  Identification of Proteins Identification of Mono, D and polysaccharides Identification of glycerol  Debarati Mukherjee  MINOR 2- TH : BASIC FOOD SCIENCE-II  MINOR 2- TH : BASIC FOOD SCIENCE-II  MINOR 2- P: BASIC FOOD SCIENCE-II  MINOR 2- P: BASIC FOOD SCIENCE-II  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  Determination of Absorption Application, Sodium, Potassium Phosphorus, Iron, Fluoride, Zinc, Selenium, Iodine, Chromium)  Vitamins - Bio-Chemical and Physiological Role Physiological role, bio-availability and requirements, sources, deficiency & excess.  Sohini Roy  Vitamins - Bio-Chemical and Physiological Role Physiological role, bio-availability and requirements, sources, deficiency & excess.  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  Determination of Absorption in food  Debarati Mukherjee	8 3 2 10 6 4
FIRST SEMESTER    FIRST SEMESTER   Science-I(semester I)   Sources, daily requirements, functions. Digestion & Absorption of nutrients. Role & nutritional significances of PUFA, MUFA, SFA, W-3 fatty acid.   Proteins- Definition, Classification, Structure & properties. Amino acids, Classification, types, functions. Proteins - Sources, daily requirements, functions. Effect of too high - too low proteins on health. Digestion & absorption. Assessment of Protein quality (BV, PER, NPU). Factors affecting protein bio-availability including anti-nutritional factors.   Arpita Srimani   Continuous Internal Evaluation (VIVA - VOCE)   Sohini Roy   MINOR 1-P:   Identification of Mono, Di and polysaccharides   Identification of Proteins   Identification of Proteins   Identification of Proteins   Identification of glycerol   Dietary Fibre-Classification, sources, composition, properties & nutritional significance   Sohini Roy   Dietary Fibre-Classification, sources, composition, properties & nutritional significance   Sohini Roy   Minerals & Trace Elements, Bio-Chemical and Physiological Role, bio-availability & requirements, sources, deficiency & excess (Calcium, Sodium, Potassium Phosphorus, Iron, Fluoride, Zinc,   Selenium, Iodine, Chromium   Vitamins - Bio-Chemical and Physiological Role, bio-availability and requirements, sources, deficiency & excess (Calcium, Sodium, Potassium Phosphorus, Iron, Fluoride, Zinc,   Selenium, Iodine, Chromium   Vitamins - Bio-Chemical and Physiological Role Physiological role, bio-availability and requirements,   Sohini Roy   Water - Functions, daily requirements, Water balance   Arpita Srimani   Continuous Internal Evaluation (QUIZ)   Arpita Srimani   Continuous Internal Evaluation (QUIZ)   Arpita Srimani   Determination of Abis content in food   Debarati Mukherjee   Determination of Abisture content in food   Debarati Mukherjee   Determination of Content in food   Debarati Mukherjee   Determination of Content in food   Debarati Mukherjee   Determination of Content in food   Debarati Mukhe	8 3 2 10 6 4
SCIENCE-II (semester II)    Semester III)   Significances of PUFA, MUFA, SFA, W-3 fatty acid.   Proteins- Definition, Classification, Structure & properties. Amino acids, Classification, types, functions. Proteins - Sources, daily requirements, functions. Effect of too high - too low proteins on health. Digestion & absorption. Assessment of Protein quality (BV, PER, NPU). Factors affecting protein bio-availability including anti-nutritional factors.   Arpita Srimani Dietary Fibre-Classification, sources, composition, properties & nutritional significance   Arpita Srimani Continuous Internal Evaluation (VIVA- VOCE)   Sohini Roy	8 3 2 10 6 4
FIRST SEMESTER    Proteins- Definition, Classification, Structure & properties. Amino acids, Classification, types, functions. Proteins - Sources, daily requirements, functions. Effect of too high - too low proteins on health. Digestion & absorption. Assessment of Protein quality (BV, PER, NPU). Factors affecting protein bio-availability including anti-nutritional factors.   Dietary Fibre- Classification, sources, composition, properties & nutritional significance   Arpita Srimani   Continuous Internal Evaluation (IVIA- VOCE)   Sohini Roy	8 3 2 10 6 4
functions. Proteins - Sources, daily requirements, functions. Effect of too high - too low proteins on health. Digestion & absorption. Assessment of Protein quality (BV, PER, NPU). Factors affecting protein bio-availability including anti-nutritional factors.  Dietary Fibre- Classification, sources, composition, properties & nutritional significance  Arpita Srimani  Sohini Roy  MINOR 1-P: BASICFOODSCIENCE -I (PRACTICAL)  MINOR 2-TH : BASIC FOOD SCIENCE -I (PRACTICAL)  Dietary Fibre-Classification, sources, composition, properties & nutritional significance  Minor 2-TH : BASIC FOOD SCIENCE -I (PRACTICAL)  Dietary Fibre-Classification, sources, composition, properties & nutritional significance  Minor 2-TH : BASIC FOOD SCIENCE-II  Water - Functions, daily requirements, Water balance  Continuous Internal Evaluation (QUIZ)  Determination of Ash content in food  Determination of Ash content in food  Determination of Ash content in food  Determination of Calcium, iron, and Vitamin C content in foods  Sukla Ghosh (Chem)	3 2 10 6 4
health. Digestion & absorption. Assessment of Protein quality (BV, PER, NPU). Factors affecting protein bio-availability including anti-nutritional factors.  Dietary Fibre- Classification, sources, composition, properties & nutritional significance Arpita Srimani Sohini Roy  MINOR 1-P: BASICFOODSCIENCE -I (PRACTICAL)  MINOR 2-TH: BASIC FOOD SCIENCE-II  SECOND SEMESTER  MINOR 2-TH: BASIC FOOD SCIENCE-II  MINOR 2-P: BASIC FOOD SCIENCE-II  MINOR 2-P: BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 2-P: BASIC FOOD SCIENCE-II (PRACTIC	3 2 10 6 4
Protein bio-availability including anti-nutritional factors.  Dietary Fibre- Classification, sources, composition, properties & nutritional significance  Arpita Srimani  Continuous Internal Evaluation (VIVA- VOCE)  MINOR 1-P: BASICFOODSCIENCE -I (PRACTICAL)  Dietary Fibre- Classification of Mono, Di and polysaccharides Identification of Proteins Identification of glycerol  Debarati Mukherjee  Dietary Fibre-Classification, sources, composition, properties & nutritional significance Minorals & Trace Elements, Bio-Chemical and Physiological Role, bio-availability & requirements, sources, deficiency & excess (Calcium, Sodium, Potassium Phosphorus, Iron, Fluoride, Zinc, Selenium, Iodine, Chromium) Vitamins - Bio-Chemical and Physiological Role Physiological role, bio-availability and requirements, sources, deficiency & excess. Water - Functions, daily requirements, Water balance  Arpita Srimani  Determination of Ash content in food Determination of Moisture content in food	3 2 10 6 4
Dietary Fibre- Classification, sources, composition, properties & nutritional significance	3 2 10 6 4
Continuous Internal Evaluation (VIVA- VOCE)  MINOR 1-P: BASICFOODSCIENCE -I (PRACTICAL)  MINOR 2-TH : BASIC FOOD SCIENCE-II  SECOND SEMESTER  MINOR 2-TH : BASIC FOOD SCIENCE-II  MINOR 2-TH : BASIC FOOD SCIENCE-II (PRACTICAL)  Determination of Moisture content in food  Determination of Moisture content in food  Determination of Moisture content in food  Determination of Sukla Ghosh (Chem)	2 10 6 4
BASICFOODSCIENCE - I Identification of Proteins Identification of glycerol  Dietary Fibre-Classification, sources, composition, properties & nutritional significance Minerals & Trace Elements, Bio-Chemical and Physiological Role, bio-availability & requirements, sources, deficiency & excess (Calcium, Sodium, Potassium Phosphorus, Iron, Fluoride, Zinc, Selenium, Iodine, Chromium)  SCIENCE-II  MINOR 2- TH : BASIC FOOD SCIENCE-II  SECOND SEMESTER  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  Determination of Ash content in food Detarati Mukherjee Determination of Calcium, iron, and Vitamin C content in food Sukla Ghosh (Chem)	6 4 5
BASICFOODSCIENCE - I Identification of Proteins Identification of glycerol  Dietary Fibre-Classification, sources, composition, properties & nutritional significance Minerals & Trace Elements, Bio-Chemical and Physiological Role, bio-availability & requirements, sources, deficiency & excess (Calcium, Sodium, Potassium Phosphorus, Iron, Fluoride, Zinc, Selenium, Iodine, Chromium)  SCIENCE-II  MINOR 2- TH : BASIC FOOD SCIENCE-II  SECOND SEMESTER  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  Determination of Ash content in food Detarati Mukherjee Determination of Calcium, iron, and Vitamin C content in food Sukla Ghosh (Chem)	6 4 5
MINOR 2- TH : BASIC FOOD SEMESTER   MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)   Identification of glycerol	5
MINOR 2- TH : BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  Dietary Fibre-Classification, sources, composition, properties & nutritional significance (Minerals & Trace Elements, Bio-Chemical and Physiological Role, bio-availability & requirements, sources, deficiency & excess (Calcium, Sodium, Potassium Phosphorus, Iron, Fluoride, Zinc, Selenium, Iodine, Chromium) (Vitamins - Bio-Chemical and Physiological Role Physiological role, bio-availability and requirements, sources, deficiency & excess. (Water - Functions, daily requirements, Water balance (Continuous Internal Evaluation (QUIZ) (Arpita Srimani Continuous Internal Evaluation (QUIZ) (Arpita Srimani Determination of Ash content in food (Determination of Moisture content in food (Detarti Mukherjee Determination of Moisture content in food (Detarti Mukherjee Determination of Calcium, iron, and Vitamin C content in food (Sukla Ghosh (Chem))	
MINOR 2- TH : BASIC FOOD SEMESTER  MINOR 2- TH : BASIC FOOD SCIENCE-II  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 3- P: BASIC FOOD SCIENCE	
MINOR 2- TH : BASIC FOOD SEMESTER  MINOR 2- TH : BASIC FOOD SCIENCE-II  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 3- P: BASIC FOOD SCIENCE	
SECOND SEMESTER  MINOR 2- TH : BASIC FOOD SCIENCE-II  SECOND SEMESTER  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  Determination of Calcium, iron, and Vitamin C content in food Determination of calcium, iron, and Vitamin C content in food Determination of Sukla Ghosh (Chem)	10
SECOND SEMESTER  MINOR 2- TH : BASIC FOOD SCIENCE-II  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  MINOR 2- P: BASIC FOOD SCIENCE-II (PRACTICAL)  Determination of calcium, iron, and Vitamin C content in food Determination of calcium, iron, and Vitamin C content in food Determination of Sukla Ghosh (Chem)	10
SCIENCE-II  Vitamins - Bio-Chemical and Physiological Role Physiological role, bio-availability and requirements, sources, deficiency & excess.  Water - Functions, daily requirements, Water balance  Continuous Internal Evaluation (QUIZ)  Arpita Srimani  Continuous Internal Evaluation (QUIZ)  Determination of Ash content in food  Determination of Moisture content in food  Determination of Calcium, iron, and Vitamin C content in foods  Sukla Ghosh (Chem)	1
Water - Functions, daily requirements, Water balance Continuous Internal Evaluation (QUIZ) Arpita Srimani  MINOR 2- P: BASIC FOOD SCIENCCE-II (PRACTICAL) Determination of Ash content in food Determination of Moisture content in food Determination of calcium, iron, and Vitamin C content in foods Sukla Ghosh (Chem)	
MINOR 2- P: BASIC FOOD SCIENCCE-II (PRACTICAL)  Determination of Moisture content in food Determination of calcium, iron, and Vitamin C content in foods Determination of Calcium, iron, and Vitamin C content in foods Determination of Calcium, iron, and Vitamin C content in foods Determination of Calcium, iron, and Vitamin C content in foods Determination of Calcium, iron, and Vitamin C content in foods Determination of Calcium, iron, and Vitamin C content in foods Determination of Calcium, iron, and Vitamin C content in foods	10
MINOR 2- P: BASIC FOOD SCIENCCE-II (PRACTICAL)  Determination of Ash content in food Determination of Moisture content in food Determination of calcium, iron, and Vitamin C content in foods Determination of calcium, iron, and Vitamin C content in foods Sukla Ghosh (Chem)	5
MINOR 2-P: BASIC FOOD SCIENCCE-II (PRACTICAL) Determination of Moisture content in food Determination of calcium, iron, and Vitamin C content in foods Sukla Ghosh (Chem)	2
SCIENCCE-II (PRACTICAL)  Determination of Moisture content in food Determination of calcium, iron, and Vitamin C content in foods Sukla Ghosh (Chem)	4
Determination of calcium, iron, and Vitamin C content in foods Sukla Ghosh (Chem)	4
Concept and definition of terms. Nutrition Malautrition and Health. Scope of Nutrition	12
Concept and definition of terms. Nutrition, Malnutrition and Health: Scane of Nutrition	
Concept and definition of terms-Nutrition, Malnutrition and Health: Scope of Nutrition	3
Minimum Nutritional Requirement and RDA: formulation of RDA and Dietary Guidelines Reference	-
Man and Reference Woman, Adult consumption unit	6
Energy in Human Nutrition: Idea of Energy and its unit, Energy Balance, Assessment of Energy  Sohini Roy	
Requirements—deficiency and excess, Determination of Energy in food, B.M.R. and its regulation,	8
DSC/Core(Major)C-3-TH: S.D.A.	
HUMAN NUTRITION-I Growth & Development from infancy to adulthood: Somatic, physical, brain and mental	
development, puberty, menarch, pre-pubertal and pubertal changes, Factors affecting growth and	8
THIRD SEMESTER development. Importance of Nutrition for ensuring adequate development. Arpita Srimani	
Growth monitoring and promotion: Use of growth charts and standards, Prevention of growth	_
faltering	5
Continuous Internal Evaluation (VIVA- VOCE) Arpita Srimani	2
Process involved in cooking: pressure cooking, microwave , steaming, grilling ,deep fat frying	4
DSC/Core(Major)C-3-P: General concepts of weights and measures. Eye estimation of raw and cooked foods	2
HUMAN NUTRITION-I Preparation of food from different food groups and their significance in relation to health Arpita Srimani	6
(PRACTICAL) Preparation of supplementary food for different age group and their nutritional significance	6
Planning and preparation of low cost diet for Grade I and Grade II malnourished child	4
1. Food Quality: Meaning and definition of food quality, Quality factors in foods,indicators of food	_
quality, importance and ways of Food Quality Assessment	2
2. Introduction to Food Hazards: Definition, types of hazard-physical, chemical (naturally occurring,	
environmental and intentionally added) and biological, factors affecting (food borne	6
SEC : FOOD SAFFTY AND pathogensbacteria, viruses and eukarvotes; sea food and shellfish poisoning and mycotoxins)	
QUALITY CONTROL  3. Hygiene and Sanitation : Principles of food hygiene, personal hygiene, kitchen hygiene and  Maumita Ghosh	
sanitation, water quality assessment, insect and pest control, waste treatment and disposal, food	6
SEC Offered ( vending and packaging standards, employees' health	
Students can opt  4. Food Safety Management Tools: Basic concept, prerequisites-GHPs, GMPs, HACCP, ISO series.	
SEC in  National Food Standards (BIS_AGMARK) and Food Laws (PFA and FSSAI)	6
First/Second/Third  Detection of adulterants in the following Foods, Milk, Edible Oil, Sugar, Spices, honey	<del>1                                    </del>
Semester) Flours, Ghee, Beverages (one method of detection for each food item).	
1. To detect the adulterants like dyes and argemone in the fats, oils and ghee.	
SEC: FOOD SAFETY AND  2. To detect the presence of adulterants like water, urea, formalin, detergent, sugar and starch	
QUALITY CONTROL in the milk.	20
QUALITY CONTROL in the milk.  Arpita Srimani	20
QUALITY CONTROL in the milk.	20