

Lesson plan of 2022-2023

(3rd SEMESTER FOOD TECHNOLOGY)

| DISCIPLINE: FT | SEMESTER: 3 rd | NAME OF THE TEACHING FACULTY: MS. ITUSHREE RANI RATH |
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| SUBJECT: PHYSICAL CHEMISTRY | NO. OF DAYS/PER WEEK CLASS ALLOTTED: 4 | SEMESTER FROM DATE: 15.09.2022 TO 21.01.2023 NO. OF WEEKS: 15 |
| WEEK | CLASS DAY | THEORY/PRACTICAL TOPICS |
| 1 ST | 1 ST 2 ND 3 RD 4 TH | Intermolecular forces in liquid. Vapour pressure and its effect on temperature and boiling point. Surface tension |
| 2 ND | 1 ST 2 ND 3 RD 4 TH | Viscosity and measurement of viscosity by Ostwald method. Refractive index, specific refraction, determination of refractive index |
| 3 RD | 1 ST 2 ND 3 RD 4 TH | Optical activity and measurement of optical activity. Solve simple problems based on physical properties of liquid. |
| 4 TH | 1 ST 2 ND 3 RD 4 TH | Solution and Types of solutions. Ways of expressing concentration. Solve numerical related to concentration. |
| 5 TH | 1 ST 2 ND 3 RD 4 TH | The solution of gases in gases. Henry's law and solve numerical related to it. Solution of liquid in liquids. Solubility of partially miscible liquids |
| 6 TH | 1 ST 2 ND 3 RD 4 TH | Solubility of solid in liquid and equilibrium concept, solubility curve. Raoult's Law, ideal solution and explain the lowering of vapour pressure and its measurement. Concept of elevation of boiling point and depression of freezing point |
| 7 TH | 1 ST 2 ND 3 RD 4 TH | Osmosis and osmotic pressure with example. Function of semipermeable membrane. Osmotic pressure and isotonic solutions |
| 8 TH | 1 ST 2 ND 3 RD 4 TH | The theories of Osmosis. Reverse osmosis. The laws of osmotic pressure. |
| 9 TH | 1 ST 2 ND 3 RD 4 TH | Solve the Simple Problems. Relation between Vapour Pressure & Osmotic Pressure. |

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| 10 TH | 1 ST 2 ND 3 RD 4 TH | Nernst's distribution law. Equilibrium constant from distribution coefficient. Extraction with a solvent, multiple extraction |
| 11 TH | 1 ST 2 ND 3 RD 4 TH | Concept of liquid-liquid chromatography. Applications of distribution law. Numerical based on distribution law. |
| 12 TH | 1 ST 2 ND 3 RD 4 TH | Colloids & types of colloidal systems. Characteristics of sols. The application of colloids. |
| 13 TH | 1 ST 2 ND 3 RD 4 TH | Methods of preparation of sols & purification of sols. The optical, kinetic and electrical properties of sols. Emulsion and types of emulsion. |
| 14 TH | 1 ST 2 ND 3 RD 4 TH | The role of Emulsifier. The preparation of Emulsions and their properties. Gel, type of gel, properties and application. |
| 15 TH | 1 ST 2 ND 3 RD 4 TH | Adsorption Compare absorption and adsorption Types of adsorption. Physical adsorption and Chemisorption. The application of adsorption The ion-exchange adsorption and discuss its application. |

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(3rd SEMESTER FOOD TECHNOLOGY)

| DISCIPLINE: FT | SEMESTER: 3 rd | NAME OF THE TEACHING FACULTY: MS. ANIMA MISHRA |
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| SUBJECT: FRUITS & VEGETABLE TECHNOLOGY | NO. OF DAYS/ PER WEEK CLASS ALLOTTED: 4 | SEMESTER FROM DATE: 15.09.2022 TO 21.01.2023 NO. OF WEEKS: 15 |
| WEEK | CLASS DAY | THEORY/PRACTICAL TOPICS |
| 1 ST | 1 ST 2 ND 3 RD 4 TH | Classification & Nutritive value of fruits & vegetables |
| 2 ND | 1 ST 2 ND 3 RD 4 TH | Transpiration, respiration, ripening and their effects Harvesting & processing of fruits & vegetables |
| 3 RD | 1 ST 2 ND 3 RD 4 TH | Microbiology of fresh fruits and vegetables |
| 4 TH | 1 ST 2 ND 3 RD 4 TH | Spoilage and its control |
| 5 TH | 1 ST 2 ND 3 RD 4 TH | Principles and methods of storage - cold storage, atmosphere storage, gas storage, hypobaric storage, pre-cooling, radiation, waving etc |
| 6 TH | 1 ST 2 ND 3 RD 4 TH | Processing of vegetables: Potato chips, French fries, frozen patties, sweet potato chips, flakes, Tomato - juice, puree, sauce, Ketchup, chutney. Mushroom - freeze drying, pickles, dehydration |
| 7 TH | 1 ST 2 ND 3 RD 4 TH | Processing of fruits: Jam, Jelly, squash, marmalade, pickles, vinegar |
| 8 TH | 1 ST 2 ND 3 RD 4 TH | Study the effect of processing on the nutritive value of fruits and vegetables |
| 9 TH | 1 ST 2 ND 3 RD 4 TH | Preserve fruits and vegetables by heat, chemicals, sugar, salt, fermentation, drying |
| 10 TH | 1 ST 2 ND 3 RD 4 TH | Preserve fruits and vegetables by heat, chemicals, sugar, salt, fermentation, drying |
| 11 TH | 1 ST 2 ND 3 RD 4 TH | Definition of Fermented foods |

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| 12 TH | 1 ST 2 ND 3 RD 4 TH | Pickling and curing of foods |
| 13 TH | 1 ST 2 ND 3 RD 4 TH | Classification Processing of spice and condiment products |
| 14 TH | 1 ST 2 ND 3 RD 4 TH | Adulteration of spices. |
| 15 TH | 1 ST 2 ND 3 RD 4 TH | Processing tea, coffee, and cocoa and their products Processing of fruit juices. |

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(3rd SEMESTER FOOD TECHNOLOGY)

| DISCIPLINE: FT | SEMESTER: 3 rd | NAME OF THE TEACHING FACULTY: MS. ANIMA MISHRA |
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| SUBJECT: FOOD & NUTRITION | NO. OF DAYS/ PER WEEK CLASS ALLOTTED: 4 | SEMESTER FROM DATE: 15.09.2022 TO 21.01.2023 NO. OF WEEKS: 15 |
| WEEK | CLASS DAY | THEORY/PRACTICAL TOPICS |
| 1 ST | 1 ST 2 ND 3 RD 4 TH | Introduction to food and nutrients Functions of foods. Basic food groups. |
| 2 ND | 1 ST 2 ND 3 RD 4 TH | Energy metabolism Specific Dynamic action. Nutritive value of foods |
| 3 RD | 1 ST 2 ND 3 RD 4 TH | Calorific value of foods. Recommended dietary allowances for Indians. |
| 4 TH | 1 ST 2 ND 3 RD 4 TH | Developing good eating habits. Food misinformation. |
| 5 TH | 1 ST 2 ND 3 RD 4 TH | Menu planning for the family. |
| 6 TH | 1 ST 2 ND 3 RD 4 TH | Menu planning for hospital settings. |
| 7 TH | 1 ST 2 ND 3 RD 4 TH | Balanced diet. Diets during a normal life cycle. |
| 8 TH | 1 ST 2 ND 3 RD 4 TH | Nutrition during pregnancy. Nutrition during lactation. |
| 9 TH | 1 ST 2 ND 3 RD 4 TH | Nutrition from infancy to adolescence. Ways of measuring growth. |
| 10 TH | 1 ST 2 ND 3 RD 4 TH | Nutritional assessment of a community. |
| 11 TH | 1 ST 2 ND 3 RD 4 TH | Methods of assessment of nutritional status. |

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| 12 TH | 1 ST 2 ND 3 RD 4 TH | Nutrition surveys. Diets surveys. |
| 13 TH | 1 ST 2 ND 3 RD 4 TH | Causes and consequences of malnutrition in India. Protein Energy Malnutrition. |
| 14 TH | 1 ST 2 ND 3 RD 4 TH | Vitamin Deficiency. Deficiency of minerals. |
| 15 TH | 1 ST 2 ND 3 RD 4 TH | Current Nutrition programme in India. Food fortification, food enrichment, food restoration |

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| DISCIPLINE: FT | SEMESTER: 3 rd | NAME OF THE TEACHING FACULTY: MS. SRIYA SUMAN PATRO |
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| SUBJECT: FOOD ENGG. -1 | NO. OF DAYS/ PER WEEK CLASS ALLOTTED: 4 | SEMESTER FROM DATE: 15.09.2022 TO 21.01.2023 NO. OF WEEKS: 15 |
| WEEK | CLASS DAY | THEORY/PRACTICAL TOPICS |
| 1 ST | 1 ST 2 ND 3 RD 4 TH | General introduction to food technology Principles of food preservation Methods of food preservation |
| 2 ND | 1 ST 2 ND 3 RD 4 TH | Effect of heat on Micro-organisms Thermal Death Time (TDT) Curve Environmental factors |
| 3 RD | 1 ST 2 ND 3 RD 4 TH | Canning Pasteurization & Sterilization |
| 4 TH | 1 ST 2 ND 3 RD 4 TH | Effect of cold on micro-organism |
| 5 TH | 1 ST 2 ND 3 RD 4 TH | Types of cold preservation Study & construction of cold storage |
| 6 TH | 1 ST 2 ND 3 RD 4 TH | Advantages of drying and drying rate Changes during drying Methods of drying |
| 7 TH | 1 ST 2 ND 3 RD 4 TH | Intermediate moisture foods Methods of concentration |
| 8 TH | 1 ST 2 ND 3 RD 4 TH | Fermentation & benefits of fermentation Microbial activities in foods |
| 9 TH | 1 ST 2 ND 3 RD 4 TH | Control of fermentation in foods |
| 10 TH | 1 ST 2 ND 3 RD 4 TH | Kind of ionising radiations |
| 11 TH | 1 ST 2 ND 3 RD 4 TH | Radiation effects. Uses of radiations |

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| 12 TH | 1 ST 2 ND 3 RD 4 TH | Classification of food preservatives (class 1 and 2) Salt: Mechanism of action, food pickling and curing |
| 13 TH | 1 ST 2 ND 3 RD 4 TH | Sugar: Types, uses and mechanism of action against micro-organisms Chemical preservatives: importance and mechanism of action of benzoic acid, KMS, Sodium benzoate |
| 14 TH | 1 ST 2 ND 3 RD 4 TH | Introduction to Food packaging Importance and function of food packaging. |
| 15 TH | 1 ST 2 ND 3 RD 4 TH | Study types of rigid and flexible packaging |

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(3rd SEMESTER FOOD TECHNOLOGY)

| DISCIPLINE: FT | SEMESTER: 3 rd | NAME OF THE TEACHING FACULTY: MS. ITUSHREE RANI RATH |
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| SUBJECT: ENVIRONMENTAL STUDIES | NO. OF DAYS/ PER WEEK CLASS ALLOTTED: 4 | SEMESTER FROM DATE: 15.09.2022 TO 21.01.2023 NO. OF WEEKS: 15 |
| WEEK | CLASS DAY | THEORY/PRACTICAL TOPICS |
| 1 ST | 1 ST 2 ND 3 RD 4 TH | Definition, scope and importance. Need for public awareness |
| 2 ND | 1 ST 2 ND 3 RD 4 TH | Natural resources and associated problems. Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems. Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources. |
| 3 RD | 1 ST 2 ND 3 RD 4 TH | Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity, . Energy Resources: Growing energy need, renewable and non-renewable energy sources, use of alternate energy sources, case studies. Land Resources: Land as a resource, land degradation, man induces landslides, soil erosion, and desertification. Role of individual in conservation of natural resources. Equitable use of resources for sustainable life styles. |
| 4 TH | 1 ST 2 ND 3 RD 4 TH | Concept of an eco system. Structure and function of an eco system. Producers, consumers, decomposers. Energy flow in the eco systems. Ecological succession. |
| 5 TH | 1 ST 2 ND 3 RD 4 TH | Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the following eco system: Forest ecosystem: Aquatic eco systems (ponds, streams, lakes, rivers, oceans, estuaries). |

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| 6 TH | 1 ST 2 ND 3 RD 4 TH | Introduction-Definition: genetics, species and ecosystem diversity. Biogeographically classification of India. |
| 7 TH | 1 ST 2 ND 3 RD 4 TH | Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and optin values. Biodiversity at global, national and local level. Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts. |
| 8 TH | 1 ST 2 ND 3 RD 4 TH | Definition Causes, effects and control measures of: Air pollution. Water pollution. Soil pollution Marine pollution |
| 9 TH | 1 ST 2 ND 3 RD 4 TH | Noise pollution. Thermal pollution Nuclear hazards. Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Disaster management: Floods, earth quake, cyclone and landslides. |
| 10 TH | 1 ST 2 ND 3 RD 4 TH | Form unsustainable to sustainable development. Urban problems related to energy. Water conservation, rain water harvesting, water shed management. |
| 11 TH | 1 ST 2 ND 3 RD 4 TH | Resettlement and rehabilitation of people; its problems and concern. Environmental ethics: issue and possible solutions. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies. |
| 12 TH | 1 ST 2 ND 3 RD 4 TH | Air (prevention and control of pollution) Act. Water (prevention and control of pollution) Act. Public awareness. |
| 13 TH | 1 ST 2 ND 3 RD 4 TH | Population growth and variation among nations. Population explosion- family welfare program. |
| 14 TH | 1 ST 2 ND 3 RD 4 TH | Environment and humanhealth. Human rights. |
| 15 TH | 1 ST 2 ND 3 RD 4 TH | Value education Role of information technology in environment and human health. |

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