MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA – 8

(Affiliated to Krishna University, Machilipatnam)

SYLLABUS

Subject: Food Science & Technology Semester: I

Course Title: Introduction to Food Science Course Code: FSTC001

No. of hours: 52 Credits: 4

Course Objectives

- To understand the history and evolution of food processing.
- To study the structure, composition, nutritional quality of foods.
- To introduce students to the basic fundamentals of food science and underlying technology associated with providing a safe, nutritious, and abundant supply of fresh foods to humans.

Course outcomes

At the end of the course the student will be able to-

CO1: Summarize the history and basic concepts of food science and Technology.

CO2: Compare different cooking methods

CO3: Analyze the structure, sources and composition of different food components.

CO4: Classify different food components.

UNIT –I (10Hrs)

Historical evolution of food processing technology. Definition and scope of Food science, Basic Food group classification (ICMR), Food Pyramids. Understanding the relationship between food, nutrition and health. Concept of BMI, Concept and characteristics of Balanced diet.

UNIT – II **(11Hrs)**

Pre-Cooking methods: Cleaning, Peeling and Stringing, Sieving, Soaking, Processing.

Cooking Methods: Moist heat methods: Boiling, Simmering, Stewing, Blanching, Poaching, Steaming, Pressure cooking.

Dry heat methods: Roasting, Grilling, Toasting, Baking, Sautéing, Frying.

Combination Methods: Braising and Microwave cooking.

Advantages and Disadvantages of cooking food.

UNIT-III **(11 Hrs)**

Cereals, Cereal products and millets: Structure, composition and Nutritive value, selection and storage of Rice, Wheat, Maize. Cereal cookery: Gluten of wheat, Gelatinization, Dextrinization.

Pulses: Composition, Nutritive value, Selection, Storage of pulses, Toxic contents in pulses, cookery.

Fats and oils: Nutritional importance – Ground nuts, Gingely seeds, coconut, soya nuts. Functions of oils and fats and their role in cookery. Selection and storage.

Spices and condiments: Classification, Composition, Nutritive value, General Function.

UNIT-IV **(10 Hrs)**

Fruits: Classification, composition, Nutritive value, Enzymatic and Non-Enzymatic Browning, Selection, grading and storage.

Vegetables: Classification, composition, Nutritive Value, Nutrient losses while Cooking, Selection and storage.

UNIT-V **(10 Hrs)**

Milk and Milk Products: Importance, Composition, Nutritive Value, Physical and Chemical Properties of milk, Types of Milk available in the market.

Fleshy Foods: Meat, Poultry, Fish, Composition, Nutritive Value, Selection Structure of Meat Muscle.

Eggs: Structure, composition, Nutritive value, Quality and Grading of eggs, spoilage, Green ring formation.

Prescribed Textbooks:

1. B. Sri lakshmi, Food science, New Age Publishers, 2002

2. Vijaya Khader, Food, Nutrition & Health, Kalyan publishers, 2000.

Reference Textbooks :

1. B. Sri lakshmi, Food science, New Age Publishers, 2002

2. Roday, S. Food Science., Oxford publication, 2011

3. Fundamentals of Food and Nutrition, S.R. Mudambi, M.V. Rajagopal, Wiley Easern Limit, 1993.

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA-8

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PRACTICAL SYLLABUS

Subject: Food Science & Technology

Semester: I

Course Title: Practical I

Course code: FSTC002

No. of hours: 26

Credits: 2

Course objectives

- To evaluate the germination of pulses, gelatinization of legumes and enzymatic reactions for fruits and vegetables, animal foods.
- To learn the preparation of Bulls eye and poached egg, green ring formation.
- To know the comparison of conventional and microwave cooking methods and nutritional status parameters.

Course Outcomes

After completion of the practical, student will be able to –

CO1: Evaluate the germination of pulses**,** gelatinization of legumes and enzymatic reactions for fruits and vegetables, animal foods

CO2: Analyse Bulls eye and poached egg, green ring formation and nutritional status parameters.

CO3: Differentiate between conventional and microwave cooking methods.

1.Standardisation of weights and measures of various food items.

2.Comparison of Conventional and Microwave cooking methods.

3.Estimation of Gluten content in given flours.

4.Pulses; Germination and its Applications – Salads, chats.

5.Effects of gelatinization on legumes/ pulses.

6.Preparation and Evaluation of Pectin from given fruits.

7.Observe the Enzymatic reaction for fruits and vegetables.

8.To learn the preparation and importance of Bulls eye and Poached egg, Green ring formation.

9.To know the smoking point of different oils.

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

(Affiliated to Krishna University, Machilipatnam)

SYLLABUS

Subject: Food Science & Technology | Semester: II

Course Title: Basic Nutrition | Course Code: FSTC003

No. of hours: 52 | Credits: 4

Course Objective

- To Understand the relationship between food, nutrition and health.
- To evaluate functions of food, meal planning and nutritional labelling.
- To analyse classification and composition of nutrients and their sources.

Course outcomes

CO1: Demonstrate the concepts of basics of nutrition.

CO2: Classify various types of nutrients.

CO3: Analyze the composition, Classification and food sources of proteins & lipids

CO4: Explain the concepts of meal planning and nutritional labeling.

UNIT-I **(10 Hrs)**

Introduction to nutrition: Objectives for the study of nutrition. Definition of Nutrition, health, Dietetics. Factors determining food acceptance- physical, socio-cultural and economic factors. Functions of food, Malnutrition – types and causes.

Carbohydrates: composition, classification (very brief), food sources, functions, RDA values.

UNIT-II **(11 Hrs)**

Proteins: composition, classification based on structure and composition, food sources, functions, RDA values. Net protein utilization and Protein quality (nutritive value of proteins).

Lipids: composition, classification (very brief), food sources, functions, RDA values. Iodine value, Rancidity in fats.

UNIT-III **(10 Hrs)**

Minerals: functions, sources, deficiency of macro minerals: calcium, Micro minerals: zinc**,** iron and iodine.

UNIT –IV **(10 Hrs)**

Vitamins: functions, sources, deficiency diseases of fat-soluble vitamins (A, D, E, K) and water-soluble vitamins (B complex & C)

UNIT-V **(10 Hrs)**

Water: sources, requirements, functions, water balance, effect of deficiency.

Energy: energy content of foods, measurements of energy, energy requirements

Prescribed Textbooks

1.B. Srilakshmi, Nutrition Science, New Age Publishers, 2002

Bamji MS, Krishna swamy K, Brahman GNV (2009).

2. Textbook of Human Nutrition,3rd edition. Oxford and IBH Publishing Co. Pvt.Ltd. VijayaKhader, Food, Nutrition & Health, Kalyan publishers, 2000.

Reference Textbooks

1. B. Srilakshmi, Food science, New Age Publishers, 2002

2. Fundamentals of Food and Nutrition, S.R. Mudambi, M.V.

Rajagopal, Wiley Easern Limit, 1993.

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

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PRACTICAL SYLLABUS

Subject: Food Science & Technology | Semester: II

Course Title: Basic Nutrition | Course Code: FSTC004

No. of hours: 26 | Credits: 2

Course objectives:

- To identify the seasonal availability of nutrient rich foods, sources, prices, low-cost nutrient rich foods.
- To calculate the nutritive value of different foods and saponification value.
- To design the meal plans for different age and income groups.
- To learn the knowledge of nutritional labeling.

Course outcomes:

After completion of the practical, student will be able to –

CO1: Identify the seasonal availability of nutrient rich foods, sources, prices, low cost nutrient rich foods.

CO2: Evaluate the nutritive value of different foods and saponification value.

CO3: Design the meal plans for different age and income groups.

1. Identification of nutrient rich sources of foods and their prices.

2. Identification of seasonal availability of nutrient rich sources of foods.

3. Learning to calculate nutritive value of different foods

(a) Cereals

(b) Pulses

(c) Fruits

(d) Vegetables

(e) Fleshy foods (meat, poultry, egg, fish)

(f) Milk and milk products

4. Calculation of saponification value of oil.

5. Nutritional labeling of food products.

6. List out low-cost nutrient rich foods.

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

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SYLLABUS

Subject: Food Science & Technology Semester: III

Course Title: Principles of Food Science Course Code: FSTC005

Credits: 3

UNIT 1 Food dispersions (12 Hours)

Characteristics of sols, gels, pectin gels, colloidal sols, stabilization of colloidal system, syneresis, emulsions, properties of emulsions, formation of emulsion, emulsifying agent, food foams, formation stability and destruction of foam, application of colloidal chemistry to food preparation.

UNIT 2 Growth of microorganisms in foods (12 Hours)

Food as a substrate for microorganism, factors affecting growth of microbes: pH, water activity, O-R potential, nutrient contents, inhibitory substance and biological structure. Sanitizers used in food industry.

UNIT 3 Fermented foods (12 Hours)

Fermented foods- types, process and nutritional importance of fermented foods, Hurdle effect in fermented foods.

UNIT 4 Minimal processing of foods (12 Hours)

Minimal processing of foods with thermal methods and non-thermal methods-safety criteria in minimally processed foods-Minimal processing in practice-fruits and vegetables-seafood.

UNIT 5 Sensory evaluation of food (12 Hours)

Objectives, type of food panels, characteristics of panel member, layout of sensory evaluation laboratory, sensitivity tests, threshold value, paired comparison test, duo- trio test, triangle test, chemical dimension of basic taste

Prescribed Text Books

Sunetra Rodey, Food science

Recommended Readings

1. Coles R, McDowell D and Kirwan MJ, Food Packaging Technology, CRC Press, 2003

2. Deman JM, Principles of Food Chemistry, 2nd ed. Van Nostrand Reinhold, NY 1990

3. Manay NS and Shadaksharaswamy M, Food-Facts and Principles, New Age International (P) Ltd. Publishers, New Delhi, 1987

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SYLLABUS

Subject: Food Science & Technology

Semester: III

Course Title: Principles of Food Science

Course Code: FSTC006

Credits: 2

1. Estimation of reducing sugar by Fehling's procedure.
2. Demonstration of the Soxhlet method for determination of fat content.
3. Demonstration of the Kjeldahl's method for estimation of protein content
4. Preparation of cereal-pulse fermented products – idli/dosa/dhokla/others.
5. Selection and screening of panel for sensory evaluation**.**
    a. Odour identification test
    b. Taste concentration test- sweet
    c. Taste concentration test- salt
    d. Difference test- paired comparison tests
    e. DUO-TRIO difference test
    f. Triangle test

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA -8

Affiliated to Krishna University, Machilipatnam

SYLLABUS

Subject: Food Science & Technology | Semester: IV

Course Title: Food Preservation | Course Code: FSTC007

No. of hours: 60 | Credits: 3

Unit I- Introduction to food preservation (10Hours)

Definition, advantages and disadvantages of food preservation, classification of preservation, scope of preservation industry in India.

Unit II- Food Preservation by Low temperature (14 Hours)

Definition& principle of freezing, changes occurring during freezing, types of freezing i.e slow freezing, quick freezing, introduction to thawing, changes during thawing and its effect on food.

UNIT III Food Preservation by Irradiation (10 Hours)

Units of radiation, kinds of ionizing radiations used in food irradiation

Unit IV Food Preservation by high temperature (14 Hours)

Thermal Processing- Commercial heat preservation methods: Sterilization, commercial sterilization, Pasteurization, and blanching.

Unit V Food Preservation by Moisture control (12 Hours)

Drying and Dehydration - Definition, drying as a means of preservation, differences between sun drying and dehydration (i.e. mechanical drying), factors affecting rate of drying, names of types of driers used in the food industry. Evaporation – Definition, factors affecting evaporation, names of evaporators used in food industry.

Prescribed books

1. B. Srilakshmi, Food science, New Age Publishers,2002

2. Meyer, Food Chemistry, New Age,2004

Reference books

1. Bawa. A.S, O.P Chauhan etal. Food Science. New India Publishing agency, 2013

2. Frazier WC and Westhoff

DC, Food Microbiology, TMH Publication, New Delhi, 2004

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA-8

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PRACTICAL SYLLABUS

Subject: Food Science & Technology	Semester: IV
Course Title: Food Preservation	Course Code: FSTC008
No. of hours:30	Credits: 3

1. Sterilization of bottles.
2. Determination of pH of different foods with pH meter.
3. Study quality characteristics of foods preserved by drying/dehydration/ freezing.
4. Market survey of preserved fruit and vegetable products.
5. Preparation, packaging, sensory/objective (TSS, pH) of:
    a. Sauces (chilli sauce and tomato sauce)
    b. Ketchup (tomato)
    c. Squash (lemon squash, orange squash, pineapple squash)
    d. Syrup (rose syrup and almond syrup)
    e. Preparation of labels for preserved foods

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

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SYLLABUS

Subject: Food Science & Technology | Semester: V

Course Title: Nutritional Therapy I | Course Code: FSTC009

Credits: 3

UNIT I **(12Hours)**

Introduction to meal planning:

Objectives of meal planning, steps in meal planning, food exchange list, Dietary guidelines for Indians

Nutrition during pregnancy: physiological changes, hormonal changes, nutritional requirement, dietary principle, general problems and complications

UNIT II **(12 Hours)**

Nutrition during lactation: physiology of lactation, nutritional requirement and dietary principle, deficiency disorders, importance and necessity of breast feeding,

Nutrition during infancy: nutritional requirement, dietary principle, weaning – supplementary foods, feeding pattern.

UNIT III **(12Hours)**

Nutrition during pre-school: physiology development and food intake nutritional requirements, nutrition related problems, development of food habits.

Nutrition during school age: growth, nutritional requirements, importance of snacks, school lunch programmes

UNIT IV **(12 Hours)**

Nutrition during adolescence: growth and nutritional needs, food choice, eating disorders, nutritional requirement, factors influencing food intake.

Nutrition during adulthood: nutritional requirements and dietary needs - dependent on physical activity

UNIT V **(12 Hours)**

Methods of assessment of Nutritional status: Diet survey, Anthropometric assessments, Clinical assessment, Bio-chemical assessment

Prescribed Text Book

B. Sri Lakshmi, Dietetics New Age publications

Recommended Readings:

1. Bamji MS, Krishnaswamy K, Brahmam GNV (2009). Textbook of Human Nutrition, 3rd Edition. Oxford and IBH Publishing Co. Pvt. Ltd.

2. Srilakshmi (2007). Food Science, 4th Edition. New Age International

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SYLLABUS

Subject: Food Science & Technology

Semester: V

Course Title: Nutrition Therapy I

Course Code: FSTC011

Credits: 2

1. Planning and preparation of a balanced diet for pregnant women.
2. Planning and preparation of diet for lactating mother
3. Planning and preparation of diet for pre- School child
4. Planning a diet and preparation of nutritious snacks for school aged children
5. Planning of diet for adult person
6. Record diet of self-using 24-hour dietary recall and its nutritional analysis
7. Estimation of BMI and other nutritional status parameters.

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

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SYLLABUS

Subject: Food Science & Technology | Semester: V

Course Title: Food service Establishment | Course Code: FSTC010

Credits: 3

UNIT-I (12 Hours)

Food services in Institutions: General factors to be considered, kitchen lay out: size of kitchen, types of kitchen, hospitals institutions

Food management: characteristics of food, food purchasing receiving and storage of food

UNIT-II (12 Hours)

Food cost control: factors responsible of receiving food from suppliers: methods of controlling food cost, kitchen calculations and cost statements.

Equipment: required for food preparation and service. Classification and selection of equipment, care and maintenance of equipment

UNIT-III (12 Hours)

Ventilation: lighting, water supply, food storage, food infection signs-preventive and control measures, cleaning and dish washing, waste disposal.

UNIT-IV (12 Hours)

Sanitation and hygiene: personal hygiene, environmental hygiene and sanitation

Food service types: types of menu planning, types of food production

UNIT- V (12 Hours)

Books: keeping and accounting: Bookkeeping, system of Bookkeeping, Advantages of the double entry system, Book of account

Types of cash Books: posting of the cast Book, purchase Book, sales Book, purchases return Book, journal entries of transitions, maintaining a complete set of books, restaurant book, profit and loss account

Prescribed Book

Surjith Malhan & Mohinisethi, Catering Management

References:

1)Kawala, k.,1963environmental sanitation in India, Lucknow publishing house.

2)Avery A, A modern guide to food service Equipment, CBI publishing Inc.,1989

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SYLLABUS

Subject: Food Science & Technology Semester: V

Course Title: Food Service Establishment Course Code: FSTC012

Credits: 2

1. Planning physical layout of food service institutions, commercial and ICDS and school feeding

2.Quality food production and purchase and sale by the students

3.visit to mid-day meal programmes and observation of food service

4.visit to dietetics department kitchen layout in hospital

5.visit to food service institution to study the layout and food service equipment handling

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

Affiliated to Krishna University

SYLLABUS

Subject: Food Science and Technology | Semester: VI

Course Title: Packaging Technology | Course Code: FSTC013

Credits: 3

UNIT-I **(14 Hours)**

Food packaging: Definition, Introduction, Importance and Scope of Packaging of Foods, Evolution of packaging, purpose of packaging.

Packaging materials: origin of packaging materials, types of packaging materials, properties of packaging materials, advantages and dis-advantages of packaging.

UNIT-II **(10 Hours)**

Types of packaging:

Forms of packaging – box, bottle, tetra, pouch, shrink, vacuum, gas, CAP, MAP, etc.

UNIT-III **(12 Hours)**

Tests for packaging materials: Importance of packaging tests, Brief Introduction to WVTR, GTR, bursting strength, tensile strength, tearing strength, drop test, puncture test, impact test etc

UNIT-IV **(12 Hours)**

Packaging Requirements:

Packaging requirements and their selection for raw and processed foods

1 Meat, fish, poultry, eggs

2 Milk and dairy products

3 Fruits and vegetables

4 Cereal grains and baked food products

5 Beverages

UNIT-V **(12 Hours)**

Packaging machinery: different types packaging machinery available-Bottling, can former, form fill and seal machines, bags – their manufacturing and closing, vacuum packs unit, shrink pack unit, tetra pack unit

Package labelling: importance of labelling, functions and regulations

References:

1)Food safety and quality programme plan (English paper service US Food safety quality

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SYLLABUS

Subject: Food Science and Technology | Semester: VI

Course Title: Packaging Technology | Course code: FSTC017

Credits: 2

1. Identification of different types of packaging and packaging materials
2. Determination of tearing strength of paper
3. To perform grease-resistance test in plastic pouches
4. To perform different destructive tests for glass containers
5. Determination of drop test of food package
6. Determination of bursting strength of packaging material
7. Visit to relevant industries for observing food packaging

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

Affiliated to Krishna University, Machilipatnam

PRACTICAL SYLLABUS

Subject: Food Science and Technology

Semester: VI

Course Title: Nutrition Therapy II

Course Code: FSTC018

Credits: 2

1. planning and preparation of a diet for soft and liquid diets
2. planning and preparation of a diet for obesity
3. planning and preparation of a diet for hepatitis
4. planning and preparation of a diet for kidney stones
5. planning and preparation of a diet for diabetes mellitus
6. planning and preparation of a diet for cardiovascular diseases

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

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SYLLABUS

Subject: Food Science and Technology | Semester: VI

Course Title: Bakery Technology | Course Code: FSTC015

Credits: 3

UNIT-1 **(12 Hours)**

Bakery Industry: Current status, growth rate, and economic importance of Bakery Industry in India. Product types, nutritional quality and safety of products, pertinent standards & regulations.

Unit – II **(12 Hours)**

Introduction to bakery science and bread making:

Sensory attributes of bakery products, quality assessment of raw materials,

Ingredients & processes for breads Equipments used, product quality characteristics, faults and corrective measures

Unit – III **(12 Hours)**

Cakes making process: Ingredients & processes for cakes, Equipments used, product quality characteristics, faults and corrective measures. Different types of icings.

Unit – IV **(12 Hours)**

Biscuits and cookies making process: Ingredients & processes, Equipments used, product quality characteristics, faults and corrective measures.

Unit –V **(12 Hours)**

Modified bakery products: Modification of bakery products for people with special nutritional requirements e.g. high fibre, low sugar, low fat, gluten free bakery products

Prescribed Books

Raina et.al. (2003). Basic Food Preparation-A complete Manual. 3rd Ed. Orient Longman Pvt. Ll.

Recommended readings:

1.Dubey, S.C. (2007). Basic Baking 5th Ed. Chanakya Mudrak Pvt. Ltd.

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

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SYLLABUS

Subject: Food Science and Technology Semester: VI

Course Title: Bakery Technology Course Code: FSTC019

Credits: 2

1. Assessment of raw materials
2. preparation of bread and assessment of its quality
3. preparation of sponge cake with icing and assessment of its quality
4. preparation of biscuits and assessment of it's quality
5. visit to a bakery processing unit

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

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SYLLABUS

Subject: Food Science and Technology | Semester: VI

Course Title: Food safety and Quality Control | Course code: FSTC016

Credits: 3

Unit-I **(10 Hours)**

Introduction to food safety:

Definition, types of hazards: biological, chemical, physical, factors affecting food safety, Importance of food safety, management of hazards.

Unit-II **(12Hours)**

Food safety standards:

General principles and objectives of food safety, introduction to food acts laws, standards, national food safety

Unit-III **(12 Hours)**

International standards

National standard acts (FPO, MPO, BSI, AGMARK, FDA), International standards (ISO, CODEX Alimentarius), regulatory agencies in India, consumer protection act.

Unit: IV **(12 Hours)**

Food quality management:

Food quality control, characteristics of quality, quality assurance, total quality management, quality management system, good manufacturing practices, HACCP (hazard analysis critical control point)

Unit- V **(14 Hours)**

Contaminants of food

Adulteration –definition, types of adulterants used- intentional adulterants, incidental adulterants. Methods of detection, microbial contamination- food borne diseases, metallic contamination, packaging material contamination

Prescribed Books

1)Food hygiene safety and quality by Alok kuma

References:

2)Food safety and quality programme plan (English paper service US Food safety quality

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

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SYLLABUS

Subject: Food Science and Technology

Semester: VI

Course Title: Food safety and quality control

Course code: FSTC020

Credits: 2

1. Quality inspection of various food stuffs
2. Quality assessment of Baked foods
3. Detection of common adulterants in different foods
4. Assessment of personal hygiene and food safety parameters in street vendors
5. **Project:** development of a product following the food safety and quality parameter
6. Visit to food industry quality lab

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA – 8

(Affiliated to Krishna University, Machilipatnam)

SYLLABUS

Subject: Food Science & Technology Semester: I

Course Title: Introduction to Food Science Course Code: 20FTCCIF14

No. of hours: 60 LTP:402 Credits: 4

Course Objectives:

- To understand the history and evolution of food processing.
- To study the structure, composition, nutritional quality of foods.
- To introduce students to the basic fundamentals of food science and underlying technology associated with providing a safe, nutritious, and abundant supply of fresh foods to humans.

Course outcomes

At the end of the course the student will be able to-

CO1: Summarize the history and basic concepts of food science and Technology.

CO2: Compare different cooking methods

CO3: Analyze the structure, sources and composition of different food components.

CO4: Classify different food components.

UNIT –I **(10Hrs)**

Historical evolution of food processing technology. Definition and scope of Food science, Basic Food group classification (ICMR), Food Pyramids. Understanding relationship between food, nutrition and health. Concept of BMI, Concept and characteristics of Balanced diet.

UNIT – II **(11Hrs)**

Pre-Cooking methods: Cleaning, Peeling and Stringing, Sieving, Soaking, Processing.

Cooking Methods: Moist heat methods: Boiling, Simmering, Stewing, Blanching, Poaching, Steaming, Pressure cooking.

Dry heat methods: Roasting, Grilling, Toasting, Baking, Sautéing, Frying.

Combination Methods: Braising and Microwave cooking.

Advantages and Disadvantages of cooking food.

UNIT-III **(11 Hrs)**

Cereals, Cereal products and millets: Structure, composition and Nutritive value, selection and storage of Rice, Wheat, Maize. Cereal cookery: Gluten of wheat, Gelatinization, Dextrinization.

Pulses: Composition, Nutritive value, Selection, Storage of pulses, Toxic contents in pulses, cookery.

Fats and oils: Nutritional importance – Ground nuts, Gingelly seeds, coconut, soya nuts. Functions of oils and fats and their role in cookery. Selection and storage.

Spices and condiments: Classification, Composition, Nutritive value, General Function.

UNIT-IV **(10 Hrs)**

Fruits: Classification, composition, Nutritive value, Enzymatic and Non-Enzymatic Browning, Selection, grading and storage.

Vegetables: Classification, composition, Nutritive Value, Nutrient losses while Cooking, Selection and storage.

UNIT-V **(10 Hrs)**

Milk and Milk Products: Importance, Composition, Nutritive Value, Physical and Chemical Properties of milk, Types of Milk available in the market.

Fleshy Foods: Meat, Poultry, Fish, Composition, Nutritive Value, Selection Structure of Meat Muscle.

Eggs: Structure, composition, Nutritive value, Quality and Grading of eggs, spoilage, Green ring formation.

Prescribed Textbooks:

1. B. Sri Lakshmi, Food science, New Age Publishers, 2002

2. Vijaya Khader, Food, Nutrition & Health, Kalyan publishers, 2000.

Reference Text books:

1. B. Sri Lakshmi, Food science, New Age Publishers, 2002

2. Roday, S. Food Science., Oxford publication, 2011

3. Fundamentals of Food and Nutrition, S.R. Mudambi, M.V. Rajagopal, Wiley Easern Limit, 1993.

MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA-8

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PRACTICAL SYLLABUS

Subject: Food Science & Technology Semester: I

Course Title: Practical I Course code: 20FTP1IF11

No. of hours: 30 Credits: 1

Course objectives

· To evaluate the germination of pulses, gelatinization of legumes and enzymatic reactions for fruits and vegetables, animal foods.

· To learn the preparation of Bulls eye and poached egg, green ring formation.

· To know the comparison of conventional and microwave cooking method and nutritional status parameters.

Course Outcomes

After completion of the practical, student will be able to –

CO1: Evaluate the germination of pulses**,** gelatinization of legumes and enzymatic reactions for fruits and vegetables, animal foods

CO2: Analyze Bulls eye and poached egg, green ring formation and nutritional status parameters.

CO3: Differentiate between conventional and microwave cooking methods.

1. Comparison of Conventional and Micro wave cooking methods.

2. Estimation of Gluten content in given flours.

3. Pulses; Germination and its Applications – Salads, chats.

4. Effects of gelatinization on legumes/ pulses.

5. Preparation and Evaluation of Pectin from given fruits.

6. Observe the Enzymatic reaction for fruits and vegetables.

7. To learn the preparation and importance of Bulls eye and Poached egg, Green ring formation.

8. To know the smoking point of different oils.

9. Quality inspection of animal foods.

10. Estimation of BMI and other nutritional status parameters.

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

(Affiliated to Krishna University, Machilipatnam)

SYLLABUS

Subject: Food Science & Technology Semester: II

Course Title: Basic Nutrition Course Code: 20FTCCBN14

No. of hours: 60 LTP:402 Credits: 4

Course Objective

· To Understand the relationship between food, nutrition and health.

· To evaluate functions of food, meal planning and nutritional labelling.

· To analyse classification and composition of nutrients and their sources.

Course outcomes

CO1: Demonstrate the concepts of basics of nutrition.

CO2: Classify various types of nutrients.

CO3: Analyze the composition, Classification and food sources of proteins & lipids

CO4: Explain the concepts of meal planning and nutritional labeling.

UNIT-I **(10 Hrs)**

Introduction to nutrition: Objectives for the study of nutrition. Definition of Nutrition, health, Dietetics. Factors determining food acceptance- physical, socio-cultural and economic factors. Functions of food, Malnutrition – types and causes.

Carbohydrates: composition, classification (very brief), food sources, functions, RDA values.

UNIT-II **(11 Hrs)**

Proteins: composition, classification based on structure and composition, food sources, functions, RDA values. Net protein utilization and Protein quality (nutritive value of proteins).

Lipids: composition, classification (very brief), food sources, functions, RDA values. Iodine value, Rancidity in fats.

UNIT-III **(10 Hrs) Minerals**: functions, sources, deficiency of macro minerals: calcium, Micro minerals: zinc**,** iron and iodine, fluorine.

Vitamins: functions, sources, deficiency diseases of fat-soluble vitamins (A, D, E, K) and water-soluble vitamins (B complex & C)

UNIT –IV **(10 Hrs)**

Dietary fibre: types, sources, requirements, deficiency disorders.

Water: sources, requirements, functions, water balance, effect of deficiency.

Energy: energy content of foods, measurements of energy, energy requirements

UNIT-V **(10 Hrs)**

Meal Planning- Factors affecting meal planning, understanding specific considerations for planning meal for different groups of people.

Nutritional labelling

Importance, global trends, codex guidelines, nutritional labelling in India, FSSAI guidelines.

Prescribed Textbooks

1.B. Srilakshmi, Nutrition Science, New Age Publishers, 2002

Bamji MS, Krishna swamy K, Brahman GNV (2009).

2. Text book of Human Nutrition,3rd edition. Oxford and IBH Publishing Co. Pvt.Ltd.
VijayaKhader, Food, Nutrition & Health, Kalyan publishers, 2000.

Reference Textbooks

1. B. Srilakshmi, Food science, New Age Publishers, 2002

2. Fundamentals of Food and Nutrition, S.R. Mudambi, M.V.

Rajagopal, Wiley Easern Limit, 1993.

MARIS STELLA (AUTONOMOUS) COLLEGE VIJAYAWADA-8

(Affiliated to Krishna University, Machilipatnam)

PRACTICAL SYLLABUS

Subject: Food Science & Technology Semester: II

Course Title: Practical-II Course Code: 20FTPIIBN11

No. of hours: 26 Credits: 2

Course objectives:

· To identify the seasonal availability of nutrient rich foods, sources, prices, low-cost nutrient rich foods.

· To calculate the nutritive value of different foods and saponification value.

· To design the meal plans for different age and income groups.

· To learn the knowledge of nutritional labeling.

Course outcomes:

After completion of the practical, student will be able to –

CO1: Identify the seasonal availability of nutrient rich foods, sources, prices, low cost nutrient rich foods.
CO2: Evaluate the nutritive value of different foods and saponification value.
CO3: Design the meal plans for different age and income groups.

1. Identification of nutrient rich sources of foods and their prices.

2. Identification of seasonal availability of nutrient rich sources of foods.

3. Learning to calculate nutritive value of different foods
(a) Cereals

(b) Pulses

-(c) Fruits

(d) Vegetables

(e) Fleshy foods (meat, poultry, egg, fish)

(f) Milk and milk products

4. Calculation of saponification value of oil.

5. Nutritional labeling of food products.

6. List out low-cost nutrient rich foods.

7. Planning of meals for adults of different activity levels for various income groups.

8. Planning of nutritious snacks for different age and income groups

Certificate/ Value Added Courses: None

Courses Offered: Nil

Students Study Projects: Nil

Department Club Activities: Nil