# B.Sc., FOOD SCIENCE & NUTRITION

# Syllabus

## Program Code: UFN

## 2023 - Onwards

**MANNAR THIRUMALAI NAICKER COLLEGE**

**(AUTONOMOUS)**

**Re-accredited with "A+" Grade by NAAC**

**PASUMALAI, MADURAI – 625 004**

# MANNAR THIRUMALAI NAICKER COLLEGE (AUTONOMOUS), MADURAI – 625 004

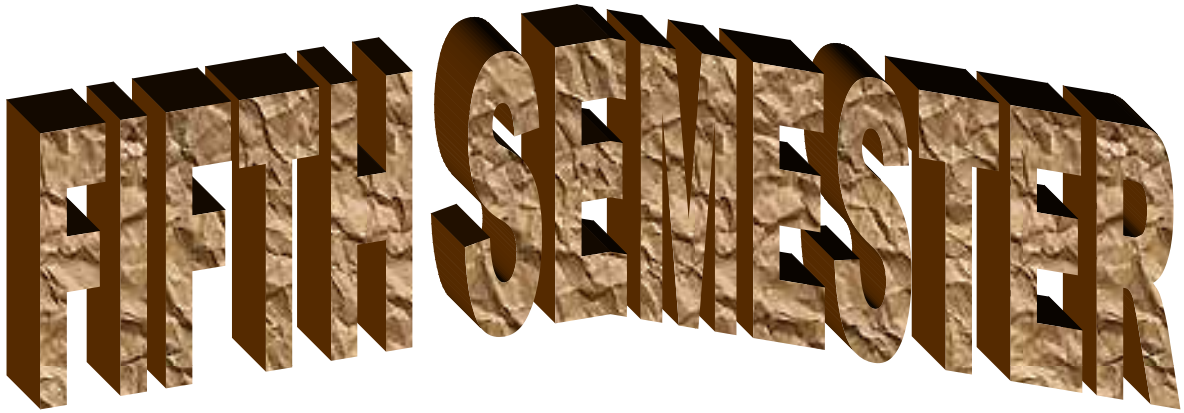
## B.SC FOOD SCIENCE AND NUTRITION CURRICULUM

*(For the students admitted from the academic year 2023-2024 onwards)*

| Course Code | Title of the Course | Hrs | Credits | Maximum Marks | | |
|---|---|---|---|---|---|---|
| | | | | Int | Ext | Total |
| **FIRST SEMESTER** | | | | | | |
| **Part – I** | **Tamil / Alternative Course** | | | | | |
| 23UTAGT11 | தமிழ் இலக்கிய வரலாறு - I | 6 | 3 | 25 | 75 | 100 |
| **Part – II** | **English** | | | | | |
| 23UENGE11 | General English - I | 6 | 3 | 25 | 75 | 100 |
| **Part - III** | **Core Courses** | | | | | |
| 23UFNCC11 | Food Science | 5 | 5 | 25 | 75 | 100 |
| 23UFNCP11 | Basic Cookery - Practical | 5 | 5 | 25 | 75 | 100 |
| **Part - III** | **Elective Course** | | | | | |
| 23UFNEC11 | Nutrition Assessment and Diet Counselling | 4 | 3 | 25 | 75 | 100 |
| **Part IV** | **Non Major Elective** | | | | | |
| 23UFNNM11 | Food Product Development | 2 | 2 | 25 | 75 | 100 |
| **Part IV** | **Foundation Course** | | | | | |
| 23UFNFC11 | Principles of Resource Management | 2 | 2 | 25 | 75 | 100 |
| | **Total** | 30 | 23 | 175 | 525 | 700 |
| **SECOND SEMESTER** | | | | | | |
| **Part – I** | **Tamil / Alternative Course** | | | | | |
| 23UTAGT21 | தமிழ் இலக்கிய வரலாறு – II | 6 | 3 | 25 | 75 | 100 |
| **Part – II** | **English** | | | | | |
| 23UENGE21 | General English - II | 6 | 3 | 25 | 75 | 100 |
| **Part - III** | **Core Courses** | | | | | |
| 23UFNCC21 | Human Physiology | 5 | 5 | 25 | 75 | 100 |
| 23UFNCC22 | Basics of Food Microbiology | 3 | 3 | 25 | 75 | 100 |
| 23UFNCP21 | Basics of Food Microbiology - Practical | 2 | 2 | 25 | 75 | 100 |
| **Part - III** | **Elective Course** | | | | | |
| 23UCHEA21 | Chemistry for Biological Sciences | 4 | 3 | 25 | 75 | 100 |
| **Part IV** | **Non Major Elective** | | | | | |
| 23UFNNM21 | Foundations of Baking and Confectionery | 2 | 2 | 25 | 75 | 100 |
| **Part IV** | **Skill Enhancement course** | | | | | |
| 23UFNSC21 | Fundamentals of Art & Design | 2 | 2 | 25 | 75 | 100 |
| | **Total** | 30 | 23 | 200 | 600 | 800 |

| Course Code | Title of the Course | Hrs | Credits | Maximum Marks | | |
|---|---|---|---|---|---|---|
| | | | | Int | Ext | Total |
| **THIRD SEMESTER** | | | | | | |
| **Part – I** | **Tamil / Alternative course** | | | | | |
| 23UTAGT31 | தமிழக வரலாறும் பண்பாடும் | 6 | 3 | 25 | 75 | 100 |
| **Part – II** | **English** | | | | | |
| 23UENGE31 | General English - III | 6 | 3 | 25 | 75 | 100 |
| **Part - III** | **Core course** | | | | | |
| 23UFNCC31 | Human Nutrition | 5 | 5 | 25 | 75 | 100 |
| **Part - III** | **Elective courses** | | | | | |
| 23UCHEA32 | Chemistry For Biological Sciences – II | 5 | 5 | 25 | 75 | 100 |
| 23UFNEC31 | Food Safety and Quality Control | 4 | 4 | 25 | 75 | 100 |
| **Part - IV** | **Skill Based courses** | | | | | |
| 23UFNSP31 | Food Preservation – Practical | 2 | 2 | 25 | 75 | 100 |
| 23UFNSC31 | Changing Trends in Extension Education | 1 | 1 | 25 | 75 | 100 |
| **Part - IV** | **Mandatory course** | | | | | |
| 23UEVSG41 | Environmental Studies | 1 | - | - | - | - |
| | **Total** | 30 | 23 | 175 | 525 | 700 |
| **FOURTH SEMESTER** | | | | | | |
| **Part – I** | **Tamil / Alternative course** | | | | | |
| 23UTAGT41 | தமிழும் அறிவியலும் | 6 | 3 | 25 | 75 | 100 |
| **Part – II** | **English** | | | | | |
| 23UENGE41 | General English - IV | 6 | 3 | 25 | 75 | 100 |
| **Part - III** | **Core courses** | | | | | |
| 23UFNCC41 | Nutritional Biochemistry | 5 | 5 | 25 | 75 | 100 |
| 23UFNCP41 | Nutrition and Nutritional Biochemistry – Practical | 4 | 4 | 25 | 75 | 100 |
| **Part - III** | **Elective course** | | | | | |
| 23UFNEC41 | Human Development | 4 | 3 | 25 | 75 | 100 |
| **Part - IV** | **Skill Based courses** | | | | | |
| 23UFNSC41 | Foundations of Entrepreneurship | 2 | 2 | 25 | 75 | 100 |
| 23UCSSP42 | Computer Applications in Home Science Lab | 2 | 2 | 25 | 75 | 100 |
| **Part - IV** | **Mandatory course** | | | | | |
| 23UEVSG41 | Environmental Studies | 1 | 2 | 25 | 75 | 100 |
| | **Total** | 30 | 24 | 200 | 600 | 800 |

| Course Code | Title of the Course | Hrs | Credits | Maximum Marks | | |
|---|---|---|---|---|---|---|
| | | | | Int | Ext | Total |
| **FIFTH SEMESTER** | | | | | | |
| **Part - III** | **Core courses** | | | | | |
| 23UFNCC51 | Nutrition Through Life Cycle Theory | 5 | 4 | 25 | 75 | 100 |
| 23UFNCC52 | Public Health Nutrition | 5 | 4 | 25 | 75 | 100 |
| 23UFNCP51 | Nutrition Through Life Cycle Practical | 5 | 4 | 25 | 75 | 100 |
| **Part - III** | **Core project** | | | | | |
| 23UFNPR51 | Project with Viva - Voce | 5 | 4 | 25 | 75 | 100 |
| **Part - III** | **Elective courses - I** | | | | | |
| 23UFNEC51 | Fibre to Fabric | 4 | 3 | 25 | 75 | 100 |
| 23UFNEC52 | Food Product Development | | | | | |
| 23UFNEC53 | Foundations of Baking and Confectionery | | | | | |
| **Part - III** | **Elective courses - II** | | | | | |
| 23UFNEC54 | Fundamentals of Research in Nutritional Sciences | 4 | 3 | 25 | 75 | 100 |
| 23UFNEC55 | Nutrition Education and Communication | | | | | |
| 23UFNEC56 | Life Skill Strategies and Techniques | | | | | |
| **Part - IV** | **Mandatory course** | | | | | |
| 23UVLEG51 | Value Education | 2 | 2 | 25 | 75 | 100 |
| 23UFNIN51 | Internship / Industrial Training | - | 2 | 25 | 75 | 100 |
| | **Total** | 30 | 26 | 200 | 600 | 800 |
| **SIXTH SEMESTER** | | | | | | |
| **Part - III** | **Core courses** | | | | | |
| 23UFNCC61 | Dietetics Theory | 6 | 4 | 25 | 75 | 100 |
| 23UFNCP61 | Dietetics Practical | 6 | 4 | 25 | 75 | 100 |
| 23UFNCC62 | Quantity Food Production and Service | 6 | 4 | 25 | 75 | 100 |
| **Part - III** | **Elective courses - I** | | | | | |
| 23UFNEC61 | Functional Food for Chronic Disease | 5 | 3 | 25 | 75 | 100 |
| 23UFNEC62 | Food Preservation Theory | | | | | |
| 23UFNEC63 | Introduction to Fashion Designing | | | | | |
| **Part - III** | **Elective courses - II** | | | | | |
| 23UFNEC64 | Food Service Management | 5 | 3 | 25 | 75 | 100 |
| 23UFNEC65 | Concepts in Apparel Designing | | | | | |
| 23UFNEC66 | Pre - School and Crèche Management | | | | | |
| **Part - IV** | **Skill course** | | | | | |
| 23UFNSC61 | Professional competency skill enhancement course (Aptitude and Reasoning) | 2 | 2 | 25 | 75 | 100 |
| **Part - V** | **Extension activities** | | | | | |
| 23UNCET61, 23UNSET61, 23UPEET61, 23URRET61 , 23UYRET61, 23UHFET61, 23UEOET61 & 23UHRET61 | N.C.C, N.S.S, Physical Education, R.R.C, Y.R.C, Health and Fitness Club, ECO Club & Human Rights Club | - | 1 | 25 | 75 | 100 |
| | **Total** | 30 | 21 | 175 | 525 | 700 |
| | **Grand total** | 180 | 140 | 1125 | 3375 | 4500 |


FIFTH SEMESTER

| Course Name | Nutrition Through Life Cycle Theory | | | |
|---|---|---|---|---|
| Course Code | 23UFNCC51 | L | P | C |
| Category | Core | 5 | - | 4 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Understand the role of nutrition in the growth and development through the lifecycle.
- Gain insight into the principles of effective meal planning.
- Understand the nutritional needs of various age groups
- Acquire skills to plan diets for various age groups across the lifecycle.

**UNIT - I Introduction to meal planning 15**

Introduction to meal planning - Balanced diet, food groups, Food Guide Pyramid (ICMR), Food plate, RDA, factors affecting RDA. Principles of meal planning – steps involved in planning a diet. Nutrition for Adult - nutritional requirements, planning balanced diets for adult men and women, promoting healthy lifestyle through holistic approach.

**UNIT - II Nutrition during pregnancy and Lactation 15**

Nutrition during pregnancy- Physiological demands of pregnancy, nutritional needs, effect of nutrition on pregnancy outcome, optimal weight gain, nutrition related problems in pregnancy, complications of pregnancy. Nutrition during lactation- Physiology of lactation, nutritional requirements, concerns of breast-feeding mother

**UNIT - III Nutrition during infancy and preschool children 15**

Nutrition during infancy- Growth and development, growth standards, food and nutritional requirements, breast feeding, artificial feeding, low birth weight babies, complementary feeds. Nutrition for preschool children- Growth and development, food and nutritional requirements, eating habits and food behaviors, nutrition related problems- PEM, VAD and their dietary interventions.

**UNIT - IV Nutrition for school children and adolescence 15**

Nutrition for school children- Growth pattern, nutritional requirement, importance of healthy snacks, factors affecting eating habits, school lunch. Nutrition during adolescence- Growth and development, nutritional requirements, food habits, nutritional problems – obesity, underweight, anaemia and eating disorders

**UNIT - V Nutrition for old age 15**

Nutrition for old age- Physiological changes in elderly, food and nutritional requirements, nutritional and health concerns in old age, healthy lifestyle.

**Total Lecture Hours 75**

**BOOKS FOR STUDY:**

- Srilakshmi B. (2011) Dietetics, sixth edition, New age Publishing Press, New Delhi.
- Gopalan,C., Ramanathan, P.V. Balasubramanian, S.C. (2001) Nutritive value of Indian foods, NIN, Hyderabad.

**BOOKS FOR REFERENCES:**

- Longvah T, Ananthan R, Bhaskar K, Venkaiah K. (2017) Indian Food Composition Tables, National Institute of Nutrition.
- Abraham S, Nutrition through Lifecycle. (2016) 1st edition, New age international publishers, New Delhi.
- Stacy N, William's Basic Nutrition and Diet Therapy. (2005) 12th edition, Elseivier publications, United Kingdom.
- Whitney EN and Rolfes SR, Understanding Nutrition. (2002) 9 th edition West/Wordsworth, London
- Groff JL, Gropper SS, Advanced Nutrition and Human Metabolism.(2000) 3rd edition, West / Wadsworth, United Kingdom.
- Cataldo, DeBruyne and Whitney, Nutrition and Diet therapy– Principles and Practice.(1999) 5th edition, West/ Wadsworth, London.

**WEB RESOURCES:**

- **http://vikaspedia.in/health/nutrition/dietary-guidelines-1/dietary-guideline-1**
- **https://www.nhp.gov.in/healthlyliving/healthy-diet**
- **https://motherchildnutrition.org/india/complementary-feeding-guidelines.html**
- **http://vikaspedia.in/health/nutrition/dietary-guidelines-1/diet-for-children-and-adolescents**
- **https://motherchildnutrition.org/india/complementary-feeding-guidelines.html**
- **https://sol.du.ac.in/mod/book/view.php?id=1422&chapterid=1288**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | SKILL ORIENTED | ✓ | ENTREPRENEURSHIP | | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | ✓ | GLOBAL | | |
| **Changes Made in the Course** | Percentage of Change | **75 %** | No Changes Made | | New Course | | | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| COURSE OUTCOMES: | | K LEVEL |
|---|---|---|
| After studying this course, the students will be able to: | | |
| CO1 | Describe the meaning and principles of Growth & Development | K1 to K4 |
| CO2 | Explain developmental aspects during infancy, early and late childhood. | K1 to K4 |
| CO3 | Evaluate developmental aspects during adolescence. | K1 to K4 |
| CO4 | Identify the developmental tasks during adulthood and old age. | K1 to K4 |
| CO5 | Introduction to Children with Special Needs and identification & Educational Rehabilitation | K1 to K4 |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 |

S- STRONG M – MEDIUM L - LOW

**CO / PO MAPPING:**

| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|
| CO 1 | 3 | 3 | 3 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 3 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 15 | 15 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

**LESSON PLAN:**

| UNIT | Nutrition Through Life Cycle Theory | HRS | PEDAGOGY |
|---|---|---|---|
| I | Introduction to meal planning | 15 | PPT, Chalk & Talk |
| II | Nutrition during pregnancy | 15 | PPT, Chalk & Talk |
| III | Nutrition during infancy | 15 | PPT, Chalk & Talk |
| IV | Nutrition for school children | 15 | PPT, Chalk & Talk |

| | | | |
|---|---|---|---|
| **V** | Nutrition for old age | **15** | **PPT, Chalk & Talk** |

| **Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs)** | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| **Distribution of Marks with K Level CIA I & CIA II** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **S. No** | **COs** | **K - Level** | **Section A (MCQs)** | | **Section B (Either / or Choice) With K - LEVEL** | **Section C (Either / or Choice) With K - LEVEL** |
| | | | **No. of Questions** | **K – Level** | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | **PART – B** | | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | **PART – C** | | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| **Course Name** | Public Health Nutrition | | | |
|---|---|---|---|---|
| **Course Code** | 23UFNCC52 | **L** | **P** | **C** |
| **Category** | Core | 5 | - | 4 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Gain knowledge about nutritional policies, programs and agencies involved in combating malnutrition.
- Acquire knowledge and skills in assessment of nutritional status.
- Create awareness on improving health and nutrition of the community

**UNIT - I Concept and scope of public nutrition** **15**

Concept and scope of public nutrition Definition, concept, scope and multidisciplinary nature of public nutrition. Nutritional problems affecting the community. Etiology, prevalence, clinical features and preventive strategies for malnutrition related problems and deficiency disorders - Under nutrition (Protein energy malnutrition, Wasting, Stunting), Over nutrition (obesity and related risks), Nutritional anemia, Vitamin A deficiency, Iodine deficiency disorders, Fluorosis.

**UNIT - II Assessment of nutritional status** **15**

Objectives and importance, Methods of assessment: Direct (Clinical signs, Anthropometry, Biochemical tests); Indirect (Diet surveys, vital statistics)

**UNIT - III Nutrition policy and programs** **15**

National nutritional policy; Integrated child development scheme (ICDS), Midday Meal Program-State and National (Poshan Abhyan), National programs for the prevention of anemia, Vitamin A deficiency, Iodine deficiency disorders, Fortification of Foods and Public Distribution System as a preventive approach.

**UNIT - IV Nutrition education** **15**

Nutrition education Objectives, principles and scope of nutrition and health education, creating awareness on current public health issues and devising strategies for prevention and management.

**UNIT - V Role of National and International agencies** **15**

Role of National and International agencies in combating malnutrition WHO, FAO, UNICEF; National: FSSAI, ICAR, ICMR, NIN, FNB, CFTRI, NNMB- Role, Target groups (if specified), Policies and Programs.

**Total Lecture Hours** **75**

**BOOKS FOR STUDY:**

- Wadhwa A and Sharma S (2003). Nutrition in the Community- A textbook. Elite Publishing House Pvt. Ltd. New Delhi.
- Park K (2011). Park's Textbook of Preventive and Social Medicine, 21st Edition. M/s Banarasidas Bhanot Publishers, Jabalpur, India.

**BOOKS FOR REFERENCES:**

- Jellife DB, Jellife ERP, Zerfas A and Neumann CG (1989). Community nutritional assessment with special reference to less technically developed countries. Oxford University Press. Oxford.
- WHO (2006). Child Growth Standards: Methods and development: height- forage, weight-for-age, weight-for-length, weight-for-height and body mass index for-age (http://www.who.int/childgrowth/standards/en/).
- Gupta,MC. And Mahajan BK. (2003) Textbook of Preventive and Social Medicine 3rd Ed Jaypee brothers,Medical Publishers (p) Ltd.

**WEB RESOURCES:**

- **Mohfw.nic.in/NRHM/NIDD**
- **www.nrhmorissa.gov.in/NIDDCP.html**
- **www.Scripts.mit.edu**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | ✓ | SKILL ORIENTED | | ENTREPRENEURSHIP | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | | GLOBAL | ✓ |
| **Changes Made in the Course** | Percentage of Change | **85 %** | No Changes Made | | New Course | | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Define terms related to Public Health nutrition. | **K1 to K4** |
| **CO2** | Describe the nutritional problems prevalent in the community. | **K1 to K4** |
| **CO3** | Explain the significance of assessment of nutritional status. | **K1 to K4** |
| **CO4** | Assess the role of various organizations in combating nutritional problems | **K1 to K4** |
| **CO5** | Conduct nutrition education programs to create awareness on improving health and nutrition of the community at large. | **K1 to K4** |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 1 | 1 | 1 | 1 | 3 | 1 | 1 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| S- STRONG | M – MEDIUM | L - LOW |
|---|---|---|

**CO / PO MAPPING:**

| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|
| CO 1 | 3 | 2 | 3 | 1 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 2 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 14 | 14 | 13 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

**LESSON PLAN:**

| UNIT | Public Health Nutrition | HRS | PEDAGOGY |
|---|---|---|---|
| I | Concept and scope of public nutrition | 15 | PPT, Chalk & Talk |
| II | Assessment of nutritional status | 15 | PPT, Chalk & Talk |
| III | Nutrition policy and programs | 15 | PPT, Chalk & Talk |
| IV | Nutrition education | 15 | PPT, Chalk & Talk |
| V | Role of National and International agencies | 15 | PPT, Chalk & Talk |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | | **PART – B** | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | | **PART – C** | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| **Course Name** | Nutrition Through Life Cycle Practical | | | |
|---|---|---|---|---|
| **Course Code** | 23UFNCP51 | **L** | **P** | **C** |
| **Category** | Core | - | 5 | 4 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Understand the role of nutrition in the growth and development through the lifecycle.
- Gain insight into the principles of effective meal planning.
- Understand the nutritional needs of various age groups
- Acquire skills to plan diets for various age groups across the lifecycle

**Course Content**

1. Preparation of Complementary feed.
2. Planning and preparation of diets for different activity levels and income group.

3.a. Pre-school child

b. School going children

4. c. Adolescents

d. Adult

e. Expectant mother

5. f. Nursing mother

g. Old age

6. Planning and preparation of diets (low and medium cost) for deficiency diseases
7. PEM
8. Vitamin A deficiency
9. Nutritional anemia
10. Packed lunch for school

**BOOKS FOR STUDY:**

- Srilakshmi B. (2011) Dietetics, sixth edition, New age Publishing Press, New Delhi.
- Gopalan,C., Ramanathan, P.V. Balasubramanian, S.C. (2001) Nutritive value of Indian foods, NIN, Hyderabad.

**BOOKS FOR REFERENCES:**

- Longvah T, Ananthan R, Bhaskar K, Venkaiah K. (2017) Indian Food Composition Tables, National Institute of Nutrition.
- Abraham S, Nutrition through Lifecycle. (2016) 1st edition, New age international publishers, New Delhi.
- Stacy N, William's Basic Nutrition and Diet Therapy. (2005) 12th edition, Elseivier publications, United Kingdom.
- Whitney EN and Rolfes SR, Understanding Nutrition. (2002) 9 th edition West/Wordsworth, London

**WEB RESOURCES:**

- http://vikaspedia.in/health/nutrition/dietary-guidelines-1/dietary-guideline-1
- https://www.nhp.gov.in/healthlyliving/healthy-diet

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | SKILL ORIENTED | ✓ | ENTREPRENEURSHIP | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | ✓ | GLOBAL | |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | |
| *Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course. | | | | | | | | |

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Describe the meaning and principles of Growth & Development | **K1 to K4** |
| **CO2** | Explain developmental aspects during infancy, early and late childhood. | **K1 to K4** |
| **CO3** | Evaluate developmental aspects during adolescence. | **K1 to K4** |
| **CO4** | Identify the developmental tasks during adulthood and old age. | **K1 to K4** |
| **CO5** | Introduction to Children with Special Needs and identification & Educational Rehabilitation | **K1 to K4** |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 |

**S- STRONG** **M – MEDIUM** **L - LOW**

**CO / PO MAPPING:**

| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|
| CO 1 | 3 | 3 | 3 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 3 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 15 | 15 | 15 |
| WEIGHTED PERCENTAGE | 3 | 3 | 3 | 3 | 3 |

| | | | | | |
|---|---|---|---|---|---|
| **OF COURSE CONTRIBUTION TO POS** | | | | | |

| **LESSON PLAN:** | | | |
|---|---|---|---|
| **UNIT** | **Nutrition Through Life Cycle Practical** | **HRS** | **PEDAGOGY** |
| **I** | Preparation of Complementary feed | **5** | **Lab** |
| **II** | Planning and preparation of diets for different activity levels and income group | **5** | **Lab** |
| **III** | a. Pre-school child<br>b. School going children | **7** | **Lab** |
| **IV** | c. Adolescents<br>d. Adult<br>e. Expectant mother | **8** | **Lab** |
| **V** | f. Nursing mother<br>g. Old age | **10** | **Lab** |
| **VI** | Planning and preparation of diets (low and medium cost) for deficiency diseases | **10** | **Lab** |
| **VII** | PEM | **7** | **Lab** |
| **VIII** | Vitamin A deficiency | **8** | **Lab** |
| **IX** | Nutritional anemia | **7** | **Lab** |
| **X** | Packed lunch for school | **8** | **Lab** |

| **Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs)** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **INTERNAL** | **COs** | **K LEVEL** | **MAJOR** | **MINOR** | **SPOTTERS** | **RECORD** | **VIVA** |
| **CI AI** | **CO1** | **K1** | | | | | **5** |
| | **CO2** | **K2** | | | | **5** | |
| | **CO3** | **K3** | | | **5** | | |
| | **CO4** | **K4** | | **5** | | | |
| | **CO5** | **K4** | **5** | | | | |
| **Question Pattern** | | No. of Questions to be asked | **2 (A-Written B-Practical Demo)** | **2 (A-Written B-Practical Demo)** | **2** | **1** | **5** |
| | | No. of Questions to be answered | **2** | **2** | **2** | **1** | **5** |
| | | Marks for each question | **A-3 B-2** | **A-3 B-2** | **5** | **10** | **1** |
| | | Total Marks for each section | **5** | **5** | **5** | **5** | **5** |

| Distribution of Marks with K Level CIA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **K Level** | **Major** | **Minor** | **Spotters** | **Record** | **Viva** | **Total Marks** | **% of Marks without choice** | **Consolidated %** |
| **CIA** | **K1** | | | | | 5 | 5 | 6.6 | 6.6 |
| | **K2** | | | | 5 | | 5 | 6.6 | 6.6 |
| | **K3** | | | 20 | | | 20 | 26.6 | 26.6 |
| | **K4** | | 20 | | | | 20 | 26.6 | 26.6 |
| | **K4** | 25 | | | | | 25 | 33.3 | 33.3 |
| | **Marks** | 25 | 20 | 20 | 5 | 5 | 75 | 100 | 100 |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application-oriented- Solving Problems

**K4**- Examining, analyzing, presenting and making inferences with evidence

**CO5 will be allotted for individual Assignments, which carry five marks as part of the CIA component.**

| **Summative Examination – Blue Print**<br>**Articulation Mapping – K Levels with Course Outcomes (COs)** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **EXTERNAL** | **COs** | **K LEVEL** | **MAJOR** | **MINOR** | **SPOTTERS** | **RECORD** | **VIVA** |
| **CI AI** | **CO1** | **K1** | | | | | **5** |
| | **CO2** | **K2** | | | | **5** | |
| | **CO3** | **K3** | | | **20** | | |
| | **CO4** | **K4** | | **20** | | | |
| | **CO5** | **K4** | **25** | | | | |
| **Question Pattern** | | No. of Questions to be asked | **2 (A-Written B-Practical Demo)** | **2 (A-Written B-Practical Demo)** | **2** | **1** | **5** |
| | | No. of Questions to be answered | **2** | **2** | **2** | **1** | **5** |
| | | Marks for each question | **A-20 B-5** | **A-15 B-5** | **5** | **10** | **1** |
| | | Total Marks for each section | **25** | **20** | **20** | **5** | **5** |

| Distribution of Marks with K Level CIA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | K Level | Major | Minor | Spotters | Record | Viva | Total Marks | % of Marks without choice | Consolidated % |
| CIA | K1 | | | | | 5 | 5 | 6.6 | 6.6 |
| | K2 | | | | 5 | | 5 | 6.6 | 6.6 |
| | K3 | | | 20 | | | 20 | 26.6 | 26.6 |
| | K4 | | 20 | | | | 20 | 26.6 | 26.6 |
| | K4 | 25 | | | | | 25 | 33.3 | 33.3 |
| | Marks | 25 | 20 | 20 | 5 | 5 | 75 | 100 | 100 |

| **Course Name** | Project with Viva – Voce | | | |
|---|---|---|---|---|
| **Course Code** | 23UFNPR51 | **L** | **P** | **C** |
| **Category** | Core | 5 | - | 4 |

**COURSE OBJECTIVES:**

- Know various preservation techniques and storage methods of foods.
- Gain knowledge about developing a new food product.
- Apply ideas of food testing and microbial testing.
- Understand the concept of nutritional analysis and cost fixing.
- Apply knowledge of novel technologies in food science and nutrition

**Course Content:**

Group – 4 Member, 1 or 2 can be added by the approval of HOD.
Record submission – A hard bound report to be submitted to the Department.
Evaluation – Project (oral) presentation followed by a brief Viva
Internal 40 Marks (Course teacher)
External 60 Marks (Course teacher & External member from other department )

**Course Description**

The Project is conducted by the following Course Pattern.

| | |
|---|---|
| Internal<br>Presentation<br>Submission } | 25 |
| External<br>Project Report<br>Viva Voce } | 75 |
| Total | 100 |

| COURSE OUTCOMES: | | K LEVEL |
|---|---|---|
| After studying this course, the students will be able to: | | |
| CO1 | Identify different technologies involved in food industries | K1 to K4 |
| CO2 | Explain various departments of food industries. | K1 to K4 |
| CO3 | Apply theoretical knowledge at food industry. | K1 to K4 |
| CO4 | Analyze different machineries and products. | K1 to K4 |
| CO5 | Evaluate processing methods involved in food industries. | K1 to K4 |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 2 | 1 | 2 | 2 | 1 | 2 | | | | |
| CO2 | 2 | 2 | 2 | 1 | 1 | 1 | | | | |
| CO3 | 1 | 1 | 1 | 1 | 2 | 2 | | | | |
| CO4 | 2 | 2 | 2 | 2 | 1 | 1 | | | | |
| CO5 | 1 | 1 | 1 | 1 | 2 | 1 | | | | |

S- STRONG M – MEDIUM L - LOW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Nature of Course | EMPLOYABILITY | | SKILL ORIENTED | ✓ | ENTREPRENEURSHIP | | | | | |
| Curriculum Relevance | LOCAL | | REGIONAL | ✓ | NATIONAL | | GLOBAL | | | |
| Changes Made in the Course | Percentage of Change | 20 % | No Changes Made | | New Course | | | | | |

*Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.

| Course Name | Fibre to Fabric | | | |
|---|---|---|---|---|
| Course Code | 23UFNEC51 | L | P | C |
| Category | Elective | 4 | - | 3 |

**COURSE OBJECTIVES:**

To enable the students to :

- Understand the concepts in textiles, the properties of textile fibre, yarn and fabric.
- Acquire knowledge about different types of fabric, make wise selection of textiles and its contribution to clothing and interior.

**UNIT - I Introduction to Textile** **12**

Introduction, Terms and definition related to textiles, importance of textile

**UNIT - II Textile fibres** **12**

a) Properties of fibers- primary and secondary properties

b) Classification of fibres – natural and man-made fibres.

c) Manufacturing processes/Cultivation, properties and uses of Cotton, Silk, Wool, Polyester, Rayon and Nylon.

**UNIT - III Yarns** **12**

a) Definition of yarn

b) Spinning process- Conventional yarn spinning - Cotton system and Unconventional yarn spinning.

c) Types of yarn- spun yarns, filament yarns, sewing threads, simple and complex yarns.

d) Properties of yarn-Yarn twist, Yarn count/ number (definition, unit of yarn count),

e) Texturization - types

**UNIT - IV Woven Fabric Construction** **12**

a) Weaving- Warp and weft yarns, grain line, selvedge and Fabric count.

b) Parts of a simple loom and basic weaving operations.

c) Types of weaves- Basic weaves (Plain weave, variations in plain weave, Twill weave, variations in Twill weave, Satin weave and Sateen weave) Decorative weaves (Dobby weave, Jacquard weave, Leno weave, Surface figure weave, Pile, Double weave)

**UNIT - V Other fabric construction** **12**

a) Knitted fabric- warp and weft knitting b) Non-Woven fabric- method of manufacture – web formationparallel laid, cross laid, random laid, high velocity sprayed. Types- bonded fabrics, felts and care of non-woven .Other fabric construction process- Braided fabric, Net, Laces, Film fabric, tufted fabric

**Total Lecture Hours** **60**

**BOOKS FOR STUDY:**

- Corbman, B.P (1975) Textiles fiber to fabric. Mc. Graw hill, New York.
- Klein W.D A Practical Guide to Ring Spinning Textile Institute, Manchester
- 3Marjory L. J (1977) Introductory Textile Sciences Holt Reinhart and Winston, New York
- Sara.K.J, Langford.A (2002) Textiles. 9thed Prentice Hall, London

**BOOKS FOR REFERENCES:**

- Robert, R. & Mather, R. H. (2015). The Chemistry of Textile Fibers. Cambridge: RSC Publishers.
- Sekhri, S. (2011) Textbook of Fabric Science: Fundamentals to Finishing. India: PHI Learning Pvt. Ltd.
- Smith, J.L. (2015).Textile Processing: Printing Dyeing Finishing. Chandigarh: Abhishek Publication.
- Rastogi, D., & Chopra, S. (2017). Textile Science. India: Orient Blackswan Private Limited.

**WEB RESOURCES:**

- **http://fibersource.com/f-tutor/rayon.htm**
- **http://www.fibersource.com/f-tutor/nylon.htm**
- **http://www.ehow.com/facts 5016460 parts-loom.html**
- **http://www.fabrics-manufacturers.com**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | | SKILL ORIENTED | | | ENTREPRENEURSHIP | | ✓ | | |
| **Curriculum Relevance** | LOCAL | ✓ | REGIONAL | | NATIONAL | | GLOBAL | | | | |
| **Changes Made in the Course** | Percentage of Change | **65 %** | | No Changes Made | | | New Course | | ✓ | | |
| ***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.** | | | | | | | | | | | |

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Describe the essential properties of textile fibres, yarns and the basic fabric construction techniques | **K1 to K4** |
| **CO2** | Explain the manufacturing process of man-made fibres, yarn construction and fabric construction. | **K1 to K4** |
| **CO3** | Classify textile fibres, yarns and fabrics. | **K1 to K4** |
| **CO4** | Categorize the fibres, yarns and fabrics for its appropriate end use. | **K1 to K4** |
| **CO5** | Assess the sequence of developing fibres into yarns and fabric | **K1 to K4** |

| MAPPING WITH PROGRAM OUTCOMES: | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
| CO1 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 2 | 3 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| S- STRONG | | | | M – MEDIUM | | | | | L - LOW | |

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO 1 | 3 | 3 | 3 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 3 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 15 | 15 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

| LESSON PLAN: | | | |
|---|---|---|---|
| UNIT | Fibre to Fabric | HRS | PEDAGOGY |
| I | Introduction to Textile | 12 | PPT,CHALK& TALK,VIDEOS |
| II | Textile fibre | 12 | PPT,CHALK& TALK |
| III | Yarns | 12 | PPT,CHALK& TALK |
| IV | Woven Fabric Construction | 12 | PPT,CHALK& TALK |
| V | Other fabric construction | 12 | PPT,CHALK& TALK |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | **PART – B** | | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | **PART – C** | | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| **Course Name** | Food Product Development | | | |
|---|---|---|---|---|
| **Course Code** | 23UFNEC52 | **L** | **P** | **C** |
| **Category** | Elective | 4 | - | 3 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Understand the steps involved in new food product development.
- Learn about consumer preferences and market trends.
- Understand concepts about subjective and objective evaluation of new product.

**UNIT - I Introduction to New Food Product development 12**

Food products, definition, Classification, Characterization Reasons for new food product development Factors shaping new product development-Social concerns, health concerns impact of technology and marketplace influence. Utilizing traditional foods, unconventional sources, functional, nutraceuticals foods for new product development Market Survey to identify the new product.

**UNIT - II Product Development 12**

a) New Product Development Team b) Sources of New Product ideas c) Designing new product d) Stages of product development e) Causes of product failure/ success in product development

**UNIT - III Product Evaluation and Quality Control 12**

Quality attributes – physical, chemical, nutritional, microbial, and sensory indicators Principles and types of assessment of quality. Subjective and objective methods of evaluation of product quality. Role of sensory evaluation in consumer product acceptance; requirements for sensory analysis - Sensory panel Evaluation of New Product: Nutritional evaluation (estimation of relevant parameters) Evaluation of shelf-life of the product (testing for appropriate quality parameters- physical, chemical, microbiological and nutrient content, acceptability studies) Food safety standards and regulations: Domestic regulations FSSAI, AGMARK, BIS Quality management systems in India; (ISO9001, ISO22000); Global Food safety Initiative; International food standards Various national and international organizations dealing with inspection, traceability and authentication, certification, and quality assurance

**UNIT - IV Packaging and labelling 12**

Packaging Material-types; factors affecting type of packaging material used; Aseptic packaging, modified atmosphere packaging, Controlled Atmosphere Packaging and active packaging. Packaging and Labelling of the product – Packaging design, graphics and labelling – FSSAI regulations for food labelling.

| UNIT - V | Marketing the product | 12 |
|---|---|---|
| Product life cycle Costing the product and determining the sales price Advertising and test marketing the product | | |
| | **Total Lecture Hours** | **60** |

**BOOKS FOR STUDY:**

- Earle M., Earle RL. and Anderson A. (2001) Food Product Development: Maximizingsuccess, Woodhead Publishing Ltd, Food Series, No. 64,2001.
- Fuller, GW (2011). New food product development: From concept to marketplace. 3rded. New York, NY: CRC Press

**BOOKS FOR REFERENCES:**

- Lawless HT and Klein BP (1991) Sensory Science Theory and Applications in Foods.Marcel Dekker Inc.
- Moskowitz HR, Saguy IS and Straus T (2009). An Integrated approach to New Food Product Development. ed. New York, NY: CRC Press
- Paine FA, Paine HY (Eds.) (1992) A handbook of Food Packaging (2nd ed.), BlackieAcademic and Professional.
- Sharma A (2018). Food product Development. CBS Publishers & Distributors Pvt Ltd

**WEB RESOURCES:**

- **https://www.destechpub.com/wp-content/uploads/2015/01/Methods-for Developing-New-Food-Products-preview.pdf**
- **https://www.youtube.com/watch?v=iL0iIGpa4vg**
- **https://www.youtube.com/watch?v=5kOXUH8kaCs**

| **Nature of Course** | EMPLOYABILITY | | SKILL ORIENTED | | ENTREPRENEURSHIP | ✓ |
|---|---|---|---|---|---|---|
| **Curriculum Relevance** | LOCAL | | REGIONAL | ✓ | NATIONAL | | GLOBAL | |
| **Changes Made in the Course** | Percentage of Change | **75 %** | No Changes Made | | New Course | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Define the basic concepts in food product development, packaging, costing advertising and marketing. | **K1 to K4** |
| **CO2** | Explain the need, characteristics and factors influencing the new product; test marketing, packaging and quality attributes | **K1 to K4** |
| **CO3** | Illustrate the quality attributes, food safety, packaging and labelling regulations, and marketing tools for a food product | **K1 to K4** |
| **CO4** | Analyse the significance of packaging, labelling, advertising, costing and quality concepts for the new food product | **K1 to K4** |
| **CO5** | Develop a new food product and evaluate its quality and acceptability | **K1 to K4** |

| MAPPING WITH PROGRAM OUTCOMES: | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
| CO1 | 3 | 3 | 2 | 2 | 2 | 1 | 3 | 1 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 3 | 2 | 3 |
| S- STRONG | | | | M – MEDIUM | | | | | L - LOW | |

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO 1 | 3 | 3 | 1 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 2 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 1 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 10 | 15 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 2 | 3 | 3 |

| LESSON PLAN: | | | |
|---|---|---|---|
| UNIT | Food Product Development | HRS | PEDAGOGY |
| I | Introduction to New Food Product development | 12 | PPT, Chalk & Talk |
| II | Product Development | 12 | PPT, Chalk & Talk |
| III | Product Evaluation and Quality Control | 12 | PPT, Chalk & Talk |
| IV | Packaging and labelling | 12 | PPT, Chalk & Talk |
| V | Marketing the product | 12 | PPT, Chalk & Talk |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | **PART – B** | | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | **PART – C** | | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| **Course Name** | Foundations of Baking and Confectionery | | | |
|---|---|---|---|---|
| **Course Code** | 23UFNEC53 | **L** | **P** | **C** |
| **Category** | Elective | 4 | - | 3 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- To Gain insight into the planning and operation of bakery unit.
- To familiarize with the equipments and tools, hygienic practices relating to baking
- To Understand the role of various ingredients used in the making of breads, cakes, cookies, pastries and various confectioneries
- To acquire skills in baking and confectionery with an emphasis on special dietary need.
- To develop skill around different bakery and confectionery

**UNIT - I An Overview of Bakery Industry** **12**

Current status and growth of bakery industry in India. Baking – principles, process. Layout and organization of a bakery unit. Equipment and tools used in baking and confectionery. Bakery sanitation and personnel hygiene.

**UNIT - II Ingredients in Bakery and Confectionery** **12**

Ingredients - Flour, Sugar, Shortenings, Egg, Leavening agents-yeast, baking soda, baking powder, chocolates, cocoa powder. Other ingredients- salt, milk and milk derivatives, malt products, dough improver, oxidizing agents, flavours and colors, nuts, spices and condiments, preserved and candied fruit peels.

**UNIT - III Breads and Cakes** **12**

Bread - ingredients, types of breads, faults and its prevention Cakes – ingredients, types of cakes, cake judging, faults and remedies. Different types and techniques of cake decoration -icings and fillings

**UNIT - IV Pastries, Cookies and Biscuits** **12**

Pastries- types of pastries- puff pastry, short crust, phyllo pastry, flaky pastry, choux pastry Cookies & biscuits – ingredients, types and processing.

**UNIT - V Confectionery and Marketing of Baked Products** **12**

Chocolates- production, types, chocolate decorations Sugar based confectionery – fudge, fondant, sugar candies. Marketing and sales promotion- costing, packaging and labeling.

**Total Lecture Hours** **60**

**BOOKS FOR STUDY:**

- Dubey. S.C (2002) Basic Baking.4th Edition. Published by the Society of Indian Bakers, New Delhi.
- Sarah R. Lebensky, Pricilla et al., (2004) Textbook of Baking and Pastry Fundamentals,¬ third edition, Pearson Education Ltd.
- The Culinary Institute of America, Baking| | & Pastry: Mastering the Art and Craft, John Wiley &Sons,Inc New Jersy. 2009

**BOOKS FOR REFERENCES:**

- John Kingslee (2006) A Professional Text book to Bakery and Confectionary. New Age International Pvt Limited Publisher, New Delhi.
- Uttam K Singh (2011).Theory of Bakery and Confectionary- An Operational Approach. Kanishka Publishers and Distributors, New Delhi.

**WEB RESOURCES:**

- **https://www.youtube.com/watch?v=dfvkplBBO2gϖ**
- **https://www.lifestyleasia.com/ind/food-drink/dining/bookmarkthe-best-baking-youtube- channels-to-bake-**
- **www.bakels.inϖ**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | SKILL ORIENTED | | ENTREPRENEURSHIP | ✓ | | | | |
| **Curriculum Relevance** | LOCAL | ✓ | REGIONAL | | NATIONAL | | GLOBAL | | | |
| **Changes Made in the Course** | Percentage of Change | **80 %** | No Changes Made | | New Course | | | | | |
| ***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.** | | | | | | | | | | |

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Understand the principles and process of baking and confectionery | **K1 to K4** |
| **CO2** | Acquire knowledge on role of various ingredients used in baking and confectionery. | **K1 to K4** |
| **CO3** | Develop skills to design baked goods using alternative healthy ingredients to cater to special dietary needs | **K1 to K4** |
| **CO4** | Identify and control faults in baking | **K1 to K4** |
| **CO5** | Enhance entrepreneurial skills in bakery and confectionery to establish a bakery unit. | **K1 to K4** |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 |
| CO4 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 |

**S- STRONG** **M – MEDIUM** **L - LOW**

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| **COS** | **PSO1** | **PSO2** | **PSO3** | **PSO4** | **PSO5** |
| **CO 1** | **3** | **3** | **3** | **3** | **3** |
| **CO 2** | **3** | **3** | **3** | **3** | **3** |
| **CO 3** | **3** | **3** | **3** | **3** | **3** |
| **CO 4** | **3** | **3** | **3** | **3** | **3** |
| **CO 5** | **3** | **3** | **3** | **3** | **3** |
| **WEIGHTAGE** | **15** | **15** | **12** | **15** | **15** |
| **WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS** | **3** | **3** | **3** | **3** | **3** |

**LESSON PLAN:**

| UNIT | Foundations of Baking and Confectionery | HRS | PEDAGOGY |
|---|---|---|---|
| **I** | An Overview of Bakery Industry | **12** | **PPT, Chalk & Talk** |
| **II** | Ingredients in Bakery and Confectionery | **12** | **PPT, Chalk & Talk** |
| **III** | Breads and Cakes | **12** | **PPT, Chalk & Talk** |
| **IV** | Pastries, Cookies and Biscuits | **12** | **PPT, Chalk & Talk** |
| **V** | Confectionery and Marketing of Baked Products | **12** | **PPT, Chalk & Talk** |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | **PART – B** | | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | **PART – C** | | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| Course Name | Fundamentals of Research in Nutritional Sciences | | | |
|---|---|---|---|---|
| Course Code | 23UFNEC54 | L | P | C |
| Category | Elective | 4 | - | 3 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Understand basic concepts of research methodology.
- Use simple statistical methods for analysis of data.
- Develop skills to carry out a project and present a report

| | | |
|---|---|---|
| **UNIT - I** | **Introduction to research** | **12** |

Research- Meaning, objectives, significance. Research problem- Definition and selection of research problem.

Research design –Types of research design Method of sampling - probability and non-probability sampling – Merits and demerits. Determining sample size

| | | |
|---|---|---|
| **UNIT - II** | **Data Collection** | **12** |

Primary and secondary data, selection of appropriate method for data collection.

Tools used for data collection- Questionnaire and Interview schedule.

| | | |
|---|---|---|
| **UNIT - III** | **Coding and tabulation of data** | **12** |

Data entry and computation, Tabulation of data – parts of the table

Presentation of data- use of bar graph and pie chart

| | | |
|---|---|---|
| **UNIT - IV** | **Basic statistical tools for analysis and interpretation** | **12** |

Measures of central tendency – Mean, Median, Mode.

Variations-the range and standard deviation Correlation –Karl Pearson's coefficient of correlation Test of significance Student's t test

| | | |
|---|---|---|
| **UNIT - V** | **Report writing** | **12** |

Steps in report writing, Layout of a report. Bibliography-citing references-any one style

| | |
|---|---|
| **Total Lecture Hours** | **60** |

**BOOKS FOR STUDY:**

- Gupta, S.P. (2019) Statistical methods. 46th ed. Sultan Chand and Co, New Delhi.
- Kothari, C.R. (2019). Research methodology methods and techniques, New Age International publishers, New Delhi.

**BOOKS FOR REFERENCES:**

- Goode, WJ and Hatt, PK (1981) Methods in Social Research, McGrawHill International Editions, Sociology Series.
- Gupta, S.P. (2019) Statistical methods. 46th ed. Sultan Chand and Co, New Delhi.
- Kerlinger F. N. and Lee, H.B. (2000) Foundations of Behavioura Research 4th Ed. Harcourt College Publishers.
- Kothari, C.R. (2019). Research methodology methods and techniques, New Age International publishers, New Delhi.
- Kumar, R. (2005) Research Methodology: A Step-by-Step Guide for Beginners.Sage Publications, New Delhi.

**WEB RESOURCES:**

- **http://www.socialresearchmethods.net/tutorial/mugo/tutorial.htm**
- **https://ebooks.lpude.in/library_and_info_sciences/MLIS/year_1/DLIS401_METHO DOLOGY_OF_RESEARCH_AND_STATISTICAL_TECHNIQUES.pdf**
- **https://mfs.mkcl.org/images/ebook/Fundamental%20of%20Research%20Methodology%20and%20Statistics%20by%20Yogesh%20Kumar%20Singh.pdf**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | ✓ | SKILL ORIENTED | | ENTREPRENEURSHIP | | | |
| **Curriculum Relevance** | LOCAL | ✓ | REGIONAL | | NATIONAL | | GLOBAL | |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Define terms associated with conduct of research | **K1 to K4** |
| **CO2** | Explain research design, methods of research, collection, tabulation and presentation of data. | **K1 to K4** |
| **CO3** | Choose a sampling method and identify the appropriate statistical methods | **K1 to K4** |
| **CO4** | Analyze the data and draw conclusions. | **K1 to K4** |
| **CO5** | Evaluate data, draw inferences and prepare a report | **K1 to K4** |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 3 | 1 | 3 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 2 | 1 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 |

| S- STRONG | M – MEDIUM | L - LOW |
|---|---|---|

**CO / PO MAPPING:**

| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|
| CO 1 | 3 | 3 | 3 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 3 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 15 | 15 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

**LESSON PLAN:**

| UNIT | Fundamentals of Research in Nutritional Sciences | HRS | PEDAGOGY |
|---|---|---|---|
| I | Introduction to research | 12 | PPT, Chalk & Talk |
| II | Data Collection | 12 | PPT, Chalk & Talk |
| III | Coding and tabulation of data | 12 | PPT, Chalk & Talk |
| IV | Basic statistical tools for analysis and interpretation | 12 | PPT, Chalk & Talk |
| V | Report writing | 12 | PPT, Chalk & Talk |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | **PART – B** | | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | **PART – C** | | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| Course Name | Nutrition Education and Communication | | | |
|---|---|---|---|---|
| Course Code | 23UFNEC55 | L | P | C |
| Category | Elective | 4 | - | 3 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Gain knowledge about nutritional policies, programs and agencies involved in combating malnutrition.
- Organize Nutrition education programs for the community.
- Develop communication strategies to promote positive behaviours needed for healthy lifestyle.

**UNIT - I Nutrition Education** **12**

**Nutrition Education**

Importance of Nutrition education, objectives, principles and scope of nutrition and health education and promotion.

**Concept and Scope of Public Nutrition** - Definition, concept, scope and multidisciplinary nature of public nutrition. Principles of nutrition education

**UNIT - II Nutritional problems affecting the community** **12**

**Nutritional problems affecting the community** - Etiology, prevalence, clinical features and preventive strategies for malnutrition related problem and Nutrient deficiency control programmes - Protein energy malnutrition, Obesity, Nutritional anemia, Vitamin A deficiency, Iodine deficiency disorders, Fluorosis.

**UNIT - III Assessment of Nutritional Status** **12**

Assessment of Nutritional Status - Objectives and importance, Methods of assessment: Direct (Clinical signs, nutritional anthropometry, biochemical tests, biophysical tests); Indirect (Diet surveys, vital statistics) and Indirect assessment methods of nutritional status. Nutritional Anthropometry. Classified list of signs used in Nutritional Assessment.

**UNIT - IV Nutrition Policy and Programs** **12**

**Nutrition Policy and Programs** - National nutritional policy; Integrated child development scheme (ICDS), Midday Meal Program, National programs for the prevention of anemia, Vitamin A deficiency, Iodine deficiency disorders. Implementation of Nutrition Education Program. National organizations and agencies - FSSAI, ICMR, CFTRI, NSI, FNB, NIN. International organizations and agencies - FAO, WHO, UNICEF.

**UNIT - V Community, Introduction to Communication, Communication Systems** **12**

**Community** - Characteristics of rural and urban community, types of community, community nutrition, community health, Factors affecting community health.

**Introduction to Communication** - Concept, Elements of Communication, Models of Communication. Expanding scope of Nutrition Practice.

**Communication Systems** - Nature, characteristics, and types - Formal and Informal communication, Verbal and Non-verbal Communication, Approaches of Communication - One way-two way, Upward-downward, Horizontal - vertical and Interpersonal Communication - Concept, types and functions of interpersonal communication, Barriers of Communication.

**Total Lecture Hours** **60**

**BOOKS FOR STUDY:**

- Park K (2011). Park's Textbook of Preventive and Social Medicine, 21stEdition. M/s Banarasidas Bhanot Publishers, Jabalpur, India.
- Suryatapa Das (2016). Textbook of Community Nutrition. Academic Publishers, Kolkata.

**BOOKS FOR REFERENCES:**

- Jellife DB, Jellife ERP, Zerfas A and Neumann CG (1989). Community nutritional assessment with special reference to less technically developed countries. Oxford University Press. Oxford.
- Park K (2011). Park's Textbook of Preventive and Social Medicine, 21stEdition. M/s Banarasidas Bhanot Publishers, Jabalpur, India.
- Suryatapa Das (2016). Textbook of Community Nutrition. Academic Publishers, Kolkata.
- Wadhwa A and Sharma S (2003). Nutrition in the Community- A textbook. Elite Publishing House Pvt. Ltd. New Delhi.
- WHO (2006). Child Growth Standards: Methods and development: height-forage, weight-for-age, weight-for-length, weight-for-height, and body mass index for-age (http://www.who.int/childgrowth/standards/en/).

**WEB RESOURCES:**

- **https://books.google.co.in/books?id=o5CxDAAAQBAJ&printsec=frontcover#v=onep age&q&f=false**
- **https://nces.ed.gov/pubs/96852.pdf-**
- **http://www.fao.org/docrep/017/i3235e/i3235e.pdf**
  **http://www.fns.usda.gov/sites/default/files/NutritionEdRTC.pdf**
- **http://frac.org/wp-content/uploads/2010/10/providing_nutrition_education_afterschool.pdf**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | ✓ | SKILL ORIENTED | | ENTREPRENEURSHIP | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | ✓ | GLOBAL | |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Identify nutritional problems affecting the community | **K1 to K4** |
| **CO2** | Describe objectives of public health policies and programs offered by various agencies | **K1 to K4** |
| **CO3** | Display good communication skills needed for the conduct of the Nutrition education programs. | **K1 to K4** |
| **CO4** | Develop skills pertaining to assessment of the nutritional status. | **K1 to K4** |
| **CO5** | Plan nutrition education programs relevant to specific target groups. | **K1 to K4** |

| MAPPING WITH PROGRAM OUTCOMES: | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
| CO1 | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 2 | 1 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 3 | 3 | 2 | 1 | 3 | 3 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 1 | 1 | 3 | 3 | 3 | 3 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 1 | 2 | 3 | 3 | 3 | 3 |
| S- STRONG | | | | M – MEDIUM | | | | | L - LOW | |

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO 1 | 3 | 2 | 3 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 3 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 14 | 15 | 15 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

| LESSON PLAN: | | | |
|---|---|---|---|
| UNIT | Nutrition Education and Communication | HRS | PEDAGOGY |
| I | Nutrition Education, Concept and Scope of Public Nutrition | 12 | PPT, Chalk & Talk |
| II | Nutritional problems affecting the community | 12 | PPT, Chalk & Talk |
| III | Assessment of Nutritional Status | 12 | PPT, Chalk & Talk |
| IV | Nutrition Policy and Programs | 12 | PPT, Chalk & Talk |
| V | Community, Introduction to Communication, Communication Systems | 12 | PPT, Chalk & Talk |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | **PART – B** | | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | **PART – C** | | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| Course Name | Life Skill Strategies and Techniques | | | |
|---|---|---|---|---|
| Course Code | 23UFNEC56 | L | P | C |
| Category | Elective | 4 | - | 3 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Develop skills for a healthy personal and professional approach to life.
- Gain competency and confidence through mastery of skills needed for holist living

| | | |
|---|---|---|
| **UNIT - I** | **Communication Skills** | **12** |

Developing Listening, Speaking and Reading Skills, An introduction to Scientific Writing, Letter Writing, Usage of Non-verbal Communication. Writing for Grants- a brief Proposal, Statement of Purpose (SoP). Effective use of social media in communicating messages

| | | |
|---|---|---|
| **UNIT - II** | **Professional Skills** | **12** |

Resume Writing. Interview Skills. Group Discussions, Presentation Skills. Work-Life Balance- Strategies to achieve them, Time Management

| | | |
|---|---|---|
| **UNIT - III** | **Leadership/ Management Skills** | **12** |

Leadership skills, Managerial skills, Team building, Entrepreneurial skills, Ethics and Integrity

| | | |
|---|---|---|
| **UNIT - IV** | **Basic Lifestyle-related Skills** | **12** |

Healthy eating using simple cooking practices, Home makeover skills, Basics in Gardening, Stress Management- Yoga and Fitness practices benefits for a Holistic Life, An introduction to Martial Arts as a protective strategy.

| | | |
|---|---|---|
| **UNIT - V** | **Human Value Skills** | **12** |

Strategies and techniques to promote Non-Violence, Service to the community, developing skills pertaining to administering First Aid

| | |
|---|---|
| **Total Lecture Hours** | **60** |

**BOOKS FOR STUDY:**

- Ashokan, M. S. (2015). Karmayogi: A biography of E. Sreedharan. Penguin,UK.
- Hanson C.W. (2021). Resume Writing 2021: The ultimate guide to writing a resume that lands you the job. Independently Published, Kindle.
- Jane E., Burt S., and Nudelman G. (2018). Professional Communication: Deliver effective written, spoken and visual messages. 4th ed. Juta and Company Pvt. Ltd., Cape Town, South Africa.

**BOOKS FOR REFERENCES:**

- Kelly T., and Kelly D. (2014). Creative Confidence: Unleashing the Creative Potential Within Us All. William Collins
- Kumar S., and Lata P. (2015). Communication Skills. 2nd ed. Oxford University Press, India.
- Kurien V., and Salve G. (2012). I Too Had a Dream. Roli Books Private Limited

**WEB RESOURCES:**

- **https://www.youtube.com/watch?v=dfvkplBBO2gϖ**
- **https://www.lifestyleasia.com/ind/food-drink/dining/bookmarkthe-best-baking-youtube- channels-to-bake-like-a-pro/ϖ**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | SKILL ORIENTED | ✓ | ENTREPRENEURSHIP | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | ✓ | GLOBAL | |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Describe different skills and techniques needed to maintain a healthy personal and professional approach to life. | **K1 to K4** |
| **CO2** | Identify skills needed for a healthy lifestyle | **K1 to K4** |
| **CO3** | Explain the need to develop various skillsets for a holistic life. | **K1 to K4** |
| **CO4** | Develop confidence with respect to emotional competency, personal and professional life. | **K1 to K4** |
| **CO5** | Recommend life skill strategies for the holistic development of the individual. | **K1 to K4** |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

**S- STRONG** **M – MEDIUM** **L - LOW**

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| **COS** | **PSO1** | **PSO2** | **PSO3** | **PSO4** | **PSO5** |
| **CO 1** | **3** | **3** | **3** | **3** | **3** |
| **CO 2** | **3** | **3** | **3** | **3** | **3** |
| **CO 3** | **3** | **3** | **3** | **3** | **3** |
| **CO 4** | **3** | **3** | **3** | **3** | **3** |
| **CO 5** | **3** | **3** | **3** | **3** | **3** |
| **WEIGHTAGE** | **15** | **15** | **12** | **15** | **15** |
| **WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS** | **3** | **3** | **3** | **3** | **3** |

**LESSON PLAN:**

| UNIT | Life Skill Strategies and Techniques | HRS | PEDAGOGY |
|---|---|---|---|
| **I** | Communication Skills | **12** | **PPT, Chalk & Talk** |
| **II** | Professional Skills | **12** | **PPT, Chalk & Talk** |
| **III** | Leadership/ Management Skills | **12** | **PPT, Chalk & Talk** |
| **IV** | Basic Lifestyle-related Skills | **12** | **PPT, Chalk & Talk** |
| **V** | Human Value Skills | **12** | **PPT, Chalk & Talk** |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | **PART – B** | | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | **PART – C** | | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| **Course Name** | Internship / Industrial Training | | | |
|---|---|---|---|---|
| **Course Code** | 23UFNIN51 | **L** | **P** | **C** |
| **Category** | Summer Internship | - | - | 2 |

**COURSE OBJECTIVES:**

- Gain knowledge about food industries.
- Know various technologies involved in food industries.
- Understand different processing methods of food.
- Analyze different kinds of packaging materials of foods.
- Apply chemical, microbiological and nutritional analysis of food.

**Course Content:**

Each Group – 4 members, 1 or 2 can be added by the approval of HOD,

Area of learning – Raw material procurement, quality checking, processing & packaging

**Methods**

Record submission – A hard bound report to be submitted to the Department.

Evaluation – Internship (oral) presentation followed by a brief Viva

**Course Description**

The Project is conducted by the following Course Pattern.

| | |
|---|---|
| Internal<br>Presentation<br>Submission } | 25 |
| External<br>Internship Report<br>Viva Voce } | 75 |
| Total | 100 |

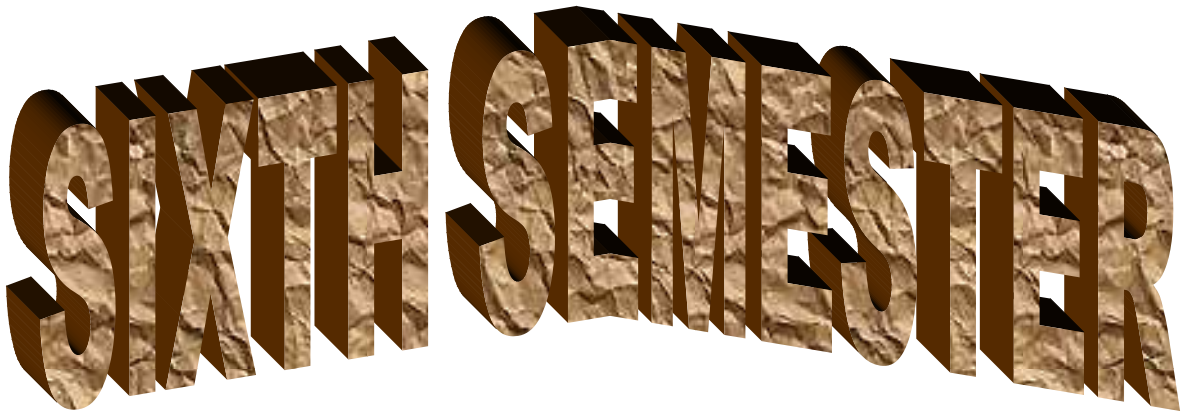
| COURSE OUTCOMES: | | K LEVEL |
|---|---|---|
| After studying this course, the students will be able to: | | |
| CO1 | Identify different analysis of food product development and storage. | K1 to K4 |
| CO2 | Explain the technologies learned throughout degree. | K1 to K4 |
| CO3 | Apply the knowledge of developing a product and evaluation. | K1 to K4 |
| CO4 | Analyze the shelf life and preservation of products. | K1 to K4 |
| CO5 | Discover new products and innovations. | K1 to K4 |

| MAPPING WITH PROGRAM OUTCOMES: | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
| CO1 | 2 | 1 | 2 | 2 | 1 | 2 | | | | |
| CO2 | 2 | 2 | 2 | 3 | 1 | 1 | | | | |
| CO3 | 3 | 1 | 1 | 1 | 2 | 1 | | | | |
| CO4 | 2 | 2 | 2 | 2 | 2 | 1 | | | | |
| CO5 | 1 | 1 | 1 | 1 | 1 | 1 | | | | |

S- STRONG M – MEDIUM L - LOW

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Nature of Course | EMPLOYABILITY | | SKILL ORIENTED | ✓ | ENTREPRENEURSHIP | | | | | |
| Curriculum Relevance | LOCAL | ✓ | REGIONAL | | NATIONAL | | GLOBAL | | | |
| Changes Made in the Course | Percentage of Change | 20 % | No Changes Made | | New Course | | | | | |

*Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.


SIXTH SEMESTER

| Course Name | Dietetics Theory | | | |
|---|---|---|---|---|
| Course Code | 23UFNCC61 | L | P | C |
| Category | Core | 6 | - | 4 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Understand the causes and symptoms and dietary management of various disease conditions.
- Gain comprehensive knowledge on principles and planning of therapeutic diets.
- Acquire knowledge on nutritional needs ofsick persons and develop aptitude and skills for taking up dietetics as a profession

| | | |
|---|---|---|
| **UNIT - I** | **Concept of diet therapy and role of dietitian** | **18** |

Concept of diet therapy and role of dietitian Principles of therapeutic diets, modification of normal diet, classification of therapeutic diets. Different feeding techniques -enteral and parenteral feeding. – Indications, contraindications and complications, Dietitian- Definition, role and code of ethics, classification of dieticians in nutritional care

| | | |
|---|---|---|
| **UNIT - II** | **Diseases of Gastrointestinal tract** | **18** |

Diseases of Gastrointestinal tract Etiology, symptoms, dietary management of: Diarrhoea, dysentery, and constipation Peptic ulcer, irritable bowel syndrome & inflammatory bowel disease (ulcerativecolitis), Crohn's disease and celiac disease

| | | |
|---|---|---|
| **UNIT - III** | **Diseases of liver, gall bladder & febrile conditions** | **18** |

Diseases of liver, gall bladder & febrile conditions Etiology, symptoms, dietary management of: Disease of liver & Gall bladder- Hepatitis, cirrhosis, gall stones Febrile conditions - Acute & Chronic fevers (Typhoid, influenza, malaria, tuberculosis, COVID)

| | | |
|---|---|---|
| **UNIT - IV** | **Metabolic disorders** | **18** |

Metabolic disorders Etiology, symptoms, and dietary management of: Obesity and PCOS Diabetes mellitus-types, symptoms and metabolic changes, treatment with diet and insulin, GI, GL, carbohydrate counting, artificial sweeteners and complications Cardiovascular diseases – hypertension, atherosclerosis.

| | | |
|---|---|---|
| **UNIT - V** | **Diseases of excretory system and cancer** | **18** |

Diseases of excretory system and cancer Etiology, symptoms, dietary management of: Glomerular nephritis Nephrotic syndrome, urinary calculi, renal failure. Cancer – Risk factors, modification of diet in cancer, nutritional problems of cancer therapy Role of antioxidants in prevention of degenerative diseases.

| | |
|---|---|
| **Total Lecture Hours** | **90** |

**BOOKS FOR STUDY:**

- Sharma.A.(2017), Principles of Therapeutic Nutrition and Dietetics, CBS Publishers &Distributors Pvt Ltd, New Delhi.
- Srilakshmi B, Dietetics (2019),8th edition, New Age International Publishing Ltd, NewDelhi
- Williams S.R, (2000) Basic Nutrition and Diet Therapy, Mosby publication.

**BOOKS FOR REFERENCES:**

- Antia F. P. (2002), Clinical Dietetics and Nutrition, 4 th edition, Oxford UniversityPress, Chennai.
- Guthrie H. A, Picciano M. F (1995) Human Nutrition, Mosby, St. Louis Missorie.
- Joshi. S.A. (2005), Nutrition and Dietetics, Tata McGraw-Hill Publishing CompanyLimited, New Delhi
- Passmore R. and Davidson S. (1986) Human nutrition and Dietetics. Liming stone publishers

**WEB RESOURCES:**

- **https://www.cdss.ca.gov/agedblinddisabled/res/VPTC2/9%20Food%20Nutrition% 20a nd%20Preparation/Types_of_Therapeutic_Diets.pdf**
- **http://www.differencebetween.net/science/health/difference-between-enteraland- parenteral-nutrition/**
- **https://www.medicinenet.com/difference_between_diarrhea_and_dysentery/articl e.html**
- **https://my.clevelandclinic.org/health/diseases/15587-inflammatory-boweldisease- overview**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | ✓ | SKILL ORIENTED | | ENTREPRENEURSHIP | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | | GLOBAL | ✓ |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | |
| ***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.** | | | | | | | | |

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Explain concepts of diet therapy and role of dietitian | **K1 to K4** |
| **CO2** | Identify the etiology symptoms and principles of dietary management for various diseases. | **K1 to K4** |
| **CO3** | Apply the principles of dietetics to plan therapeutic diets for various disease conditions. | **K1 to K4** |
| **CO4** | Examine the physiological condition of the individual and explain the role of foodsand diet in treating that condition. | **K1 to K4** |
| **CO5** | Summarize the causes, symptoms of a disease/ disorder and design a suitable diet plan using principles of nutritional management and recommend dietary allowances | **K1 to K4** |

| MAPPING WITH PROGRAM OUTCOMES: | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
| CO1 | 3 | 3 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 3 |
| CO2 | 3 | 2 | 3 | 2 | 1 | 3 | 2 | 3 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 2 | 1 | 3 | 2 | 3 | 1 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 2 | 3 | 3 |
| S- STRONG | | | | M – MEDIUM | | | | | L - LOW | |

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO 1 | 3 | 3 | 3 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 3 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 15 | 15 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

**LESSON PLAN:**

| UNIT | Dietetics Theory | HRS | PEDAGOGY |
|---|---|---|---|
| I | Concept of diet therapy and role of dietitian | 18 | PPT, Chalk & Talk |
| II | Diseases of Gastrointestinal tract | 18 | PPT, Chalk & Talk |
| III | Diseases of liver, gall bladder & febrile conditions | 18 | PPT, Chalk & Talk |
| IV | Metabolic disorders | 18 | PPT, Chalk & Talk |
| V | Diseases of excretory system and cancer | 18 | PPT, Chalk & Talk |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | | **PART – B** | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | | **PART – C** | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| | | | | |
|---|---|---|---|---|
| **Course Name** | Dietetics Practical | | | |
| **Course Code** | 23UFNCP61 | **L** | **P** | **C** |
| **Category** | Core | 6 | - | 4 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Gain knowledge and develop skills and techniques in planning and preparation of therapeutic diets.
- Plan diets based on the medical history of the patients and nutritional assessments – anthropometric measurements
- Calculate the nutrient content of diets

**Course Content**

1. Planning, Calculation of nutrient content
2. Preparation and Service of diets for: Tube feeds for special conditions
3. Fevers – Typhoid and Tuberculosis
4. Peptic Ulcer
5. Diarrhoea and constipation
6. Viral hepatitis, Cirrhosis of liver
7. Obesity
8. Diabetes Mellitus, Atherosclerosis
9. Hypertension, Chronic kidney disease
10. Covid 19 and Cancer

**BOOKS FOR STUDY:**

- William Aspden (2011) Practical skills in food science, nutrition, and dietetics
- LongvahT. , Ananthan R. , Bhaskarachary K. and Venkaiah K. Indian Food Composition Table, National Institute of Nutrition, Tarnaka, 2017
- Joan Gandy (2014) Manual of Dietetic Practice

**BOOKS FOR REFERENCES:**

- Antia, F.B. (2010), Clinical Nutrition and Dietetics, Oxford University Press, London.
- IDA. (2018), Clinical Dietetic Manual, 2nd edition, Elite Publishing House, New Delhi
- Sri Lakshmi. B.,( 2019) Dietetics, 8th Ed,New Age International Pub. Co, Chennai.
- Vimala V. (2010). Advances in Diet Therapy, 1st Ed., National Institute of Nutrition – Hyderabad.
- Bajaj .M (2019) Diet Metrics: Handbook of Food Exchanges, Norton Press, Chennai.

**WEB RESOURCES:**

- **https://nammakalvi.com/wp-content/uploads/2023/02/Namma-Kalvi-12th-Nutrition-and-Dietetics-Practical-Manual-EM-221379.pdf**
- **https://www.ignouhelp.in/ignou-mfn-05-study-material/**
- **https://www.ignouhelp.in/ignou-mscdfsm-study-material/**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | SKILL ORIENTED | ✓ | ENTREPRENEURSHIP | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | | GLOBAL | ✓ |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | List the principles of dietary management for various conditions. | **K1 to K4** |
| **CO2** | Calculate the nutrient content of the diet for various conditions and compare it. with the recommended allowances | **K1 to K4** |
| **CO3** | Apply the principles of dietary management in planning diets for various conditions. | **K1 to K4** |
| **CO4** | Justify choice of foods, preparation methods, content, and consistency for different disease conditions | **K1 to K4** |
| **CO5** | Plan and prepare diets for various disease conditions. | **K1 to K4** |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 1 | 1 | 1 | 2 | 1 | 1 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CO5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

S- STRONG M – MEDIUM L - LOW

**CO / PO MAPPING:**

| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|
| CO 1 | 3 | 3 | 2 | 2 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 2 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 13 | 14 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

**LESSON PLAN:**

| UNIT | Dietetics Practical | HRS | PEDAGOGY |
|---|---|---|---|
| I | Planning, Calculation of nutrient content | 10 | Lab |
| II | Preparation and Service of diets for: Tube feeds for special conditions | 10 | Lab |
| III | Fevers – Typhoid and Tuberculosis | 8 | Lab |
| IV | Peptic Ulcer | 10 | Lab |
| V | Diarrhoea and constipation | 10 | Lab |
| VI | Viral hepatitis, Cirrhosis of liver | 10 | Lab |
| VII | Obesity | 7 | Lab |
| VIII | Diabetes Mellitus, Atherosclerosis | 10 | Lab |
| IX | Hypertension, Chronic kidney disease | 7 | Lab |
| X | Covid 19 and Cancer | 8 | Lab |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **INTERNAL** | **COs** | **K LEVEL** | **MAJOR** | **MINOR** | **SPOTTERS** | **RECORD** | **VIVA** |
| **CI AI** | **CO1** | **K1** | | | | | **5** |
| | **CO2** | **K2** | | | | **5** | |
| | **CO3** | **K3** | | | **5** | | |
| | **CO4** | **K4** | | **5** | | | |
| | **CO5** | **K4** | **5** | | | | |
| **Question Pattern** | | No. of Questions to be asked | **2 (A-Written B-Practical Demo)** | **2 (A-Written B-Practical Demo)** | **2** | **1** | **5** |
| | | No. of Questions to be answered | **2** | **2** | **2** | **1** | **5** |
| | | Marks for each question | **A-3 B-2** | **A-3 B-2** | **5** | **10** | **1** |
| | | Total Marks for each section | **5** | **5** | **5** | **5** | **5** |

| Distribution of Marks with K Level CIA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **K Level** | **Major** | **Minor** | **Spotters** | **Record** | **Viva** | **Total Marks** | **% of Marks without choice** | **Consolidated %** |
| **CIA** | **K1** | | | | | **5** | **5** | **6.6** | **6.6** |
| | **K2** | | | | **5** | | **5** | **6.6** | **6.6** |
| | **K3** | | | **20** | | | **20** | **26.6** | **26.6** |
| | **K4** | | **20** | | | | **20** | **26.6** | **26.6** |
| | **K4** | **25** | | | | | **25** | **33.3** | **33.3** |
| | **Marks** | **25** | **20** | **20** | **5** | **5** | **75** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application-oriented- Solving Problems

**K4**- Examining, analyzing, presenting and making inferences with evidence

**CO5 will be allotted for individual Assignments, which carry five marks as part of the CIA component.**

| Summative Examination – Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **EXTERNAL** | **COs** | **K LEVEL** | **MAJOR** | **MINOR** | **SPOTTERS** | **RECORD** | **VIVA** |
| **CIAI** | **CO1** | **K1** | | | | | **5** |
| | **CO2** | **K2** | | | | **5** | |
| | **CO3** | **K3** | | | **20** | | |
| | **CO4** | **K4** | | **20** | | | |
| | **CO5** | **K4** | **25** | | | | |
| **Question Pattern** | | No. of Questions to be asked | **2 (A-Written B-Practical Demo)** | **2 (A-Written B-Practical Demo)** | **2** | **1** | **5** |
| | | No. of Questions to be answered | **2** | **2** | **2** | **1** | **5** |
| | | Marks for each question | **A-20 B-5** | **A-15 B-5** | **5** | **10** | **1** |
| | | Total Marks for each section | **25** | **20** | **20** | **5** | **5** |

| Distribution of Marks with K Level CIA | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **K Level** | **Major** | **Minor** | **Spotters** | **Record** | **Viva** | **Total Marks** | **% of Marks without choice** | **Consolidated %** |
| **CIA** | **K1** | | | | | **5** | **5** | **6.6** | **6.6** |
| | **K2** | | | | **5** | | **5** | **6.6** | **6.6** |
| | **K3** | | | **20** | | | **20** | **26.6** | **26.6** |
| | **K4** | | **20** | | | | **20** | **26.6** | **26.6** |
| | **K4** | **25** | | | | | **25** | **33.3** | **33.3** |
| | **Marks** | **25** | **20** | **20** | **5** | **5** | **75** | **100** | **100** |

| Course Name | Quantity Food Production and Service | | | |
|---|---|---|---|---|
| Course Code | 23UFNCC62 | L | P | C |
| Category | Core | 6 | - | 4 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Acquaint with the type and operation of food service establishments.
- Familiarise with the different types of menus and styles of service.
- Foster entrepreneurship skills

**UNIT - I Food Service Industry** **18**

History of development of food service institution in India. Classification of food service establishments – Commercial -Transport catering, Hotels, Restaurants, Outdoor catering and Non-commercial / Welfare - Hospital, Institutional -School / College, Orphanage / Old age homes, prisons, Industrial catering. Food Service systems - conventional, ready–prepared, commissary, assembly-serve

**UNIT - II Quantity food production** **18**

Production forecasting, planning, production scheduling; Standardization of recipes definition, need, uses, methods of enlargement of recipes. Portion control, effective use of left-overs.

**UNIT - III Menu Planning** **18**

Menu – origin, definition and functions of menu, importance of planning menus, factors affecting menu planning, French classical menu. Types of menu - A la carte, Table d' hote, Du jour, static, cyclic, single use, construction and writing menu, menu display. Basic terminologies in food service relating to stocks, soups, sauces, salads and beverages - alcoholic and non-alcoholic.

**UNIT - IV Food and Beverage** **18**

Service Table Setting - Mise-en-scene, Mise-en-place, Basic rules for laying a table, Cover – definition, A la Carte cover and Table d' hote cover. Food service personnel: basic technical skills, inter-personal skills, attributes of food and beverage personnel. Duties of a waiter- before guests arrive, when guests arrive, during the meal and after guests leave, rules for waiting at table. Styles of Service - Table Service - Waiter – Silver / English, Family, American, French, Russian, Gueridon; Bar Counter, Assisted- Carvery, Buffet, Self-service-Cafeteria - Counter, Free-flow, Echelon, Supermarket, Single-point Service- Takeaway, Drive-thru, Fast food; Vending; Kiosks; Food court , In- situ Service- Tray, Trolley, Home delivery, Lounge, Room, Drive-in.

**UNIT - V Entrepreneurship in catering** **18**

Entrepreneurship–concept and significance Entrepreneur-definition, characteristics and classification. Food start up, Start -up process, steps, opportunities and challenges, problems faced by women entrepreneurs.

**Total Lecture Hours** **90**

**BOOKS FOR STUDY:**

- Sethi, Mohini, Malhan, Surjeet. (2015). Catering Management – An Integrated Approach, 3rd ed, New Age International Publishers, New Delhi.
- June Payne-Palacio, Monica Theis, Introduction to Foodservice (2009), 11th illustrated,Published by Pearson/Prentice Hall.
- Dhawan and Vijay. (2001). Food and Beverage Service, Frank Boss and Co, New Delhi.

**BOOKS FOR REFERENCES:**

- Suganthi, V and Premakumari, C. (2017). Food Service Management, Dipti Press (OPC) Pvt. Ltd, Chennai.
- Andrews and Sudhir. (2000). Introduction to Hospitality Industry, Tata-McGraw Hill Pub. Co., New Delhi.
- Foskett David. (2011). The Theory of Hospitality and Catering, Hodder Education, London.

**WEB RESOURCES:**

- **https://www.scribd.com/document/119449120/History-of-Food-Service-Industry**
- **https://sirvo.com/**
- **https://www.yaaka.cc/unit/types-of-catering-establishment/**
- **https://www.scribd.com/doc/24003230/Unit-1-Food-and-Beverage-Service-Management**
- **https://www.universalclass.com/.../types-of-service-and-table-settings-in-waiter**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | SKILL ORIENTED | | ENTREPRENEURSHIP | ✓ | | | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | ✓ | GLOBAL | | | | |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | | | | |
| ***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.** | | | | | | | | | | | |

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Identify and differentiate the types of food service sectors. | **K1 to K4** |
| **CO2** | Develop skills to formulate and standardize recipes from various cuisines | **K1 to K4** |
| **CO3** | Demonstrate skills in quantity food production. | **K1 to K4** |
| **CO4** | Distinguish various styles of service and identify the basic technical skills, and interpersonal skills required for food service | **K1 to K4** |
| **CO5** | Identify the entrepreneurial ventures in food production and service. | **K1 to K4** |

| MAPPING WITH PROGRAM OUTCOMES: | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
| CO1 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 3 |
| S- STRONG | | | | M – MEDIUM | | | | | L - LOW | |

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO 1 | 3 | 3 | 3 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 3 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 15 | 15 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

| LESSON PLAN: | | | |
|---|---|---|---|
| UNIT | Quantity Food Production and Service | HRS | PEDAGOGY |
| I | Food Service Industry | 18 | PPT, Chalk & Talk |
| II | Quantity food production | 18 | PPT, Chalk & Talk |
| III | Menu Planning | 18 | PPT, Chalk & Talk |
| IV | Food and Beverage | 18 | PPT, Chalk & Talk |
| V | Entrepreneurship in catering | 18 | PPT, Chalk & Talk |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | **PART – B** | | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | **PART – C** | | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| Course Name | Functional Food for Chronic Disease | | | |
|---|---|---|---|---|
| Course Code | 23UFNEC61 | L | P | C |
| Category | Elective | 5 | - | 3 |

**COURSE OBJECTIVES:**

- Gain a basic understanding of functional foods and their use in managing chronic diseases.
- Understand the properties and functions of active compounds in functional foods.
- Identify the potential sources of functional foods that could be beneficial in the management of specific chronic diseases.

**UNIT - I Introduction** **15**

Functional foods - Definition, History, types and classification of functional foods,Relation of functional foods (FF) to chronic diseases.

**Food sources**

Functional foods in different foods: cereal products (oats, wheat bran, rice bran, etc.), fruits and vegetables, milk and milk products, legumes, nuts, oil seeds and sea foods, herbs, spices and medicinal plants. Coffee, tea and other beverages as functional foods/drinks and their protective effects.

**UNIT - II Antioxidants** **15**

Concept of free radicals and antioxidants, antioxidant role as functional foods. Antioxidant and chronic diseases. Properties and functions of various functional food ingredients - Protein, complex carbohydrates (dietary fiber) as functional food ingredients; probiotic, prebiotics and symbiotic foods, and their functional role. Sources and role of isoprenoids, isoflavones, flavonoids, carotenoids, tocotrienols, chlorophyll, polyunsaturated fatty acids, lecithin, choline, terpenoids, Glucosamine, lycopene, proanthocyanins.

**UNIT - III Functional foods and cardiovascular diseases (CVD)** **15**

Epidemiology of cardiovascular diseases, Biomarkers of different cardiovascular diseases, effect of functional foods on biomarkers of CVD, Effect of functional foods like green tea, grapes, oats, soybean, sunflower seeds or pumpkinseeds on CVD

**UNIT - IV Functional foods and cancer** **15**

Functional Food Components in Cancer Disease, Effect of functional foods like cruciferous vegetables, green tea, garlic, walnuts, berries on cancer.

Functional foods and renal diseases - Epidemiology of kidney disease, functional foods for kidney diseases, Effect of functional foods like garlic, buckwheat on kidney.

**UNIT - V Functional foods and obesity** **15**

Functional foods and obesity, biomarkers of obesity, bioactive compounds in functional foods to manage healthy weight. Effect of functional foods like dietary fibres, psyllium husk, apple on obesity.

Functional foods and diabetes - Epidemiology of Diabetes, Functional Foods for Type 2 diabetes, effect of functional foods like turmeric, garlic, green tea, dietary fibre on diabetes.

**Total Lecture Hours** **75**

**BOOKS FOR STUDY:**

- Maurya, Neelesh. (2023). Functional Foods, nutraceuticals, and Fortified Foods in Human Health and Disease Prevention. 10.22271/ed.book.2368.
- Mohan, S., Abdollahi, S., & Pathak, Y. (Eds.). (2023). Applications of Functional Foods and Nutraceuticals for Chronic Diseases: Volume I (1st ed.). CRC Press. https://doi.org/10.1201/9781003220053
- Sharma, Manisha & C. S., Vidhya & Ojha, Komal & B S, Yashwanth & Singh, Barinderjit& Gupta, Soni & Pandey, Shivam. (2024). The Role of Functional Foods and Nutraceuticals in Disease Prevention and Health Promotion. European Journal of Nutrition & Food Safety. 16. 61-83. 10.9734/ejnfs/2024/v16i21388.

**BOOKS FOR REFERENCES:**

- Cho S. S. and Dreher, M.L. (2001): Handbook Dietary Fibre, Marcel Dekker Inc.,New York.
- Gibson, G.R. and C.M.Willams (2000), "Functional Foods : Concept to Product".Woodhead.
- Giuseppe Mazza (1998), "Functional Foods: Biochemical and Processing Aspects", Volume 1; CRC Press
- Goldberg, I. Ed (1994): Functional Foods: Designer Foods, Pharma Foods, Nutraceuticals, Chapman & Hall, New York.
- Ikan, Raphael (2005), "Natural Products: A Laboratory Guide", 2nd Edition, Academic Press / Elsevier.
- Webb, P P (2006), "Dietary Supplements and Functional Foods". Blackwell.
- Wildman, Robert E.C (2006), "Handbook of Nutraceuticals and Functional Foods".CRC.

**WEB RESOURCES:**

- **https://youtu.be/uFf0zxQ3rBU**
- **http://epgp.inflibnet.ac.in/Home/Download**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | ✓ | SKILL ORIENTED | | ENTREPRENEURSHIP | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | | GLOBAL | ✓ |
| **Changes Made in the Course** | Percentage of Change | **55** | No Changes Made | | New Course | | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| COURSE OUTCOMES: | | K LEVEL |
|---|---|---|
| After studying this course, the students will be able to: | | |
| CO1 | Define functional foods and recall the components of functional foods and their health Benefits. | K1 to K4 |
| CO2 | List out different functional foods, properties, and their functions. | K1 to K4 |
| CO3 | Explain the impact of functional foods in the prevention and management of CVD and kidney diseases. | K1 to K4 |
| CO4 | Evaluate the role of functional foods in the prevention and management of cancer. | K1 to K4 |
| CO5 | Summarize the role of functional foods in the prevention and management of obesity and type 2 diabetes mellitus. | K1 to K4 |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 3 |

S- STRONG M – MEDIUM L - LOW

**CO / PO MAPPING:**

| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|
| CO 1 | 3 | 3 | 3 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 3 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 15 | 15 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

**LESSON PLAN:**

| UNIT | Functional Food for Chronic Disease | HRS | PEDAGOGY |
|---|---|---|---|
| I | Introduction | 15 | PPT, Chalk & Talk |
| II | Antioxidants | 15 | PPT, Chalk & Talk |
| III | Functional foods and cardiovascular diseases (CVD) | 15 | PPT, Chalk & Talk |

| | | | |
|---|---|---|---|
| **IV** | Functional foods and cancer | **15** | **PPT, Chalk & Talk** |
| **V** | Functional foods and obesity | **15** | **PPT, Chalk & Talk** |

| **Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs)** | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A<br>MCQs** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| **Distribution of Marks with K Level CIA I & CIA II** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **S. No** | **COs** | **K - Level** | **Section A (MCQs)** | | **Section B (Either / or Choice) With K - LEVEL** | **Section C (Either / or Choice) With K - LEVEL** |
| | | | **No. of Questions** | **K – Level** | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | **PART – B** | | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | **PART – C** | | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| | | | | |
|---|---|---|---|---|
| **Course Name** | Food Preservation Theory | | | |
| **Course Code** | 23UFNEC62 | **L** | **P** | **C** |
| **Category** | Elective | 5 | - | 3 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Gain knowledge on principles of food preservation of foods
- Understand the techniques used in processing foods to preserve their shelf life
- Apply skills learnt to develop preserved food product

| | | |
|---|---|---|
| **UNIT - I** | **Food Spoilage & Food preservation** | **15** |

Food Spoilage - Definition, causes, microorganisms involved in spoilage of bread,fruits and vegetables, meat, fish, egg, milk, juices and pickles. Food preservation - Definition, principles and importance, classification – bactericidal and bacteriostatic methods.

| | | |
|---|---|---|
| **UNIT - II** | **Processing by high temperature** | **15** |

Processing and preservation by high temperature: blanching, pasteurization, sterilization and UHT processing, canning, extraction cooking, dielectric heating, Dehydration.

| | | |
|---|---|---|
| **UNIT - III** | **Processing by low temperature** | **15** |

Processing and preservation by low temperature – refrigeration, freezing, dehydro-freezing.

| | | |
|---|---|---|
| **UNIT - IV** | **Preservation by drying** | **15** |

Processing and preservation by drying, concentration and evaporation: various methodssun – drying, tray or tunnel drying, spray drying, drum drying freeze drying, fluidized bed drying, advantages and disadvantages

| | | |
|---|---|---|
| **UNIT - V** | **Preservation by non - thermal treatments and food packaging** | **15** |

Processing and preservation by non – thermal methods: salt, sugar, chemicals, smoking.Irradiation Food additives: Definition, types and functions, permissible limits and safety aspects. Food packaging- its types and uses

| | |
|---|---|
| **Total Lecture Hours** | **75** |

**BOOKS FOR STUDY:**

- Rahman M S (2020) Handbook of Food Preservation CRC Press, USA
- Srilakshmi B (2017) Food Science, New Age International Publications, New Delhi.
- Suganthi.V and Subaratinam.R (2021) Textbook on Food preservation, Dipti Press(OPC) Pvt. Ltd, Chenna

**BOOKS FOR REFERENCES:**

- Arthey, D and Ashurst, P.R (1996), Fruit processing, Blackie academic and professional. London.
- Fellows, P.J (2016): Food Processing Technology: Principles and Practice, second edition, CRC Wood head publishing Ltd, Cambridge.
- Gould. G.W (1995), New methods of food preservation. Blackie academic and professional. London.

**WEB RESOURCES:**

- **https://www.sciencedirect.com/topics/agricultural-and-biologicalsciences/food- spoilage.**
- **http://ecoursesonline.iasri.res.in/mod/page/view.php?id=111436**
- **http://ecoursesonline.iasri.res.in/mod/page/view.php?id=111435**
- **http://www.homepreservingbible.com/2247-an-introduction-to-the-drying-foodpreservation-method/**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | | SKILL ORIENTED | | | ENTREPRENEURSHIP | | ✓ | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | ✓ | NATIONAL | | | GLOBAL | | | |
| **Changes Made in the Course** | Percentage of Change | **10 %** | | No Changes Made | | | New Course | | | | |
| ***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.** | | | | | | | | | | | |

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Define and explain the principles of food preservation and relate the role of microorganisms in food spoilage | **K1 to K4** |
| **CO2** | Explain the causes of food spoilage, need and principles of food preservation | **K1 to K4** |
| **CO3** | Apply the various techniques of food preservation to preserve different foods so as to increase the shelf life of foods | **K1 to K4** |
| **CO4** | Compare the principles and techniques of various food preservation methods and explain the role of packaging in food processing | **K1 to K4** |
| **CO5** | Justify the use of various preservation techniques, and packaging materials describe the terms related to food preservation and classify foods based on the shelf life. | **K1 to K4** |

| MAPPING WITH PROGRAM OUTCOMES: | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
| CO1 | 3 | 2 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 3 |
| S- STRONG | | | | M – MEDIUM | | | | | L - LOW | |

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO 1 | 3 | 3 | 3 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 3 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 15 | 15 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

| LESSON PLAN: | | | |
|---|---|---|---|
| UNIT | Food Preservation Theory | HRS | PEDAGOGY |
| I | Food Spoilage & Food preservation | 15 | PPT, Chalk & Talk |
| II | Processing by high temperature | 15 | PPT, Chalk & Talk |
| III | Processing by low temperature | 15 | PPT, Chalk & Talk |
| IV | Preservation by drying | 15 | PPT, Chalk & Talk |
| V | Preservation by non - thermal treatments and food packaging | 15 | PPT, Chalk & Talk |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | | **PART – B** | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | | **PART – C** | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| Course Name | Introduction to Fashion Designing | | | |
|---|---|---|---|---|
| Course Code | 23UFNEC63 | L | P | C |
| Category | Elective | 5 | - | 3 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Understand the basic concepts of fashion design clothing psychology and wardrobe planning.
- Acquire knowledge on design elements and colour psychology.

| | | |
|---|---|---|
| **UNIT - I** | **Introduction to fashion designing** | **15** |

Terms related to the fashion industry – fashion, style, fad, classic, and collection, chic, Custom made, mannequin, fashion show, trend, forecasting, high fashion, fashion cycle, haute couture, fashion director, fashion editor, line, knock-off, avant-garde, bridge, buying house, apparel, fashion merchandising, pret – a – porter

| | | |
|---|---|---|
| **UNIT - II** | **Design** | **15** |

a) Design- definition and types – structural and decorative design, requirements of a good structural and decorative design. Application of structural and decorative design in a dress, selection and application of trimmings and decorations. b) Elements of design – line, shape or form, colour, size and texture. c) Principles of design- balance – formal and informal, rhythm- through repetition, radiation and gradation, emphasis, harmony and proportion. Application of principles of design in a dress.

| | | |
|---|---|---|
| **UNIT - III** | **Colour** | **15** |

a) Colour- definition, colour theories- prang colour chart and Munsell colour system, b) Dimensions of colour- hue, value, and intensity. c) Colour harmonies- types and its application in dress design.

| | | |
|---|---|---|
| **UNIT - IV** | **Figure drawing and analysis** | **15** |

a) Basic human proportions, Anatomy and model drawing 8, 10, 12 head theory, Straight, flesh, motion posture. b) Figure analysis and designing dresses for stout figure, thin figure, slender figure, narrow shoulders, broad shoulders, round shoulders, large bust, flat chest, large hip, large abdomen, round face, large face, small face, prominent chin and jaw, prominent forehead

| | | |
|---|---|---|
| **UNIT - V** | **Wardrobe planning** | **15** |

c) Wardrobe planning for different age groups, factors influencing wardrobe selection, Fashion and season, d) Designing dresses based on different occasions – business meetings, parties/ dinners, evenings/leisure hours, wedding, functions, sports, uniforms for civil service, airhostess, hoteliers, schools – girls and boys

| | |
|---|---|
| **Total Lecture Hours** | **75** |

**BOOKS FOR STUDY:**

- Sumathi, G.J. (2002) Elements of Fashion and Apparel Design. New Age International Publishers, New Delhi.
- Gini Stephens Frings (1999) Fashion – From Concept to Consumer . 6th edition, Prentice Hall.

**BOOKS FOR REFERENCES:**

- Gerry Cooklin (2003) Pattern grading for women's clothes, the technology of sizing, Black well science Ltd, USA
- Kaur N (2010) Comdex Fashion Design: Fashion Concepts - Vol. 1, Dream tech Press,Delhi.

**WEB RESOURCES:**

- **https://purushu.com/2010/08/elements-of-design-in-fashion.html**
- **https://vanseodesign.com/web-design/color-meaning/**
- **http://bieap.gov.in/Pdf/FGMPaperI.pdf**
- **http://textilelearner.blogspot.com/2015/07/drafting-procedures-of-line-frock.html**
- **http://textilelearner.blogspot.com/2015/06/drafting-procedures-of-ladies-kurti.html**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | SKILL ORIENTED | | ENTREPRENEURSHIP | ✓ | | |
| **Curriculum Relevance** | LOCAL | ✓ | REGIONAL | | NATIONAL | | GLOBAL | |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Identify the right choice of colour, design used in apparel designing | **K1 to K4** |
| **CO2** | Explain the concepts related to the design and colour in apparel designing | **K1 to K4** |
| **CO3** | Demonstrate the methodology to be followed in effectively using the principles of design, elements of design and colour harmonies while designing a garment | **K1 to K4** |
| **CO4** | Identify suitable designs according to the figure of the wearer and the occasion intended. | **K1 to K4** |
| **CO5** | Develop skills to draw designs suitable according to the body type and plan wardrobe. | **K1 to K4** |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |

**S- STRONG** **M – MEDIUM** **L - LOW**

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| **COS** | **PSO1** | **PSO2** | **PSO3** | **PSO4** | **PSO5** |
| **CO 1** | **3** | **3** | **3** | **3** | **3** |
| **CO 2** | **3** | **3** | **3** | **3** | **3** |
| **CO 3** | **3** | **3** | **3** | **3** | **3** |
| **CO 4** | **3** | **3** | **3** | **3** | **3** |
| **CO 5** | **3** | **3** | **3** | **3** | **3** |
| **WEIGHTAGE** | **15** | **15** | **15** | **15** | **15** |
| **WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS** | **3** | **3** | **3** | **3** | **3** |

**LESSON PLAN:**

| UNIT | Introduction to Fashion Designing | HRS | PEDAGOGY |
|---|---|---|---|
| **I** | Introduction to fashion designing | **15** | **PPT, Chalk & Talk** |
| **II** | Design | **15** | **PPT, Chalk & Talk** |
| **III** | Colour | **15** | **PPT, Chalk & Talk** |
| **IV** | Figure drawing and analysis | **15** | **PPT, Chalk & Talk** |
| **V** | Wardrobe planning | **15** | **PPT, Chalk & Talk** |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | **PART – B** | | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | **PART – C** | | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| | | | | |
|---|---|---|---|---|
| **Course Name** | Food Service Management | | | |
| **Course Code** | 23UFNEC64 | **L** | **P** | **C** |
| **Category** | Elective | 5 | - | 3 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Gain basic understanding of organizing and managing a food service institution.
- Impart knowledge regarding purchase and storage of food to ensure quality service.
- Familiarize with the layout of food service outlet and food service equipment.

**UNIT - I Organization Management** **15**

Types of Organization, Management - definition, principles, functions and tools of management-Tangible tools-organization chart, job description, job specification, job analysis, work schedule, Intangible tools-budget, leadership styles, decision making, and communication skills**.**

**UNIT - II Personnel Management** **15**

Definition, functions of personnel department, Recruitment sources, Selection- steps, Induction - definition, methods, uses,

Training- advantages, methods, supervision, performance appraisal, promotion, demotion, transfer, retirement, termination and dismissal of employees.

Labor laws pertaining to the food service establishment.

**UNIT - III Food Management** **15**

**Food purchase** – purchasing process, functions of food buyer, methods of buying open market, formal, negotiated, wholesale, blanket order, contract.

**Storage in Food service** – types of stores, storeroom management, purchase, stores records- Physical and perpetual inventory order form, requisition slip, invoice, goods received book, stock book, bin card, stores ledger

**UNIT - IV Plant and equipment management** **15**

Layout of a food service, planning of storage, production and service areas, concepts of workflow and work simplification technique. Environmental hygiene-pest control-types of pests and pest control methods; garbage disposal method.

**Safety** in food service institution - Accidents - causes and prevention.

**Equipment** in food service - Classification of equipment, factors affecting selection of equipment.

**UNIT - V Financial Management** **15**

**Financial Management**

**Book- keeping** – definition, advantages of double entry system, books of accounts– an introduction.

**Costing and Cost control:** Basic cost concepts – elements of cost (material, labour, overheads), behavior of cost (fixed, variable, semi-fixed / semi-variable), methods of costing (Dish, meal, menu costing & costing for events), cost control, concept of break-even, break-even point.

**Pricing** - factors affecting pricing, pricing methods (cost plus, factor, rate of return, subsidy, discount).

**Total Lecture Hours** **75**

**BOOKS FOR STUDY:**

- Sethi, Mohini, Malhan, Surjeet. (2015). Catering Management – An Integrated Approach, 3 rd ed, New Age International Publishers, New Delhi. 67
- Suganthi, V and Premakumari, C. (2017). Food Service Management, Dipti Press (OPC) Pvt. Ltd, Chennai.
- Verghese and Brian. (2000). Professional Food and Beverage Service Management, Macmillan India Ltd., India.

**BOOKS FOR REFERENCES:**

- Andrews and Sudhir. (2000). Introduction to Hospitality Industry, Tata-McGraw Hill Pub. Co., New Delhi.
- Dhawan and Vijay. (2001). Food and Beverage Service, Frank Boss and Co, NewDelhi.
- Foskett David. (2011). The Theory of Hospitality and Catering, Hodder Education, London.
- Lillicarp, D.R. and Cousins, J. (2010). Food and beverage Service, 8 th edition, Hodder Education, London.
- Sethi, Mohini, Malhan, Surjeet. (2015). Catering Management – An Integrated Approach, 3 rd ed, New Age International Publishers, New Delhi. 67
- Suganthi, V and Premakumari, C. (2017). Food Service Management, Dipti Press (OPC) Pvt. Ltd Chennai.
- Verghese and Brian. (2000). Professional Food and Beverage Service Management, Macmillan India Ltd., India.

**WEB RESOURCES:**

- **http://open.lib.umn.edu/principlesmanagement/chapter/1-5-planningorganizing- leading-and-controlling**
- **https://www.managementstudyguide.com/management_functions.htm**
- **http://www.bngkolkata.com/web/food-and-beverage-service-equipment/**
- **http://www.fcijammu.org/food/food/orders/F&B%20Service-Unit-2.pdf**
- **https://www.scribd.com/doc/29362905/Equipments-in-Food-amp-Beverage**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | SKILL ORIENTED | ✓ | ENTREPRENEURSHIP | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | ✓ | GLOBAL | |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Apply the principles, tools of management to ensure for effective functioning of organization. | **K1 to K4** |
| **CO2** | Develop the managerial skills to select, train, appraise human resources. | **K1 to K4** |
| **CO3** | Recognize the use and operation of equipment and acquire skills in the selectionof equipment, sketch sample lay out of the food service units. | **K1 to K4** |
| **CO4** | Evaluate and implement food safety and environmental sanitation in the workspace | **K1 to K4** |
| **CO5** | Use the basic concept of bookkeeping and elements of cost to assess the financial viability of the organization. | **K1 to K4** |

| MAPPING WITH PROGRAM OUTCOMES: | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
| CO1 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 |
| CO3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 |
| CO4 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 3 |
| S- STRONG | | | | M – MEDIUM | | | | | L - LOW | |

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO 1 | 3 | 3 | 3 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 3 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 15 | 15 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

| LESSON PLAN: | | | |
|---|---|---|---|
| UNIT | Food Service Management | HRS | PEDAGOGY |
| I | Organization Management | 15 | PPT, Chalk & Talk |
| II | Personnel Management | 15 | PPT, Chalk & Talk |
| III | Food Management | 15 | PPT, Chalk & Talk |
| IV | Plant and equipment management | 15 | PPT, Chalk & Talk |
| V | Financial Management | 15 | PPT, Chalk & Talk |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | **PART – B** | | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | **PART – C** | | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| | | | | |
|---|---|---|---|---|
| **Course Name** | Concepts In Apparel Designing | | | |
| **Course Code** | 23UFNEC65 | **L** | **P** | **C** |
| **Category** | Elective | 5 | - | 3 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- Understand the essential tools used for apparel designing
- Acquire knowledge on the basic construction techniques

| | | |
|---|---|---|
| **UNIT - I** | **Introduction and basic hand stitches** | **15** |

a) Parts, functions, attachments and use and care of a Sewing machine. Minor troubles and solutions encountered while sewing. b) Tools used for clothing construction– cutting tools, measuring tools, marking tools, general tools, pressing tools. c) Basic hand stitches- temporary and permanent stitches. d) Hems – types, different stitches used

| | | |
|---|---|---|
| **UNIT - II** | **Basic construction techniques- seams and fullness** | **15** |

a) Seams and seam finishes – types, working of seams and seam finishes. b) Fullness- definition, types- darts, tucks, pleats, flares and godets, gathers and shirrs, frills or ruffles, flounces

| | | |
|---|---|---|
| **UNIT - III** | **Basic construction techniques- Plackets and Fasteners** | **15** |

a) Plackets – definition, characteristics of a good placket, types – inconspicuous placket and conspicuous plackets. Method of constructing the same. b) Fasteners – conspicuous (Button and button-holes, button loops, button with holes, shank buttons, eyelets and cords). Inconspicuous (press buttons, hooks and eyes, zips)

| | | |
|---|---|---|
| **UNIT - IV** | **Basic construction techniques-sleeves and neckline** | **15** |

a) Sleeves – definition, types, set-in-sleeves – plain sleeve, puff sleeve, bishop sleeve, bell, circular, cap sleeve and magyar sleeve. b) Sleeve and bodice combined – raglan, kimono and dolman. c) Modified armhole – squared armhole. d) Collars – definitions, types of collars- peter pan, scalloped, puritan, sailor, square, rippled, full shirt collar, open collar, chinese, turtleneck, shawl collar e) Yokes – types,simple yoke, yoke with fullness within the yoke, yoke supporting/ releasing fullness

| | | |
|---|---|---|
| **UNIT - V** | **Basic construction techniques - Pockets, Facing and Binding** | **15** |

Pockets – definition, types of pockets – patch pocket, bound pocket, pocket in a seam, front hip pocket. b) Facings – bias facing, shaped facing and decorative facing and Binding – single bias binding, double bias binding.

| | |
|---|---|
| **Total Lecture Hours** | **75** |

**BOOKS FOR STUDY:**

- Dorothy Wood (2007) The Practical Encyclopedia Of Sewing. ai nIblioOticPl uPdiO
- Claire B. Shaeffer (2011) Couture Sewing Techniques. Taunton Press Inc, USA

**BOOKS FOR REFERENCES:**

- Matthews J (2018) Pattern Design: Fundamentals: Construction and Pattern Making for Fashion Design. Fairbanks Publishing,USA
- Adele M (2019) The Dressmaking Book: A Simplified Guide for Beginners. Echo Point Books and Media, USA

**WEB RESOURCES:**

- **http://www.sewingsupport.com/seam-finishes.html**
- **http://vintagesewing.info/1930s/33-pt/pt-02.html**
- **http://www.stitchplaystudio.com/AnnouncementRetrieve.aspx?ID=521146**
- **http://aces.nmsu.edu/pubs/c/C-233.html**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | SKILL ORIENTED | ✓ | ENTREPRENEURSHIP | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | ✓ | NATIONAL | | GLOBAL | |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Identify the right choice of sewing tools, sewing machine, hand stitches, sleeves, pockets, collars, plackets and fullness | **K1 to K4** |
| **CO2** | Describe the concepts related to the basic construction techniques for garment construction | **K1 to K4** |
| **CO3** | Demonstrate the steps to be followed in designing an apparel considering the overall appearance of the garment | **K1 to K4** |
| **CO4** | Explain the functions and the role of sewing machine, basic hand stitches, fullness, plackets, pockets, sleeves, yoke and collars used in apparel construction | **K1 to K4** |
| **CO5** | Construct garments in various styles from the knowledge gained | **K1 to K4** |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 |

**S- STRONG** **M – MEDIUM** **L - LOW**

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| **COS** | **PSO1** | **PSO2** | **PSO3** | **PSO4** | **PSO5** |
| **CO 1** | **3** | **3** | **3** | **3** | **3** |
| **CO 2** | **3** | **3** | **3** | **3** | **3** |
| **CO 3** | **3** | **3** | **3** | **3** | **3** |
| **CO 4** | **3** | **3** | **3** | **3** | **3** |
| **CO 5** | **3** | **3** | **3** | **3** | **3** |
| **WEIGHTAGE** | **15** | **15** | **15** | **15** | **15** |
| **WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS** | **3** | **3** | **3** | **3** | **3** |

**LESSON PLAN:**

| UNIT | Concepts in Apparel Designing | HRS | PEDAGOGY |
|---|---|---|---|
| **I** | Introduction and basic hand stitches | **15** | **PPT, Chalk & Talk** |
| **II** | Basic construction techniques- seams and fullness | **15** | **PPT, Chalk & Talk** |
| **III** | Basic construction techniques- Plackets and Fasteners | **15** | **PPT, Chalk & Talk** |
| **IV** | Basic construction techniques-sleeves and neckline | **15** | **PPT, Chalk & Talk** |
| **V** | Basic construction techniques - Pockets, Facing and Binding | **15** | **PPT, Chalk & Talk** |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | | **PART – B** | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | | **PART – C** | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| | | | | |
|---|---|---|---|---|
| **Course Name** | Pre - School and Crèche Management | | | |
| **Course Code** | 23UFNEC66 | **L** | **P** | **C** |
| **Category** | Elective | 5 | - | 3 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- To familiarize the students with the significance of managing the crèche and preschool
- Understand the elements involved in organization and management of creche and Preschool.
- Create awareness of functions of various authorities dealing with crèche and preschool.

**UNIT - I Concept and organization of Creche and Preschool** **15**

Crèche and preschool -Meaning, types of preschools, need, importance of organization, Elements of organization and administration. Difference between crèche and preschool, Preschool Programme - Principles of preschool programme, Framing of preschool curriculum – types of curriculum, planning activities for children, audio-visual aids for children and its importance, Activities for children: Audio-visual aid for children and its importance.

**UNIT - II Resource Management** **15**

Location, site and building, Types of rooms, Storage facilities, arrangement of room (activity centers), ventilation, lighting and safety, Provision of safe drinking water and sanitary facilities, Playground and safety aspects – indoor and outdoor games, Play equipment – types, criteria for selection, Maintenance of building-store, furniture, equipment Suggestive Low-Cost Educational Material - Teaching Aids

**UNIT - III Records and registers** **15**

Need, importance and maintenance of records and registers. Types of records (Important records) – Admission, Progress, Financial, Equipment, Correspondence, Health - sickness of child and immunization. Types of register - Attendance (Staff, children), Accounts, Stock, Staff Profile, services for children and daily diary. Methods of maintaining record of children – Cumulative and Anecdotal.

**UNIT - IV Planning of Preschool Education Activities** **15**

Skills & qualities of preschool children Introductory Games/activities for Rapport Building with Children Physical & Motor Development Gross Motor & Fine Motor Skills Essentials of Optimum Physical Development Activities /Games for Gross and Fine Motor Skills Cognitive Development Essentials for Cognitive Development Development of Basic Skills - Activities for Sensory Development, Mental Skills and Concept Development Language Development – Essentials for Language Development Games/Exercises for Language Development Activities for Language Development - Listening Skills, Reading Skills and Writing Skills Development of Science Experience & Creative Expression Areas of Creative Expression Science Experience Activities Social & Emotional Development Essentials for Social & Emotional Development Activities and games for Social-Emotional Development Games for Socio-Emotional Development

**UNIT - V Personnel Management** **15**

Role and qualities of teacher and care - taker and other staff involved in welfare and care of children, Teacher-child ratio, Need for and importance of in-service training

**Total Lecture Hours** **75**

**BOOKS FOR STUDY:**

- Ax line, V.M. (1964). Dibs in search of self. New York: Ballentine books 754
- Clarke, P. (2001). Teaching &learning: the culture of pedagogy. New York: Sage
- Thomson, C.L., Holmberg, M.C., Baer, D.M., Hodges, W. L., and Moore, S.G. (1978). An Experimental Analysis of Some Procedures to Teach Priming and Reinforcement Skills to Preschool Teachers. Monographs of the Society for Research in Child Development. 43 (4), pp 1-86.

**BOOKS FOR REFERENCES:**

- Jaya, N., & Jayapoorani. N. (2004). Participation in a nursery school – Laboratory manual for students. Coimbatore: Saradalaya.
- Tileston, D.W. (2005). Training Manual for Every Teacher, Chennai: Sage.
- TN Forces and IAPE, (2000). Pre- school Curriculum, Activity based developmentally appropriate curriculum for preschoolers. Chennai

**WEB RESOURCES:**

- **https://ddceutkal.ac.in/Syllabus/MA_Education/Paper_19.pdf**
- **https://wcd.nic.in/sites/default/files/national_ecce_curr_framework_final_03022014%20%282%29.pdf**
- **https://scert.kerala.gov.in/wp-content/uploads/2020/06/07-creche%20and%20preschool.pdf**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | | SKILL ORIENTED | | ENTREPRENEURSHIP | ✓ | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | ✓ | GLOBAL | |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Describe key Concept and organization of Creche and Preschool | **K1 to K4** |
| **CO2** | Explain Resource Management for creche and pre schools | **K1 to K4** |
| **CO3** | Understand the criteria for Records and registers maintenance | **K1 to K4** |
| **CO4** | Identify importance and Planning of Preschool Education Activities | **K1 to K4** |
| **CO5** | Introduction to Personnel Management required for creche and pre schools | **K1 to K4** |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 |
| CO2 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 |
| CO3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3 |
| CO4 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |
| CO5 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | 3 |

| S- STRONG | M – MEDIUM | L - LOW |
|---|---|---|

**CO / PO MAPPING:**

| COS | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|
| CO 1 | 3 | 3 | 3 | 3 | 3 |
| CO 2 | 3 | 3 | 3 | 3 | 3 |
| CO 3 | 3 | 3 | 3 | 3 | 3 |
| CO 4 | 3 | 3 | 3 | 3 | 3 |
| CO 5 | 3 | 3 | 3 | 3 | 3 |
| WEIGHTAGE | 15 | 15 | 15 | 15 | 15 |
| WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS | 3 | 3 | 3 | 3 | 3 |

**LESSON PLAN:**

| UNIT | Pre-School and Crèche Management | HRS | PEDAGOGY |
|---|---|---|---|
| I | Concept and organization of Crèche and Preschool | 15 | PPT, Chalk & Talk |
| II | Resource Management | 15 | PPT, Chalk & Talk |
| III | Records and registers | 15 | PPT, Chalk & Talk |
| IV | Planning of Preschool Education Activities | 15 | PPT, Chalk & Talk |
| V | Personnel Management | 15 | PPT, Chalk & Talk |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | | **Section B Either or Choice** | **Section C Either or Choice** |
| | | | **MCQs** | | | |
| | | | **No. of. Questions** | **K - Level** | | |
| **CI AI** | **CO1** | **K1 – K4** | 2 | K1,K2 | 2 (K2,K2) | 2(K3,K3) |
| | **CO2** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **CI AII** | **CO3** | **K1 – K4** | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| | **CO4** | **K1 – K4** | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| **Question Pattern CIA I & II** | | No. of Questions to be asked | 4 | | 4 | 4 |
| | | No. of Questions to be answered | 4 | | 2 | 2 |
| | | Marks for each question | 1 | | 5 | 8 |
| | | Total Marks for each section | 4 | | 10 | 16 |

| Distribution of Marks with K Level CIA I & CIA II | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either / Or Choice)** | **Section C (Either / Or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |
| **CIA II** | **K1** | 2 | | | 2 | **3.57** | 25 |
| | **K2** | 2 | 10 | | 12 | **21.42** | |
| | **K3** | | 10 | 16 | 26 | **46.42** | 46 |
| | **K4** | | | 16 | 16 | **28.57** | 29 |
| | **Marks** | **4** | **20** | **32** | **56** | **100** | **100** |

**K1**- Remembering and recalling facts with specific answers

**K2**- Basic understanding of facts and stating main ideas with general answers

**K3**- Application oriented- Solving Problems

**K4**- Examining, analyzing, presentation and make inferences with evidences

**CO5 will be allotted for individual Assignment which carries five marks as part of CIA component.**

| Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs) | | | | | | |
|---|---|---|---|---|---|---|
| S. No | COs | K - Level | Section A (MCQs) | | Section B (Either / or Choice) With K - LEVEL | Section C (Either / or Choice) With K - LEVEL |
| | | | No. of Questions | K – Level | | |
| 1 | CO1 | K1 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 2 | CO2 | K2 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 3 | CO3 | K3 | 2 | K1,K2 | 2(K2,K2) | 2(K3,K3) |
| 4 | CO4 | K4 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| 5 | CO5 | K5 | 2 | K1,K2 | 2(K3,K3) | 2(K4,K4) |
| No. of Questions to be Asked | | | 1 | | 10 | 10 |
| No. of Questions to be answered | | | 10 | | 5 | 5 |
| Marks for each question | | | 10 | | 5 | 8 |
| Total Marks for each section | | | 10 | | 25 | 40 |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | | | |

| Distribution of Marks with K Level | | | | | | |
|---|---|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Section B (Either or Choice** | **Section C (Either/ or Choice)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | 5 | | | 5 | **3.57** | 22 |
| **K2** | 5 | 20 | | 25 | **17.85** | |
| **K3** | | 30 | 32 | 62 | **44.28** | 44 |
| **K4** | | | 48 | 48 | **34.28** | 34 |
| **Marks** | **10** | **50** | **80** | **140** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | | | |

## Summative Examinations - Question Paper – Format

| Q. No. | Unit | CO | K-level | | |
|---|---|---|---|---|---|
| Answer **ALL** the questions | | | **PART – A** | **(10 x 1 = 10 Marks)** | |
| 1. | **Unit - I** | **CO1** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 2. | **Unit - I** | **CO1** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 3. | **Unit - II** | **CO2** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 4. | **Unit - II** | **CO2** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 5. | **Unit - III** | **CO3** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 6. | **Unit - III** | **CO3** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 7. | **Unit - IV** | **CO4** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 8. | **Unit - IV** | **CO4** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 9. | **Unit - V** | **CO5** | **K1** | | |
| | | | | a) | b) |
| | | | | c) | d) |
| 10. | **Unit - V** | **CO5** | **K2** | | |
| | | | | a) | b) |
| | | | | c) | d) |

| Answer **ALL** the questions | | | **PART – B** | **(5 x 5 = 25 Marks)** |
|---|---|---|---|---|
| 11. a) | **Unit - I** | **CO1** | **K2** | |
| | | **OR** | | |
| 11. b) | **Unit - I** | **CO1** | **K2** | |
| 12. a) | **Unit - II** | **CO2** | **K3** | |
| | | **OR** | | |
| 12. b) | **Unit - II** | **CO2** | **K3** | |
| 13. a) | **Unit - III** | **CO3** | **K2** | |
| | | **OR** | | |
| 13. b) | **Unit - III** | **CO3** | **K2** | |
| 14. a) | **Unit - IV** | **CO4** | **K3** | |
| | | **OR** | | |
| 14. b) | **Unit - IV** | **CO4** | **K3** | |
| 15. a) | **Unit - V** | **CO5** | **K3** | |
| | | **OR** | | |
| 15. b) | **Unit - V** | **CO5** | **K3** | |

| Answer **ALL** the questions | | | **PART – C** | **(5 x 8 = 40 Marks)** |
|---|---|---|---|---|
| 16. a) | **Unit - I** | **CO1** | **K3** | |
| | | **OR** | | |
| 16. b) | **Unit - I** | **CO1** | **K3** | |
| 17. a) | **Unit - II** | **CO2** | **K4** | |
| | | **OR** | | |
| 17. b) | **Unit - II** | **CO2** | **K4** | |
| 18. a) | **Unit - III** | **CO3** | **K3** | |
| | | **OR** | | |
| 18. b) | **Unit - III** | **CO3** | **K3** | |
| 19. a) | **Unit - IV** | **CO4** | **K4** | |
| | | **OR** | | |
| 19. b) | **Unit - IV** | **CO4** | **K4** | |
| 20. a) | **Unit - V** | **CO5** | **K4** | |
| | | **OR** | | |
| 20. b) | **Unit - V** | **CO5** | **K4** | |

| | | | | |
|---|---|---|---|---|
| **Course Name** | Professional Competency Skill Enhancement Course (Aptitude and Reasoning) | | | |
| **Course Code** | 23UFNSC61 | **L** | **P** | **C** |
| **Category** | Skill | 2 | - | 2 |

**COURSE OBJECTIVES:**

**To enable the students to :**

- To acquaint the students in quantitative aptitude and logical reasoning required for various competitive examinations.
- Gain knowledge and recognize the importance of aptitude and reasoning skill to excel in campus interviews.

| | | |
|---|---|---|
| **UNIT - I** | **Quantitative Ability (Basic Mathematics)** | **5** |

Number Systems, LCM and HCF, Simplification, Square Roots and Cube Roots, Average, Problems on Ages, Percentages, Problems on Numbers.

| | | |
|---|---|---|
| **UNIT - II** | **Quantitative Ability (Advanced Mathematics)** | **5** |

Probability, Profit and Loss, Simple and Compound Interest, Time, Speed and Distance, Time & Work, Ratio and Proportion.

| | | |
|---|---|---|
| **UNIT - III** | **Data Interpretation** | **5** |

Tables, Column Graphs, Bar Graphs, Line Charts, Pie Chart, Venn Diagrams

| | | |
|---|---|---|
| **UNIT - IV** | **Verbal and Non-Verbal reasoning** | **5** |

Analogy, Blood Relation, Directional Sense, Number and Letter Series, Coding – Decoding, Calendars, Clocks, Venn Diagrams, Mathematical Operations, logical sequence of work, Mirror-image, Water-image, Completion of incomplete pattern, Grouping of identical figures

| | |
|---|---|
| **UNIT - V** | **Logical Reasoning** |

Statement – Argument, Statement Assumptions, Statement – Course of action, Statement and Conclusions, Cause and Effect reasoning, Deriving conclusion from passages, Theme detection.

| | |
|---|---|
| **Total Lecture Hours** | **30** |

**BOOKS FOR STUDY:**

- Aggarwal, R. S. (2000). A Modern Approach to Vernbal & Non Verbal Reasoning. S. Chand.
- Sijwali, B. S and Indu Sijwali (2014). Analytical and Logical reasoning, Arihant Publications.

**BOOKS FOR REFERENCES:**

- Guha A, (2020) Quantitative Aptitude by Competitive Examinations,7 th Edition, Mcgraw Hill Education Publication.
- Rajgotra, A. & Pradhan P (2020). Wileys Exam Xpert A simpler Approach to Logical Reasoning, Willey Publications

**WEB RESOURCES:**

- **https://prepinsta.com/**
- **https://www.indiabix.com/**
- **https://www.javatpoint.com**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Nature of Course** | EMPLOYABILITY | ✓ | SKILL ORIENTED | | ENTREPRENEURSHIP | | | |
| **Curriculum Relevance** | LOCAL | | REGIONAL | | NATIONAL | ✓ | GLOBAL | |
| **Changes Made in the Course** | Percentage of Change | | No Changes Made | | New Course | ✓ | | |

***Treat 20% as each unit (20*5=100%) and calculate the percentage of change for the course.**

| **COURSE OUTCOMES:** | | **K LEVEL** |
|---|---|---|
| **After studying this course, the students will be able to:** | | |
| **CO1** | Understand the basic concepts of quantitative aptitude. | **K1 to K4** |
| **CO2** | Gain in depth knowledge on various concepts of logical reasoning skills. | **K1 to K4** |
| **CO3** | Excel and able to solve aptitude and reasoning papers in campus interview. | **K1 to K4** |
| **CO4** | Acquire satisfactory competency in use of reasoning. | **K1 to K4** |
| **CO5** | Compete efficiently in national and international level competitive exams | **K1 to K4** |

**MAPPING WITH PROGRAM OUTCOMES:**

| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 2 | 3 | 3 | 3 | 2 | 3 | 1 | 2 | 3 | 3 |
| CO2 | 2 | 3 | 3 | 3 | 2 | 3 | 1 | 2 | 3 | 3 |
| CO3 | 2 | 3 | 3 | 3 | 2 | 3 | 1 | 2 | 3 | 3 |
| CO4 | 2 | 3 | 3 | 3 | 2 | 3 | 1 | 2 | 3 | 3 |
| CO5 | 2 | 3 | 3 | 3 | 2 | 3 | 1 | 2 | 3 | 3 |

**S- STRONG** **M – MEDIUM** **L - LOW**

| CO / PO MAPPING: | | | | | |
|---|---|---|---|---|---|
| **COS** | **PSO1** | **PSO2** | **PSO3** | **PSO4** | **PSO5** |
| **CO 1** | **2** | **3** | **3** | **3** | **3** |
| **CO 2** | **2** | **3** | **3** | **3** | **3** |
| **CO 3** | **2** | **3** | **3** | **3** | **3** |
| **CO 4** | **2** | **3** | **3** | **3** | **3** |
| **CO 5** | **2** | **3** | **3** | **3** | **3** |
| **WEIGHTAGE** | **10** | **15** | **15** | **15** | **15** |
| **WEIGHTED PERCENTAGE OF COURSE CONTRIBUTION TO POS** | **2** | **3** | **3** | **3** | **3** |

**LESSON PLAN:**

| UNIT | Professional Competency Skill Enhancement Course (Aptitude and Reasoning) | HRS | PEDAGOGY |
|---|---|---|---|
| **I** | Quantitative Ability (Basic Mathematics) | **15** | **PPT, Chalk & Talk** |
| **II** | Quantitative Ability (Advanced Mathematics) | **15** | **PPT, Chalk & Talk** |
| **III** | Data Interpretation | **15** | **PPT, Chalk & Talk** |
| **IV** | Verbal and Non-Verbal reasoning | **15** | **PPT, Chalk & Talk** |
| **V** | Logical Reasoning | **15** | **PPT, Chalk & Talk** |

| Learning Outcome Based Education & Assessment (LOBE)<br>Formative Examination - Blue Print<br>Articulation Mapping – K Levels with Course Outcomes (COs) | | | | |
|---|---|---|---|---|
| **Internal** | **Cos** | **K Level** | **Section A** | |
| | | | **MCQs** | |
| | | | **No. of. Questions** | **K - Level** |
| **CI AI** | **CO1** | **K1 – K2** | **25** | **K1,K2** |
| | **CO2** | **K1 – K2** | **25** | **K1,K2** |
| **CI AII** | **CO3** | **K1 – K2** | **25** | **K1,K2** |
| | **CO4** | **K1 – K2** | **25** | **K1,K2** |
| **Question Pattern CIA I & II** | | **No. of Questions to be asked** | **50** | |
| | | **No. of Questions to be answered** | **50** | |
| | | **Marks for each question** | **1** | |
| | | **Total Marks for each section** | **50** | |

* Two Formative examinations will be conducted as a part of Continuous Internal Assessment under which, 50 MCQ's will be asked [50X1=50 marks] from any 4 CO's. (I$^{st}$ Test-2 CO's & II$^{nd}$ Test-2 CO's) in equal weightage

| Distribution of Marks with K Level CIA I & CIA II | | | | | |
|---|---|---|---|---|---|
| | **K Level** | **Section A (Multiple Choice Questions)** | **Total Marks** | **% of (Marks without choice)** | **Consolidate of %** |
| **CIA I** | **K1** | **30** | **30** | **60** | **100** |
| | **K2** | **20** | **20** | **40** | |
| | **K3** | | | | |
| | **K4** | | | | |
| | **Marks** | **50** | **50** | **100** | **100** |
| **CIA II** | **K1** | **30** | **30** | **60** | **100** |
| | **K2** | **20** | **20** | **40** | |
| | **K3** | | | | |
| | **K4** | | | | |
| | **Marks** | **50** | **50** | **100** | **100** |

**K1-** Remembering and recalling facts with specific answers

**K2-** Basic understanding of facts and stating main ideas with general answers

**K3-** Application oriented- Solving Problems

**K4-** Examining, analyzing, presentation and make inferences with evidences

**CO5** will be allotted for individual Assignment which carries five marks as part of CIA component.

| **Summative Examination – Blue Print Articulation Mapping – K Level with Course Outcomes (COs)** | | | | |
|---|---|---|---|---|
| **S. No** | **COs** | **K - Level** | **Section A (MCQs)** | |
| | | | **No. of Questions** | **K – Level** |
| **1** | **CO1** | **K1-K2** | **15** | **K1,K2** |
| **2** | **CO2** | **K1-K2** | **15** | **K1,K2** |
| **3** | **CO3** | **K1-K2** | **15** | **K1,K2** |
| **4** | **CO4** | **K1-K2** | **15** | **K1,K2** |
| **5** | **CO5** | **K1-K2** | **15** | **K1,K2** |
| **No. of Questions to be Asked** | | | **75** | |
| **No. of Questions to be answered** | | | **75** | |
| **Marks for each question** | | | **1** | |
| **Total Marks for each section** | | | **75** | |
| **(Figures in parenthesis denotes, questions should be asked with the given K level)** | | | | |

In summative examinations, 75 MCQ's will be asked [75X1=75 marks] from all 5 CO's in equal weightage.

| **Distribution of Marks with K Level** | | | | |
|---|---|---|---|---|
| **K Level** | **Section A (Multiple Choice Questions)** | **Total Marks** | **% of (Marks without choice)** | **Consolidated %** |
| **K1** | **40** | **40** | **53** | **100** |
| **K2** | **35** | **35** | **47** | |
| **K3** | | | | |
| **K4** | | | | |
| **Marks** | | **75** | **100** | **100** |
| **NB: Higher level of performance of the students is to be assessed by attempting higher level of K levels.** | | | | |