

**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.**

*(An Autonomous Institution – Affiliated to Madurai Kamaraj University)*

Re-accredited (3<sup>rd</sup> Cycle) with Grade **A+** & **CGPA 3.51** by NAAC

## **DEPARTMENT OF NUTRITION & DIETETICS**



**CBCS With OBE**

**BACHELOR OF SCIENCE**

**PROGRAMME CODE - N**

**COURSE STRUCTURE**

(w.e.f. 2022 – 2023 Batch onwards)

**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI -14.**

(An Autonomous Institution – Affiliated to Madurai Kamaraj University)

(Re –accredited (3<sup>rd</sup> cycle) with Grade A<sup>+</sup> and CGPA 3.51 by NAAC)**DEPARTMENT OF NUTRITION AND DIETETICS – UG**

(with Allied Chemistry)

**CBCS with OBE****COURSE STRUCTURE**

(w.e.f. 2022 – 2023 Batch onwards)

Semester	Part	Course Code	Title of the Course	Teaching hrs (per week)	Duration of Exam (hrs.)	Marks Allotted			Credits
						CIA	SE	Total	
I	I	22OU1TA1	<b>Part I</b> :Tamil	6	3	25	75	100	3
	II	22OU2EN1	<b>Part II</b> : English	6	3	25	75	100	3
	III	22OUND11	<b>Core</b> : Food Science - I	4	3	25	75	100	4
	III		<b>Core</b> : Lab – in - Food Science - I & II	2	-	-	-	-	-
	III	22OUNDGEND1	<b>GEC</b> :Human Physiology	6	3	25	75	100	4
	IV	22OUNDSE11	<b>SEC</b> : Spices and Herbal Nutrition	2	3	25	75	100	2
	IV	22OUNDSE12	<b>SEC</b> : Community Nutrition	2	3	25	75	100	2
	IV	22OUNDID1	<b>IDC</b> : Basic Nutrition	2	3	25	75	100	2
II	I	22OU1TA2	<b>Part I</b> : Tamil	6	3	25	75	100	3
	II	22OU2EN2	<b>Part II</b> : English	6	3	25	75	100	3
	III	22OUND21	<b>Core</b> : Food Science – II	4	3	25	75	100	4
	III	22OUND2P	<b>Core</b> : Lab – in - Food Science - I & II	2	3	40	60	100	2
	III	22OUNDGEND2	<b>GEC</b> : Food Microbiology	6	3	25	75	100	5
	IV	22OUNDSE21	<b>SEC</b> : Extension Education	2	3	25	75	100	2
	IV	22OUNDSE22	<b>SEC</b> :Textiles and Clothing	2	3	25	75	100	2
	IV	22OUNDID2	<b>IDC</b> : Food Preservation	2	3	25	75	100	2
	I	22OU1TA3	<b>Part I</b> : Tamil	6	3	25	75	100	3
	II	22OU2EN3	<b>Part II</b> : English	6	3	25	75	100	3
	III	22OUND31	<b>Core</b> : Fundamentals of Nutrition	4	3	25	75	100	4

III	III		<b>Core : Lab – in – Nutritional Biochemistry</b>	2	-	-	-	-	-
	III	<b>22OUNDGEND3</b>	<b>GEC : Bakery</b>	6	3	25	75	100	4
	III	<b>22OUNDGECH3</b>	<b>GEC : Chemistry – I Bio Chemistry</b>	4	3	25	75	100	4
	III		<b>GEC : Chemistry Practical – I Inorganic Qualitative Analysis</b>	2	-	-	-	-	-
IV	I	<b>22OUIA4</b>	<b>Part I : Tamil</b>	6	3	25	75	100	3
	II	<b>22OU2EN4</b>	<b>Part II : English</b>	6	3	25	75	100	3
	III	<b>22OUND41</b>	<b>Core : Nutritional Biochemistry</b>	4	3	25	75	100	4
	III	<b>22OUND4P</b>	<b>Core : Lab – in -Nutritional Biochemistry</b>	2	3	40	60	100	2
	III	<b>22OUNDGEND4</b>	<b>GEC : Food Preservation</b>	4	3	25	75	100	4
	III	<b>22OUNDGEND4P</b>	<b>GEC I : Practical - I Bakery and Food Preservation</b>	2	3	40	60	100	1
	III	<b>22OUNDGECH4</b>	<b>GEC : Chemistry – II Environmental and Organic Chemistry</b>	4	3	25	75	100	4
	III	<b>22OUNDGECH4P</b>	<b>GEC : Chemistry Practical - I Inorganic Qualitative Analysis</b>	2	3	40	60	100	1
V	III	<b>22OUND51</b>	<b>Core : Nutrition Through Life Cycle</b>	4	3	25	75	100	4
	III		<b>Core : Lab – in - Nutrition Through Life Cycle</b>	3	-	-	-	-	-
	III	<b>22OUND52</b>	<b>Core : Dietetics - I</b>	4	3	25	75	100	4
	III		<b>Core : Lab – in -Dietetics – I &amp; II</b>	3	-	-	-	-	-
	III		<b>DSEC I</b>	4	3	25	75	100	5
	III		<b>Dietetic Internship Project</b>	2	-	-	-	-	-
	III	<b>22OUNDGECH5</b>	<b>GEC : Chemistry – III Applied Chemistry</b>	4	3	25	75	100	4
	III		<b>GEC : Chemistry Practical - II Volumetric Analysis</b>	2	-	-	-	-	-
	IV	<b>22OUNDSE5</b>	<b>SEC : Family Resource Management</b>	2	3	25	75	100	2
	IV	<b>22OUAECEV5</b>	<b>AECC : Environmental Studies</b>	2	3	25	75	100	2
VI	III	<b>22OUND61</b>	<b>Core : Food Processing</b>	4	3	25	75	100	4
	III	<b>22OUND62</b>	<b>Core : Dietetics - II</b>	4	3	25	75	100	4
	III		<b>DSEC II</b>	4	3	25	75	100	5
	III	<b>22OUND61P</b>	<b>Core : Lab – in -Nutrition Through Life Cycle</b>	3	3	40	60	100	4
	III	<b>22OUND62P</b>	<b>Core : Lab – in -Dietetics –I &amp;II</b>	3	3	40	60	100	4
	III		<b>DSEC III</b>	2	3	20	80	100	5

III	22OUNDGEC6	<b>GEC : Chemistry – IV</b> Applied and Medicinal Chemistry	4	3	25	75	100	4
III	22OUNDGEC6P	<b>GEC : Chemistry Practical - II</b> Volumetric Analysis	2	3	40	60	100	1
IV	22OUNDSE6	<b>SEC : Child development</b>	2	3	25	75	100	2
IV	22OUAECVE6	<b>AECC: Value Education</b>	2	3	25	75	100	2
V	22OU5NS4 / 22OU5PE4	Extension Activities - NSS/Physical Education	-	3	25	75	100	1
		Total						140

**GEC** : Generic Elective Course

**SEC** : Skill Enhancement Course

**DSEC** : Discipline Specific Elective Course

**AECC**: Ability Enhancement Compulsory Course

**IDC** : Inter Disciplinary Course

**DSEC: Discipline Specific Elective Course:**

**Semester - V (DSEC– I & II – Choose any one)**

1. Food Service Management – 22OUNDDSE5A
2. Functional Foods and Nutraceuticals – 22OUNDDSE5B

**Semester – VI DSEC – II (Choose any one)**

1. Food Safety and Quality control –22OUNDDSE6A
2. Post Harvest Technology –22OUNDDSE6B

**Semester – VI DSEC– III**

Dietetic Internship Project – **22OUNDDSEPR6**

**NOTE:**

**The students are permitted to obtain additional credits (Optional)**

1. MOOCs / SWAYAM / NPTEL Courses (Online)

Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
V	Core	22OUND51	Nutrition Through Life cycle	4	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

### Course Objectives

- 1.Understand the role of nutrition in the growth and development through the lifecycle. `
- 2.know the nutritional requirements during the life cycle and RDA for different age groups.
- 3.Gain insight into the principles of effective meal planning.

#### Unit – I Nutrition during adulthood

Health, nutritional status, food pyramid, principles of menu planning, balanced diet, low cost balanced diet, Nutritional requirements, RDA.

#### Unit – II Nutrition during pregnancy

Stages of pre natal life, signs and symptoms of pregnancy, physiological changes of pregnancy, weight gain during pregnancy, nutritional requirements during pregnancy, nutrition related problems in pregnancy, complications of pregnancy, RDA.

#### Nutrition during lactation

Process of stimulation of milk production, factors influencing the volume and composition of breast milk, Nutritional requirements during lactation , RDA.

#### Unit – III Nutrition during infancy

Growth and development, nutritional allowances for infants, breast feeding VS formula feeding, introduction of weaning foods and supplementary foods, nutrition related problems and feeding pattern.

#### Nutrition during preschool

Growth and development, and nutritional requirements, nutritional related problems – PEM, Vitamin A deficiency disorder, RDA.

#### Unit – IV Nutrition during school going

Physical development, school lunch program, nutritional requirements, importance of snacks, factors influencing eating habits.

### **Nutrition during adolescence**

Change of growth, physical, changes, nutritional requirements and nutritional problems – Obesity, under weight, anemia, eating disorders, RDA.

### **Unit – V Nutrition during old age**

Physical changes, food intake, choice of foods, nutrient needs, factors affecting nutrient requirements, nutrition related problems, immunity and old age.

### **Books for study :**

- 1.SriLakshmi, B. *Dietetics*, New Age International (p) Ltd, Ninth edition Chennai, 2023.
- 2.Swaminathan, M *Essential of food and Nutrition*, Vols.I&II: Ganesh & CO., Madras, 2017.

### **Books for Reference :**

- 1.Antia F.E *Clinical Dietetics and Nutrition* Oxford university press, New Delhi, 2018.
- 2.Davidson Passmore P. and Break J.P., *Human Nutrition and Dietetics*. The English Language Book Society, Livingston, 2019.
- 3.Gopalan,C., Rama sastri, B.V and BalaSubramaniam, S.C. *Nutritive value of Indian Foods*, National Institute of Nutrition,Hyderabad,2020.
- 4.Judith,E. Brown *Nutrition Through the Life Cycle*, Wadsworth Publishing ,2016.
- 5.Krause M.V., Horch M.A *Food, Nutrition and Diet Therapy* (10<sup>th</sup> edn), W.B. Saunders company, Philadelphia, 2015.

### **Web Resources / E.Books:**

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

### **Pedagogy:**

Chalk and Talk, PPT, Group discussion, Quiz, On the spot test and Virtual labs.

### **Rationale for nature of Course:**

**Knowledge and Skill:**

To gain knowledge regarding the wise meal planning to all age groups.

To know about the relation between nutritious food and health.

**Activities to be given:**

Innovation recipes, Assignment, ppt, Quiz, Group discussion, collect different green leafy vegetables and fruits.

**Course learning Outcomes (CLO's):**

CLO	Course Outcomes Statement	Knowledge (According to Bloom's Taxonomy)
CLO1	Explain the physiological basis for nutritional needs through the human lifecycle.	K1 to K3
CLO2	Identify nutrition related concerns and complications, deficiency disorders at every stage of lifecycle .	K1 to K3
CLO3	Discuss appropriate dietary guidelines for various age groups.	K1 to K4
CLO4	Develop indigenous, value added and low cost supplementary foods.	K1 to K3
CLO5	Acquire skills to plan and prepare appropriate and sustainable diets for different age groups.	K1 to K4

**Mapping of Course Learning Outcomes (CLOs) with Program Outcomes (POs)**

	PO1	PO2	PO3	PO4	PO5	PO6
<b>CLO1</b>	1	2	3	1	2	3
<b>CLO2</b>	2	2	2	3	2	3
<b>CLO3</b>	1	3	3	3	2	3
<b>CLO4</b>	3	2	2	3	2	2
<b>CLO5</b>	2	3	3	3	2	2

**1-Basic Level****2- Intermediate Level****3- Advanced Level**

**LESSON PLAN : TOTAL HOURS (60 HRS)**

<b>Unit</b>	<b>Description</b>	<b>Hrs</b>	<b>Mode</b>
1.	<b>Unit – I Nutrition during adulthood :</b> Health, nutritional status, food pyramid, principles of menu planning, balanced diet, low cost balanced diet, Nutritional requirements, RDA.	9	Chalk and talk, Group Discussions, Quiz.
2.	<b>Unit – II. Nutrition during pregnancy :</b> Stages of pre natal life, signs and symptoms of pregnancy, physiological changes of pregnancy, weight gain during pregnancy, nutritional requirements during pregnancy, nutrition related problems in pregnancy, complications of pregnancy, RDA. <b>Nutrition during lactation</b> Process of stimulation of milk production, factors influencing the volume and composition of breast milk, Nutritional requirements during lactation , RDA..	12	Chalk and talk, Quiz.
3	<b>Unit – III Nutrition during infancy:</b> Growth and development, nutritional allowances for infants, breast feeding VS formula feeding, introduction of weaning foods and supplementary foods, nutrition related problems and feeding pattern. <b>Nutrition during preschool</b> Growth and development, and nutritional requirements, nutritional related problems – PEM, Vitamin A deficiency disorder, RDA.	15	Chalk and talk, PPT, On the spot Test.
4	<b>Unit –IV Nutrition during school going period :</b> Physical development, school lunch program, nutritional requirements, importance of snacks, factors influencing eating habits.	9	Chalk and talk, PPT, On the spot Test.
5	<b>Unit –V Nutrition during old age :</b> Physical changes, food intake, choice of foods, nutrient needs, factors affecting nutrient requirements, nutrition related problems, immunity and old age.	15	Chalk and talk, PPT, On the spot Test, Assignment

**Course Designer:****Mrs. P.TAMILARASI**



Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
V	Core	22OUND52	Dietetics - I	4	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
	✓	

### Objectives :

To enable students to

1. develop attitude towards the profession as dietitian.
2. understand the recent trends in diet therapy and planning and preparation of therapeutic diets.

### Unit – I

**Dietetics - overview** – classification, responsibilities, code of ethics, assessment of diet planning, diet counseling and nutrition education. use of computers in diet planning and counseling.

### Unit – II

**Concept of diet therapy**- purpose and principles of therapeutic diets, modification of normal diets , classification of therapeutic diets. Basic concepts of oral feeding, tube feeding , parenteral nutrition and feeding problems.

### Unit - III

**Gastro intestinal disorders**- causes, symptoms and dietary management -diarrohoea, dysentery constipation and GERD .

**Peptic ulcer** - causes, symptoms and dietary management.

PCOD-causes and dietary management.

**Liver diseases** - jaundice , hepatitis , cirrhosis- causes, symptoms and dietary management.

### Unit – IV

**Metabolic disorders - Hypertension and Atherosclerosis** - causes, symptoms and dietary management. **Obesity and Underweight** - causes, symptoms and dietary management.

**Diabetes mellitus-** causes, symptoms ,types of diabetes, complication of diabetes , glycemic index and dietary management.

**Unit – V**

**Kidney diseases** -nephritis , nephrosis , renal calculi –calcium oxalate ,renal failure- causes, symptoms and dietary management, dialysis.

**Cancer**– types , risk factors, symptoms, role of antioxidants in prevention of cancer and dietary management.

**Text Books :**

- 1.AvantinaSharma*Principles of Therapeutic Nutrition andDietetics*(1<sup>st</sup>edn.), CBS Publishers &Pvt.Ltd,New Delhi, 2017.
- 2.Srilakshmi. B, *Dietetics* (7<sup>th</sup>edn.), New 4Age International Publications, New Delhi, 2014.

**Reference Books :**

- 1.PoojaVerma, *Foods,Nutrition&Dietetics* (1<sup>st</sup>edn), CBS Publishers &Pvt.Ltd, New Delhi ,2015.
- 2.RaneenaBegum, M,*Foods,Nutrition&Dietetics*(3<sup>rd</sup>edn),Sterling Publishing Pvt Limited,New Delhi ,2013.
- 3.ShrinandanBansal, *Food and Nutrition* (3<sup>rd</sup>edn), AITBS Publisher,India,2012.
- 4.Srilakshmi.B, *Human Nutriton( For B.Sc Nursing Student )*(2<sup>nd</sup>edn.), New Age International Publications, New Delhi, 2011.
- 5.Swaminathan, M. *Advanced Text Book on Food and Nutrition*, Vol. I & Vol. II (22<sup>nd</sup>edn.),Published by The Bangalore Printing and Publishing Co.Ltd, 2010.

**Wed Resource:**

<https://www.bda.uk.com/about-dietetics/what-is-dietitian.html>

<https://www.topdoctors.co.uk/medical-dictionary/diet-therapy>

<https://my.clevelandclinic.org/health/diseases/17179-liver-disease>

<https://www.mayoclinic.org/diseases-conditions/high-blood-pressure/symptoms-causes/syc-20373410>

<https://www.mayoclinic.org/diseases-conditions/cancer/symptoms-causes/syc-20370588>

**Pedagogy:**

Chalk and Talk ,PPT, group discussion , OHP presentations, quiz, on the spot test and Virtual Labs.

**Rationale for nature of Course:****Knowledge and Skill:**

To gain knowledge Role of Dietitian

To know about the various disease conditions and dietary management

**Activities to be given:**

Innovation recipes. Assignment, ppt, Quiz, Group discussion.

**Course learning Outcomes (CLO's):**

CLO	Course Outcomes Statement	Knowledge (According to Bloom's Taxonomy)
CLO1	Define Concept and Role of Dietitian	K1 to K3
CLO2	Explain the role and concept of diet therapy	K1 to K3
CLO3	Analyze the - causes, symptoms and dietary management of Peptic ulcer and Liver diseases	K1 to K4
CLO4	Illustrate the - causes, symptoms and dietary management of Obesity Underweight Hypertension Atherosclerosis and Diabetes mellitus	K1 to K3
CLO5	Summarize the - causes, symptoms and dietary management of Kidney diseases and cancer.	K1 to K4

**Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)**

	PO1	PO2	PO3	PO4	PO5	PO6
<b>CLO1</b>	1	2	3	1	2	3
<b>CLO2</b>	2	2	2	3	2	3
<b>CLO3</b>	1	3	3	3	2	3
<b>CLO4</b>	3	2	2	3	2	2
<b>CLO5</b>	2	3	3	3	2	2

1-Basic Level      2- Intermediate Level      3- Advanced Level

### LESSON PLAN : TOTAL HOURS(60 HRS)

Unit	Description	Hrs	Mode
1	<b>Unit – I</b> <b>Dietetics - overview</b> – classification, responsibilities, code of ethics, assessment of diet planning, diet counseling and nutrition education. use of computers in diet planning and counseling.	12	Chalk and talk, Group Discussions, Quiz
2	<b>Unit – II</b> <b>Concept of diet therapy-</b> purpose and principles of therapeutic diets, modification of normal diets , classification of therapeutic diets. Basic concepts of oral feeding, tube feeding , parenteral nutrition and feeding problems.	9	Chalk and talk, Quiz
3	<b>Unit - III</b> <b>Gastro intestinal disorders-</b> causes, symptoms and dietary management -diarrhoea, dysentery constipation and GERD . <b>Peptic ulcer</b> - causes, symptoms and dietary management. PCOD-causes and dietary management. <b>Liver diseases</b> jaundice , hepatitis , cirrhosis- causes, symptoms and dietary management.	15	Chalk and talk, PPT, On the spot Test
4	<b>Unit – IV</b> <b>Metabolic disorders - Hypertension and Atherosclerosis</b> - causes, symptoms and dietary management. <b>Obesity and Underweight</b> - causes, symptoms and dietary management. <b>Diabetes mellitus-</b> causes, symptoms ,types of diabetes, complication of diabetes , glycemic index and dietary management.	9	Chalk and talk, PPT, On the spot Test
5	<b>Unit – V</b> <b>Kidney diseases</b> -nephritis , nephrosis , renal calculi –calcium oxalate ,renal failure- causes, symptoms and dietary management, dialysis. <b>Cancer</b> – types , risk factors, symptoms, role of antioxidants in prevention of cancer and dietary management.	15	Chalk and talk, PPT, On the spot Test, Assignment

**Course Designers:**

**(MRS). K. GOWSALYA**

Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
V	Elective Core	22OUNDDSE5A	Food Service Management	4	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
	✓	

### Course Objectives

To enable students to

- 1.Understand the different types of food service and styles.
- 2.Gain knowledge about the functioning of food service institutions.
- 3.Develop skills in setting up food service units.

### Unit I Food Service Establishment Overview

Types -Commercial and Non commercial, objectives, Styles of service-waiter service, buffet, English and French service ,menu planning, types of menu.

### Unit II Equipments in food service

Classification of equipment, factors for selection of equipments, electrical and non-electrical equipments for food service organisation, preparation and food serving. Care and maintenance of equipment.

### Unit III Management tools

Principles of management, functions of management , organization chart,job description,job specification,job analysis,time &work schedule, production and service ,budget, leadership style and training, decision making and communication.

### Unit IV Personnel Management

Recruitment-sources , procedure and policy, selection and training, labour laws & employee benefits.

## Unit V Financial Components

Cost concepts-types, fixed cost, semi fixed cost, variable cost, food cost control, records to be maintained, book keeping system, book of accounts-cash book, purchase book, sales book , purchase return book, sales return book , Ledger and journal.

### Books for study:

- 1.MohiniSethi, *SurjeetMalhan,Catering Management (Revised 2<sup>nd</sup> Edn)*,New Age International pvt .Ltd publishers,2007.
- 2.George B and Chatterjee S, *Food and Beverage service*, Jaico Publishing company, Mumbai,2009.

### Books for Reference:

- 1.Kotas R and Davis B, *Food cost control*, Macmillan,Publication,1973.
- 2.Longree.K,*Food Service Sanitation*,John Wiley and Sons 1973
- 3.MohiniSethi,SurjeetMalhan,*Catering Management (2<sup>nd</sup> Edn)*,New Age International pvt.Ltd publishers,2006.
- 4.Roday.s,*Food Hygiene and Sanitation*,TataMc Graw Hill Publishing Company Ltd,2006.
- 5.WestB.B,Wood.L,Hoglet .F and Shukart. G.*Food Service in Institutions*, John Wiley and Sons 1977.

### Web Resources / E.Books:

- 1.<http://open.lib.umn.edu/principlesmanagement/chapter/1-5-planning-organizing-leading-and-controlling-2/>
- 2.[https://www.managementstudyguide.com/management\\_functions.htm](https://www.managementstudyguide.com/management_functions.htm)
- 3.<http://www.bngkolkata.com/web/food-and-beverage-service-equipment/>
- 4.<http://www.fcijammu.org/food/food/orders/F&B%20Service-Unit-2.pdf>
- 5.<https://www.scribd.com/doc/29362905/Equipments-in-Food-amp-Beverage>

### Pedagogy:

Chalk and Talk, PPT, Group discussion, Quiz, On the spot test.

**Rationale for nature of Course:****Knowledge and Skill:**

To gain knowledge regarding the functioning of different food service establishments.

To know about the management system of food service industry.

**Activities to be given:**

Assignment, ppt, Quiz, Group discussion.

**Course learning Outcomes (CLO's):**

CLO	Course Outcomes Statement	Knowledge (According to Bloom's Taxonomy)
CLO1	Explain the types of food service sectors.	K1 to K3
CLO2	Types of equipments, care & maintenance of equipments.	K1 to K3
CLO3	Discuss about the management tools, leadership style and training	K1 to K4
CLO4	Gain knowledge on personnel management.	K1 to K3
CLO5	Demonstrate cost accounting procedures in food service units.	K1 to K4

**Mapping of Course Learning Outcomes (CLOs) with Program Outcomes (POs)**

	PO1	PO2	PO3	PO4	PO5	PO6
<b>CLO1</b>	1	2	3	1	2	3
<b>CLO2</b>	2	2	2	3	2	3
<b>CLO3</b>	1	3	3	3	2	3
<b>CLO4</b>	3	2	2	3	2	2
<b>CLO5</b>	2	3	3	3	2	2

**1-Basic Level****2- Intermediate Level****3- Advanced Level**

**LESSON PLAN : TOTAL HOURS (60 HRS)**

<b>Unit</b>	<b>Description</b>	<b>Hrs</b>	<b>Mode</b>
1.	<b>Unit I Food Service Establishment Overview</b> Types -Commercial and Non commercial, objectives, Styles of service-waiter service, buffet, English and French service ,menu planning, types of menu.	9	Chalk and talk, Group Discussions, Quiz.
2.	<b>Unit II Equipments in food service</b> Classification of equipment, factors for selection of equipments, electrical and non-electrical equipments for food service organisation , preparation and food serving. Care and maintenance of equipment.	12	Chalk and talk, Quiz.
3	<b>Unit III Management tools</b> Principles of management, functions of management , organization chart,job description,job specification,job analysis,time &work schedule, production and service ,budget, leadership style and training, decision making and communication.	15	Chalk and talk, PPT, On the spot Test.
4	<b>Unit IV Personnel Management</b> Recruitment-sources , procedure and policy, selection and training, labour laws & employee benefits.	9	Chalk and talk, PPT, On the spot Test.
5	<b>Unit V Financial Components</b> Cost concepts-types, fixed cost, semi fixed cost, variable cost, food cost control, records to be maintained, book keeping system, book of accounts-cash book, purchase book, sales book , purchase return book, sales return book , Ledger and journal.	15	Chalk and talk, PPT, On the spot Test, Assignment

**Course Designer:****Mrs. K.JANAKI**



Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
V	Elective Core	22OUNDDSE5B	Functional Foods and Nutraceuticals	4	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

### Course Objectives

To enable students to

- 1.Understand the meaning and function of functional foods and nutraceuticals properties.
- 2.Gain knowledge on the scientific basis of foods and nutrient supplements.

### Unit – I Functional Foods

Introduction, definition , classification, role of functional foods in disease prevention,

### Unit – II Nutraceuticals

Definition, classification as per sources of chemical nature and mechanism of action, role of nutraceuticals in prevention of disease.

### Unit - III Perspective for food Applications

Sources, bioavailability and potential application for health of polyphenols, flavonoids, catechins , isoflavones,tannins ,phytoesterogens, phytosterols, glucosinolates& protease.

### Unit – IV Health Functionality of Food Components

Definition, sources and health benefits of probiotics& prebiotics ,synbiotic and microbiota dietary fibre, oligosaccharides, amino acids, peptides and protein, fatty acids.

### Unit - V Consumer marketing

Factors for marketing functional foods and nutraceuticals, role of functional foods in food industries. Diet supplements.

### Books for study :

- 1.Mary et.al., *Essentials of functional foods*, Culinary and hospitality industry publications services, 2005.

2. Robert et. al., *Nutraceuticals and Functional foods*, Culinary and hospitality Industry publications services, 2005.

**Books for Reference:**

1. David et.al., *Performance functional foods*, culinary and hospitality industry publications services, 2005.

2. Israel Goldberg, *functional food, designer, pharma foods ,nutraceutical*, Culinary and hospitality industry publications services, 2006.

3. Srilakshmi.B, *Nutrition Science* (5<sup>th</sup>edn.), New Age International Publications, New Delhi, 2017.

4. Sunetra Roday, *Food Science & Nutrition*, (2<sup>nd</sup>edn.), Macmillan publishing co., New Delhi, 2012.

5. Robert E.C Wildman, *Hand book of Nutraceuticals and Functional foods*, Culinary and hospitality Industry publications services, 2005.

**Web Resources / E.Books:**

1. <https://youtu.be/uFf0zxQ3rBU>

2. <http://epgp.inflibnet.ac.in/Home/Download>

**Pedagogy:**

Chalk and Talk, PPT, Group discussion, Quiz, On the spot test.

**Rationale for nature of Course:**

**Knowledge and Skill:**

To acquire knowledge on functional foods in relation with human body.

To know about the phytochemicals in food application..

**Activities to be given:**

Assignment, ppt, Quiz, Group discussion.

**Course learning Outcomes (CLO's):**

CLO	Course Outcomes Statement	Knowledge (According to Bloom's Taxonomy)
CLO1	Define and Explain functional foods.	K1 to K3
CLO2	Describe the role of Nutraceuticals in prevention of disease.	K1 to K3
CLO3	Discuss about the phytochemicals in food application.	K1 to K4
CLO4	Highlight the health benefits of functional foods.	K1 to K3
CLO5	Analyse the recent trends in functional foods in food industries.	K1 to K4

**Mapping of Course Learning Outcomes (CLOs) with Program Outcomes (POs)**

	PO1	PO2	PO3	PO4	PO5	PO6
<b>CLO1</b>	3	1	3	3	3	2
<b>CLO2</b>	1	2	1	3	1	3
<b>CLO3</b>	2	2	3	2	3	1
<b>CLO4</b>	1	1	1	1	2	2
<b>CLO5</b>	3	2	2	2	1	3

**1-Basic Level****2- Intermediate Level****3- Advanced Level**

**LESSON PLAN : TOTAL HOURS (60 HRS)**

<b>Unit</b>	<b>Description</b>	<b>Hrs</b>	<b>Mode</b>
1.	<b>Unit – I Functional Foods</b> – Introduction, definition , classification, role of functional foods in disease prevention .	9	Chalk and talk, Group Discussions, Quiz.
2.	<b>Unit – II Nutraceuticals</b> - Definition classification as per sources of chemical nature and mechanism of action , role of nutraceuticals in prevention of disease.	12	Chalk and talk, Quiz.
3	<b>Unit - III Perspective for food Applications</b> –Sources, bioavailability and potential application for health of polyphenols, flavonoids, catechins , isoflavones, tannins ,phyto esterogens, phytosterols, glucosinolates& protease.	15	Chalk and talk, PPT, On the spot Test.
4	<b>Unit – IV Health Functionality of Food Components</b> -Definition, sources and health benefits of probiotics& prebiotics, synbiotic and microbiota dietary fibre, oligosaccharides, amino acids, peptides and protein, fatty acids.	9	Chalk and talk, PPT, On the spot Test.
5	<b>Unit - V Consumer marketing</b> - factors for marketing functional foods and nutraceuticals, role of functional foods in food industries. Diet supplements.	15	Chalk and talk, PPT, On the spot Test, Assignment

**Course Designer:****Mrs. K.JANAKI**

Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
V	Core	22OUNDSE5	Family Resource Management	2	2	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

### Course Objectives :

To enable the students to

- 1.Understand the importance of management in family and personal living.
- 2.Improve their ability in managing with the family resources.
- 3.Understand and apply the basic principles of art in inversion decoration.
- 4.Understand the elementary principles of planning a house.

### Unit – I Concept of home management

Meaning, Characteristics of a good home maker, management process, steps in decision making, family resources.

### Unit – II Time and Energy management

Time - importance of time management , guidelines in planning time schedule, Family budget, money savings.Energy - its importance, fatigue , types of fatigue and ways of overcoming fatigue, Work simplification.

### Unit – III Applied Art

Design – meaning, types, elements of design, principles of design.

Colour - qualities of colour, prang colour system, colour and emotions, advancing and receding colours, colour harmonies, principles in the using colour schemes in different areas of the home.

### Unit – IV Housing

Site selection, house plans, types of kitchen.

### Unit – V Furniture and Accessories

Furniture – selection and arrangement of furniture in different rooms. types of flower arrangements, furnishings, interior decoration.

**Books for study :**

1. Goldsteins, H and Goldstein V. (1958), Art in Everyday Life, Macmillan Company.

**Books for Reference :**

1. Education Planning group (1987), Home Management, Arya Publishing House, New Delhi.
2. Nickell, P. and Dorsey, J.M. (1978). Management in Family Living, John Willey and Sons, New Delhi.
3. Varghese, M.A., et al., (1994). Home Management, Viley Eastern Limited, New Delhi.
4. Deshpande, R.S. (1982), Cheap and Healthy Homes for Middle Classes, United Book Corporations, Poona.
5. Deshpande, R.S. (1982), Modern Ideal Homes for Indian, United Book Corporation, Poona.

**Web Resources / E.Books:**

1. <http://www.yourarticlelibrary.com/decision-making/decision-making-in-management-definition-and-features-explained/25657/>
2. <http://www.familyresourcemanagement.org/services/goals/>
3. <http://www.familyresourcemanagement.org/services/standards/>
4. [http://www.nios.ac.in/media/documents/sechmscicour/english/home%20science%20\(eng\)%20ch-15.pdf](http://www.nios.ac.in/media/documents/sechmscicour/english/home%20science%20(eng)%20ch-15.pdf)
5. <https://books.google.co.in/books?id=NJkrzK3CgisC&pg=PA149&lpg=PA149&dq=time,+energy,+money+as+resource+in+management&source=bl&ots=xmSp-LDkia&sig=57qLKHX2UX3sxnBIJhm>

**Pedagogy:**

Chalk and Talk, PPT, Group discussion, Quiz, On the spot test.

**Rationale for nature of Course:****Knowledge and Skill:**

To acquire knowledge on concept of home management.

To learn about the time and energy management.

**Activities to be given:**

Assignment, ppt, Quiz, Group discussion.

**Course learning Outcomes (CLO's):**

CLO	Course Outcomes Statement	Knowledge (According to Bloom's Taxonomy)
CLO1	Apply the principles of management process in day-to-day life.	K1 to K3
CLO2	Identify and analyze the need for resources.	K1 to K3
CLO3	Utilize tools of time management effectively in day-to-day life.	K1 to K3
CLO4	Apply work simplification techniques while managing work.	K1 to K3
CLO5	Analyse the selection of furnitures and housing plan.	K1 to K3

**Mapping of Course Learning Outcomes (CLOs) with Program Outcomes (POs)**

	PO1	PO2	PO3	PO4	PO5	PO6
<b>CLO1</b>	1	2	2	3	2	3
<b>CLO2</b>	3	1	1	1	1	3
<b>CLO3</b>	2	2	1	3	3	1
<b>CLO4</b>	2	2	3	1	3	1
<b>CLO5</b>	2	3	2	1	1	2

**1-Basic Level****2- Intermediate Level****3- Advanced Level**

**LESSON PLAN : TOTAL HOURS (30 HRS)**

<b>Unit</b>	<b>Description</b>	<b>Hrs</b>	<b>Mode</b>
1.	<b>Unit – I Concept of home management</b> Meaning, Characteristics of a good home maker, management process, steps in decision making, family resources.	6	Chalk and talk, Group Discussions, Quiz.
2.	<b>Unit – II Time and Energy management</b> Time - importance of time management , guidelines in planning time schedule, Family budget, money savings. Energy - its importance, fatigue , types of fatigue and ways of overcoming fatigue, Work simplification	6	Chalk and talk, Quiz.
3	<b>Unit – III Applied Art</b> Design – meaning, types, elements of design, principles of design. Colour - qualities of colour, prang colour system, colour and emotions, advancing and receding colours, colour harmonies, principles in the using colour schemes in different areas of the home.	6	Chalk and talk, PPT, On the spot Test.
4	<b>Unit – IV Housing</b> Site selection, house plans, types of kitchen.	6	Chalk and talk, PPT, On the spot Test.
5	<b>Unit – V Furniture and Accessories</b> Furniture – selection and arrangement of furniture in different rooms. types of flower arrangements, furnishings, interior decoration.	6	Chalk and talk, PPT, On the spot Test, Assignment

**Course Designer:****Mrs. B.RUBARANI**



Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
VI	Core	22OUND61	Food Processing	4	3	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
		✓

### Course Objectives:

To enable students to

1. Understand the physical and chemical principles of food processing.
2. Gain knowledge on recent trends in food processing.

### Unit - I Food processing

Introduction, types, scope, aims and principles of food processing.

#### Cereal processing

Milling – traditional and modern milling , by products of milling of wheat ,storage of processed cereal grains, extruded processing – production of pasta, noodles.

#### Unit - II Pulse & Legumes Processing

Processing methods, quick cooking legumes, instant legume powders.

#### Nuts and oil seeds

Oilseed pressing, solvent extraction, purification, processing of oil.

#### Unit - III Vegetable & fruit processing

Pre-processing considerations in different vegetables & fruits ,

Processing – blanching, canning, pickling process, chutneys, puree, tattyfruity, Fruit concentrates and vegetable paste. Carrot, tomato and beetroot juice processing.

#### Unit - IV Milk processing

Operations, types & manufacture of milk and milk products,

#### Unit – V Fleshy foods

Fish & meat –processing –smoking, dehydration, canning, preservation using class I &II preservatives.

**Books for study:**

1. Avantina Sharma, *Textbook of Food Science and Technology*, International Book Distributing Company, Lucknow, 2006.
2. Subbulakshmi G and Udipi S A, *Food Processing and Preservation*, New Age International Publishing, New Delhi, 2007.

**Books for Reference:**

1. Norman N. Potter, Joseph H. Hotchkiss *Food Science* 5<sup>th</sup> Edition, CBS Publishers and Distributors, 1997.
2. Radhakrishna G and Balakrishna, AV, *Indian Food Processing Industry*, The ICFAI university Press, 2007.
3. Sathyaprakash Sinha, *Principles of food processing*, Adhyayan Publishers and Distributors, New Delhi, 2009.
4. Shakuntala Manay and Shadaksharaswamy, *Food facts and principles* (3 Edn.), New Age International Publication, New Delhi, 2008.
5. Sivasankar B, *Food processing and preservation*, Prentice Hall India Private Limited, New Delhi, 2008.

**Web Resources / E - Books:**

1. <https://youtu.be/MEf0I8wWIG8?si=WmPdPrjcdRcIlX4c>
2. <https://youtu.be/YoBs4AnlWts?si=IlGiibqn2tOHLyw0>
3. <https://youtu.be/Fcs-XmqfKJM?si=pGMWGX5kPKTK6Q6>
4. <https://youtu.be/lGTH3rwN4Ns?si=nhLpuIe74PZE-57y>
5. <https://youtu.be/9h7Q62thXGg?si=G7w5SYs3fwxiEMSK>
6. [https://youtu.be/9h-MX\\_yyJPA?si=X2\\_uPDXD7TFeFDe](https://youtu.be/9h-MX_yyJPA?si=X2_uPDXD7TFeFDe)
7. <https://youtu.be/lAtI4zw1Sxc?si=5nnCl9n15HngYJCg>

**Pedagogy**

Chalk and Talk, PPT, Group discussion, Quiz, On the spot test.

**Rationale for nature of Course:****Knowledge and Skill:**

To gain knowledge regarding the principles of food processing.

To know about the various techniques of food preservation to preserve different foods.

To acquire knowledge on recent trends in food processing.

**Activities to be given:**

Innovation in processed recipes, Assignment, Group discussion, Collection of various processed foods available in the market.

**Course learning Outcomes (CLO's):**

CLO	Course Outcomes Statement	Knowledge (According to Bloom's Taxonomy)
CLO1	Define and explain the principles of food preservation.	K1 to K3
CLO2	Identify the different methods of food processing .	K1 to K3
CLO3	Discuss the various types of processed food products.	K1 to K4
CLO4	Compare the principles and techniques of various food preservation methods.	K1 to K3
CLO5	Justify the use of various preservation techniques.	K1 to K4

**Mapping of Course Learning Outcomes (CLOs) with Program Outcomes (POs)**

	PO1	PO2	PO3	PO4	PO5	PO6
<b>CLO1</b>	1	2	2	1	3	3
<b>CLO2</b>	2	3	2	3	2	2
<b>CLO3</b>	1	1	3	3	2	3
<b>CLO4</b>	3	2	2	3	3	2
<b>CLO5</b>	2	3	3	3	2	3

**1-Basic Level****2- Intermediate Level****3- Advanced Level**

**LESSON PLAN : TOTAL HOURS (60 HRS)**

<b>Unit</b>	<b>Description</b>	<b>Hrs</b>	<b>Mode</b>
1.	<p><b>Unit – I Food processing</b> Introduction, types, scope, aims and principles of food processing.</p> <p><b>Cereal processing</b> Milling – traditional and modern milling , by products of milling of wheat ,storage of processed cereal grains, extruded processing – production of pasta, noodles.</p>	12	Chalk and talk, Group Discussions, Quiz.
2.	<p><b>Unit – II Pulse&amp; Legumes Processing</b> Processing methods, quick cooking legumes, instant legume powders.</p> <p><b>Nuts and oil seeds</b> Oilseed pressing, solvent extraction, purification, processing of oil.</p>	9	Chalk and talk, Quiz.
3	<p><b>Unit – III Vegetable &amp; fruit processing</b> Pre-processing considerations in different vegetables &amp; Fruits, Processing – blanching, canning, pickling process, chutneys, puree, tatty fruity, Fruit concentrates and vegetable paste. Carrot, tomato and beetroot juice processing.</p>	15	Chalk and talk, PPT, On the spot Test.
4	<p><b>Unit –IV Milk processing-</b> operations, types &amp; manufacture of milk and milk products.</p>	9	Chalk and talk, PPT, On the spot Test.
5	<p><b>Unit –V Fleshy foods-</b> fish &amp; meat –processing –smoking, dehydration, canning, preservation using class I &amp;II preservatives , FSSAI –permissible limits.</p>	15	Chalk and talk, PPT, On the spot Test, Assignment

Course Designer:

Mrs. P.TAMILARASI

Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
VI	Core	22OUND62	Dietetics - II	4	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
	✓	

**Objectives :** To enable students to

1. know about the principles of medical nutrition therapy.
2. develop the skills & principle in modification of the normal & therapeutic diet to suit the different disease condition .

#### **Unit – I**

**Diet in Deficiency disorders** - PEM , Vitamin – A , Iron, Iodine-causes, symptoms and dietary management.

**Lung diseases** COPD, Asthma, Bronchitis - causes, symptoms and dietary management.

#### **Unit - II**

**Diet in Febrile diseases** – causes, symptoms and dietary management-Acute diseases- typhoid , influenza and malaria ,Chronic disease- tuberculosis, Corona, AIDS.

#### **Unit – III**

**Genetic disorders** –phenyl ketonuria, galactosemia , fructosuria, Parkinson’s ,Alzheimer, Scizophrenia - definition, diagnosis, symptoms and dietary treatment.

#### **Unit - IV**

**Diet in allergy** – definition, classification, food allergens, symptoms, test for allergy, dietary management.

**Arthritis** – causes, symptoms and dietary management.

#### **Unit -V**

##### **Diet in Critical care**

**Burns-** types, dietary management.

Diet Transplantation in multiple organ failure, sepsis- metabolic response, causes and treatment.

**Text Books :**

1. Avantina Sharma *Principles of Therapeutic Nutrition and Dietetics* (1<sup>st</sup> edn.), CBS Publishers & Pvt. Ltd, New Delhi, 2017.
2. Srilakshmi. B, *Dietetics* (7<sup>th</sup> edn.), New 4Age International Publications, New Delhi, 2014.

**Reference Books :**

1. Pooja Verma *Foods, Nutrition & Dietetics* (1<sup>st</sup> edn), CBS Publishers & Pvt. Ltd, New Delhi, 2015.
2. Raneena Begum. M, *Foods, Nutrition & Dietetics* (3<sup>rd</sup> edn), Sterling Publishing Pvt Limited, New Delhi, 2013.
3. Shrinandan Bansal, *Food and Nutrition* (3<sup>rd</sup> edn), AITBS Publisher, India, 2012.
4. Srilakshmi. B, *Human Nutrition ( For B.Sc Nursing Student )* (2<sup>nd</sup> edn.), New Age International Publications, New Delhi, 2011.
5. Swaminathan, M. *Advanced Text Book on Food and Nutrition*, Vol. I & Vol. II (22<sup>nd</sup> edn.), Published by The Bangalore Printing and Publishing Co. Ltd, 2010.

**Wed Resource:**

<https://www.mayoclinic.org/diseases-conditions/copd/symptoms-causes/syc-20353679>

<https://my.clevelandclinic.org/health/articles/7040-gastrointestinal-diseases>

<https://my.clevelandclinic.org/health/diseases/21751-genetic-disorders>

<https://www.webmd.com/allergies/allergies-elimination-diet>

<https://my.clevelandclinic.org/health/diseases/12063-burns>

**Pedagogy:**

Chalk and Talk, PPT, group discussion, OHP presentations, quiz, on the spot test and Virtual Labs.

**Rationale for nature of Course:****Knowledge and Skill:**

To gain knowledge of deficiency disorders

To know about the various disease conditions and dietary management

**Activities to be given:**

Innovation recipes. Assignment, ppt, Quiz, Group discussion.

**Course learning Outcomes (CLO's):**

CLO	Course Outcomes Statement	Knowledge (According to Bloom's Taxonomy)
CLO1	Analyze the - causes, symptoms and dietary management of Deficiency disorders and Lung diseases.	K1 to K3
CLO2	Describe the - causes, symptoms and dietary management of Febrile diseases and Gastro intestinal disorders.	K1 to K3
CLO3	Summarize the - causes, symptoms and dietary management of Genetic disorders.	K1 to K4
CLO4	Illustrate the - causes, symptoms and dietary management of Diet in allergy.	K1 to K3
CLO5	Explain the - Diet in Critical care.	K1 to K4

**Mapping of Course Learning Outcomes (CLOs) with Programme Outcomes (POs)**

	PO1	PO2	PO3	PO4	PO5	PO6
<b>CLO1</b>	1	2	3	1	2	3
<b>CLO2</b>	2	2	2	3	2	3
<b>CLO3</b>	1	3	3	3	2	3
<b>CLO4</b>	3	2	2	3	2	2
<b>CLO5</b>	2	3	3	3	2	2

**1-Basic Level      2- Intermediate Level      3- Advanced Level**

**LESSON PLAN : TOTAL HOURS(60 HRS)**

Unit	Description	Hrs	Mode
1	<b>Unit – I</b> <b>Diet in Deficiency disorders</b> - PEM , Vitamin – A , Iron, Iodine- causes, symptoms and dietary management. <b>Lung diseases</b> COPD, Asthma, Bronchitis - causes, symptoms and dietary management.	12	Chalk and talk, Group Discussions, Quiz
2	<b>Unit - II</b> <b>Diet in Febrile diseases</b> – causes, symptoms and dietary management-Acute diseases-typhoid , influenza and malaria ,Chronic disease- tuberculosis, Corona, AIDS.	9	Chalk and talk, Quiz
3	<b>Unit – III</b> <b>Genetic disorders</b> –phenyl ketonuria, galactosemia , fructosuria, Parkinson’s ,Alzemer, Scizophernia - definition, diagnosis, symptoms and dietary treatment	15	Chalk and talk, PPT, On the spot Test
4	<b>Unit - IV</b> <b>Diet in allergy</b> – definition, classification, food allergens, symptoms, test for allergy, dietary management. <b>Arthritis</b> – causes, symptoms and dietary management	9	Chalk and talk, PPT, On the spot Test
5	<b>Unit -V</b> <b>Diet in Critical care</b> <b>Burns</b> - types, dietary management. Diet Transplantation in multiple organ failure, sepsis- metabolic response, causes and treatment.	15	Chalk and talk, PPT, On the spot Test, Assignment

**Course Designer:****(MRS). K. GOWSALYA**



Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
VI	Elective Core	22OUNDDSE6A	Food Safety & Quality Control	4	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

### Course Objectives

To enable students to

- 1.Study about quality control and food safety.
- 2.Gain knowledge on food laws.
- 3.Acquire knowledge on food adulteration and common food standards.

#### Unit I Food safety

Definition, food safety quality factors ,food related hazards- physical, chemical, and biological hazards, microbiological considerations in food safety.

#### Unit II Quality control

Meaning ,principles of quality control in food, raw material control, process control, inspection of finished product, sensory evaluation, packaging, labelling and storage, Total quality management.

#### Unit III Sensory Assessment

Sensory assessment on food quality- appearance, color, flavour, texture and taste, reasons for testing food quality and trained panel members, different method of sensory analysis – difference test –paired comparison, duo-trio, triangle, rating tests-ranking, hedonic rating, numerical scoring, sensitivity tests – sensitivity threshold - dilution and descriptive test.

#### Unit IV Food Additives

Definition , functions, food colours –types –natural & chemical advantage and disadvantages. food adulteration-definition – intentional and incidental adulteration.

## Unit V Food laws and regulations

standard of weight and measures act, mark of BIS, AGMARK, PFA, FPO, JECFA, Food Safety and Standards Act, GMP, GHP, Codex Alimentarius, HACCP- principles and application of HACCP.

### Books for Study:

1. Shakunthla Manay .N. Shadaksharaswamy. M.(2005). *Food Facts and Principles*, New Age International Publishers.
2. Srilakshmi. B *Food Science*(6<sup>th</sup> edn.), New Age International Pub., New Delhi, 2015.

### Books for Reference :

1. Potter N. and Joseph H, *Food Science* (5<sup>th</sup> ed.), CBS Publishers & Distributors, Pvt, Ltd, New Delhi, 1996.
2. Raheena Begum, *Food Nutrition and Dietetics* (3<sup>rd</sup> ed.), Sterling Publishers, Private limited New Delhi, 2013.
3. Srilakshmi. B, *Food Science* (6<sup>th</sup> ed.), New Age International Pub., New Delhi, 2015.
4. Srivastava .R.P. and Sanjeev Kumar , *Fruits and Vegetables Preservation principles and practices.*, (3<sup>rd</sup> ed )CBS Publishers & Distributors Pvt, Ltd, New Delhi, 1994.
5. Sunetra Roday, *Food Hygiene and Sanitation with case studies.*, (2<sup>nd</sup> ed) Published by Tata Mc Graw Hill Education Pvt, Ltd, New Delhi 2011.

### Web Resources / E.Books:

1. <http://www.fssai.gov.in/>
2. <http://www.medindia.net>
3. <http://www.foodsafety.unl.edu/>

### Pedagogy:

Chalk and Talk, PPT, Group discussion, Quiz, On the spot test and Virtual labs.

### Rationale for nature of Course:

#### Knowledge and Skill:

- To interpret knowledge regarding the food safety & quality control.
- To know about the food laws and regulations.

#### Activities to be given:

Assignment, ppt, Quiz, Group discussion.

**Course learning Outcomes (CLO's):**

CLO	Course Outcomes Statement	Knowledge (According to Bloom's Taxonomy)
CLO1	Explain food safety and food related hazards.	K1 to K3
CLO2	Identify the principles of quality control.	K1 to K3
CLO3	Discuss about sensory evaluation.	K1 to K4
CLO4	Highlight on food additives and Demonstrate the ability to detect common adulterants in food.	K1 to K3
CLO5	Cite Indian and international food laws and food safety programs.	K1 to K4

**Mapping of Course Learning Outcomes (CLOs) with Program Outcomes (POs)**

	PO1	PO2	PO3	PO4	PO5	PO6
<b>CLO1</b>	1	3	1	2	2	2
<b>CLO2</b>	2	2	2	3	2	3
<b>CLO3</b>	3	2	1	2	3	2
<b>CLO4</b>	2	3	2	2	2	2
<b>CLO5</b>	1	2	2	3	3	1

**1-Basic Level****2- Intermediate Level****3- Advanced Level**

**LESSON PLAN : TOTAL HOURS (60 HRS)**

<b>Unit</b>	<b>Description</b>	<b>Hrs</b>	<b>Mode</b>
1.	<b>Unit I Food safety</b> – definition, food safety quality factors ,food related hazards- physical, chemical, and biological hazards, microbiological considerations in food safety.	9	Chalk and talk, Group Discussions, Quiz.
2.	<b>Unit II Quality control</b> – meaning ,principles of quality control in food, raw material control, process control ,inspection of finished product, sensory evaluation, packaging, labelling and storage, Total quality management.	12	Chalk and talk, Quiz.
3	<b>Unit III Sensory Assessment</b> – Sensory assessment on food quality- appearance, color, flavour, texture and taste, reasons for testing food quality and trained panel members, different method of sensory analysis –difference test –paired comparison, duo-trio, triangle, rating tests-ranking, hedonic rating, numerical scoring, sensitivity tests – sensitivity threshold - dilution and descriptive test.	15	Chalk and talk, PPT, On the spot Test.
4	<b>Unit IV Food Additives</b> – definition , functions, food colours – types –natural & chemical advantage and disadvantages. food adulteration-definition – intentional and incidental adulteration.	9	Chalk and talk, PPT, On the spot Test.
5	<b>Unit V Food laws and regulations</b> –standard of weight and measures act, mark of BIS, AGMARK, PFA, FPO, JECFA, Food Safety and Standards Act, GMP, GHP, Codex Alimentarius, HACCP- principles and application of HACCP.	15	Chalk and talk, PPT, On the spot Test, Assignment

Course Designer:

**Mrs. B.RUBA RANI**

Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
VI	Elective Core	22OUNDDSE6B	Post Harvest Technology	4	4	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

### Course Objectives

To enable students to

- 1.Understand the knowledge of storages of grains
- 2.Gain knowledge about food spoilage and its prevention.
- 3.Know about various agencies in controlling food losses.

### Unit I Introduction to post harvest technology

Definition, importance , role, principles, methods involved in post harvest technology , advantages and disadvantages.

### Unit II Agents causing food losses

Physical agents, (moisture, temperature), Chemical losses,biological losses, insects attacking food grains, detection of insect infestation.

### Unit III Control of spoilage agents

Importance and method of sanitary handling, physical, chemical, biological and control of pests,rats,rodents and birds.Insect and pest control methods -Physical and chemical methods.

### Unit IV Storage of grains

Importance , requirements of storage , methods of storage units-traditional -warehouse , underground & above ground storage modern storage-cold storage unit, types of storage losses- qualitative and quantitative.

### Unit V Agencies

Agencies governing Food Losses - Role of SGC, FCI, CWC, SWC, IGSI.

### Book for study:

1. Pingale, *Handling and storage of food grains*- ICAR, New Delhi, 2000.
2. Potter, *Food Science*, - The A VI Publishing Co., The Westport, 2000.

**Book for Reference:**

1. Avantina Sharma, *Textbook of Food Science and Technology*, International Book Distributing Company, Lucknow, 2006.
2. Gajalakshmi R *Nutrition science* CBS Publishers & Distributors Pvt Ltd New Delhi, 2010.
3. Potter, *Food Science*, - The A VI Publishing Co., The Westport, 1973.
4. Shakuntala many et.al *Food facts and principles*(3<sup>rd</sup> Edn), new age international publishing, New Delhi ,2009.
5. Subbulakshmi et.al *Food processing and preservation*, new age international publishing, New Delhi ,2009.

**Web Resources / E.Books:**

1. <https://youtu.be/MEf0I8wWIG8?si=WmPdPrjcdRcilX4c>
2. <https://youtu.be/YoBs4AnlWts?si=IIGiibqn2tOHLyw0>
3. <https://youtu.be/Fcs-XmqfKJM?si=pGMWGX5kPKTK6Q6>
4. <https://youtu.be/IGTH3rwN4Ns?si=nhLpuIe74PZE-57y>
5. <https://youtu.be/9h7Q62thXGg?si=G7w5SYs3fwwxiEMSK>
6. [https://youtu.be/9h-MX\\_yyJPA?si=X2\\_uPDXD7TFeFDe](https://youtu.be/9h-MX_yyJPA?si=X2_uPDXD7TFeFDe)
7. <https://youtu.be/lAtI4zw1Sxc?si=5nnCl9n15HngYJCg>

**Pedagogy**

Chalk and Talk, PPT, Group discussion, Quiz, On the spot test.

**Rationale for nature of Course:**

**Knowledge and Skill:**

To gain knowledge regarding the principles of post harvest technology.

To know about the various techniques of food preservation to preserve different foods.

To acquire knowledge on recent trends in post harvest technology.

**Activities to be given:**

Assignment, Group discussion, quiz, virtual assignment.

**Course learning Outcomes (CLO's):**

CLO	Course Outcomes Statement	Knowledge (According to Bloom's Taxonomy)
CLO1	Define and explain the role and principles of post harvest technology.	K1 to K3
CLO2	Identify the reasons for post harvest losses.	K1 to K3
CLO3	Discuss the various causes for food spoilage and its prevention methods.	K1 to K4
CLO4	Compare the principles and techniques of various food preservation methods.	K1 to K3
CLO5	Justify the use of various preservation techniques.	K1 to K4

**Mapping of Course Learning Outcomes (CLOs) with Program Outcomes (POs)**

	PO1	PO2	PO3	PO4	PO5	PO6
<b>CLO1</b>	3	2	1	1	2	3
<b>CLO2</b>	2	2	2	2	3	3
<b>CLO3</b>	2	1	2	3	2	1
<b>CLO4</b>	1	3	1	2	2	2
<b>CLO5</b>	1	2	2	1	1	1

**1-Basic Level****2- Intermediate Level****3- Advanced Level**

**LESSON PLAN : TOTAL HOURS (60 HRS)**

<b>Unit</b>	<b>Description</b>	<b>Hrs</b>	<b>Mode</b>
1.	<b>Unit I Introduction to post harvest technology</b> - Definition, importance , role, principles, methods involved in post harvest technology , advantages and disadvantages.	12	Chalk and talk, Group Discussions, Quiz.
2.	<b>Unit II Agents causing food losses</b> - Physical agents, (moisture, temperature), Chemical losses, biological losses, insects attacking food grains , detection of insect infestation.	9	Chalk and talk, Quiz.
3	<b>Unit III Control of spoilage agents</b> - Importance and method of sanitary handling, physical, chemical, biological and control of pests, rats , rodents and birds. Insect& pest control methods- Physical and chemical methods.	15	Chalk and talk, PPT, On the spot Test.
4	<b>Unit IV Storage of grains</b> - Importance , requirements of storage , methods of storage units-traditional -warehouse , underground & above ground storage modern storage-cold storage unit, types of storage losses- qualitative and quantitative.	9	Chalk and talk, PPT, On the spot Test.
5	<b>Unit V Agencies governing Food Losses</b> - Role of SGC, FCI, CWC, SWC, IGSI.	15	Chalk and talk, PPT, On the spot Test, Assignment

**Course Designer:****Mrs. B.RUBA RANI**



Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
VI	Core	22OUND61P	Lab – in Nutrition Through Life cycle	4	3	40	60	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

### Course Objectives

To enable students to

- 1.Understand the role of nutrition in the growth and development through the lifecycle.
- 2.Know the nutritional requirements during the life cycle and RDA for different age groups.
- 3.Gain insight into the principles of effective meal planning.

### Course Contents:

**UNIT - I** Planning and preparation of balanced diets for men &women

- a. Low, middle and high income groups.
- b. Sedentary, moderate and heavy activities.

**UNIT - II** Planning and preparation of balanced diets for special Physiological conditions.

- a. Pregnancy-Trimester periods.
- b. Lactation –First & Second six month.

**UNIT - III** Planning and preparation of balanced diets for different age groups.

- a. Infancy.
- b. Pre-School.

**UNIT - IV** Planning and preparation of balanced diets for different age groups.

- a. School going.
- b. Adolescence.

**UNIT - V** Planning and preparation of balanced diets for different age groups.

- a. Adult
- b. Old age

**Books for study :**

- 1.SriLakshmi, B. *Dietetics*, New Age International (p) Ltd, Ninth edition Chennai, 2023.
- 2.Swaminathan, M *Essential of food and Nutrition*, Vols.I&II: Ganesh & CO., Madras, 1985.

**Books for Reference :**

- 1.Antia F.E *Clinical Dietetics and Nutrition* Oxford university press, New Delhi, 1996.
- 2.Davidson Passmore P. and Break J.P., *Human Nutrition and Dietetics*. The English Language Book Society, Livingston, 1996.
- 3.Gopalan,C., Rama sastri, B.V and BalaSubramaniam, S.C. *Nutritive value of Indian Foods*, National Institute of Nutrition,Hyderabad,1996.
- 4.Judith,E. Brown *Nutrition Through the Life Cycle*, Wadsworth Publishing ,2016.
- 5.Krause M.V., Horch M.A *Food, Nutrition and Diet Therapy* (10<sup>th</sup> edn), W.B. Saunders company, Philadelphia, 2000.

**Web Resources / E - Books:**

1. <https://youtu.be/7AWmQ7NuE38?si=2sTGGtBxaC8hDvnJ>
2. <https://youtu.be/kdfFTRbHsIU?si=HA1NpUIqJB4o7maT>
3. <https://youtu.be/9c9BF-oKSUY?si=plVIBEk6QOzOmjM>
4. <https://www.mealplansite.com/age/adolescent.aspx>
5. <https://www.healthline.com/nutrition/easy-and-healthy-meal-plan>
6. <https://the geriatic dietitian.com/healthy-7-day-meal-plan-for-elderly/>

**Pedagogy**

Menu planning, Nutritive value calculation, demo, method of cooking and preparation.

**Rationale for nature of Course:****Knowledge and Skill:**

To gain knowledge regarding the menu planning, and nutritive value of different foods.

To know about the RDA value for different age groups.

To acquire knowledge on nutritive value calculation for the prescribed menu.

**Activities to be given:**

Innovation recipes, Menu planning, Nutritive value calculation, Assignment, Group discussion.

**LESSON PLAN : TOTAL HOURS (45 HRS)**

<b>Unit</b>	<b>Description</b>	<b>Hrs</b>	<b>Mode</b>
1	<b>Unit – I</b> Planning and preparation of balanced diets for men & women a. Low, middle and high income groups. b. Sedentary, moderate and heavy activities.	9	Demonstration, Preparation, & Group discussion
2	<b>Unit-II</b> Planning and preparation of balanced diets for special Physiological conditions. a. Pregnancy-Trimester periods. b. Lactation –First & Second six month.	9	Demonstration, Preparation, & Group discussion
3	<b>Unit - III</b> Planning and preparation of balanced diets for different age groups. a. Infancy. b. Pre-School.	9	Demonstration, Preparation, & Group discussion
4	<b>Unit - IV</b> Planning and preparation of balanced diets for different age groups. c. School going. d. Adolescence.	9	Demonstration, Preparation, & Group discussion
5	<b>Unit - V</b> Planning and preparation of balanced diets for different age groups. e. Adult f. Old age	9	Demonstration, Preparation, & Group discussion

Course Designer

Mrs . P.TAMILARASI

**EVALUATION (PRACTICAL)**

Internal (Formative) : 40 marks

External ( Summative ) : 60 marks

**Question Paper Pattern for Internal Practical Examination : 40 marks**

S. No	Components	Marks
1.	Menu Planning	5
2.	Calculation	5
3.	Menu Preparation	5
4.	Menu Display	10
5.	Observation Note Book	5
6.	Model Exam	10
	<b>Total</b>	<b>40</b>

**Question Paper Pattern for External Practical Examination (Major) : 60 marks**

S. No	Components	Marks
1.	Menu Planning	10
2.	Calculation	10
3.	Menu Preparation	15
4.	Menu Display	10
5.	Record	10
6.	Viva	5
	<b>Total</b>	<b>60</b>

In respect of External Examinations Passing Minimum is **35 %for Under Graduate** Courses and in total, **aggregate of 40%**

Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
VI	Core	22OUND62P	Lab – in Dietetics I & II	4	3	40	60	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

### Course Objectives :

To enable students to

1. Know about the principles of medical nutrition therapy.
2. Develop the skills & principle in modification of the normal & therapeutic diet to suit the different disease condition.

### Course Contents:

#### Unit -I

Planning and preparation of therapeutic and modified diets.

Soft diet

Fluid diet-Clear & full fluid diet

Bland diet

High protein diet

#### Unit-II

Planning and preparation of therapeutic and modified diets.

High fibre diet

Low fibre diet

Calorie restricted diet

Low sodium diet

#### Unit-III

Planning and preparation of therapeutic and modified diets.

Deficiency disorders – PEM, vitamin – A deficiency, iron deficiency.

Febrile diseases – typhoid, Tuberculosis.

#### Unit-IV

Planning and preparation of therapeutic and modified diets

Obesity and leanness.

Diabetes mellitus.

Peptic ulcer.

#### Unit-V

Planning and preparation of therapeutic and modified diets

Cardiac diseases- hypertension, atherosclerosis.

Liver disorders – cirrhosis, jaundice.

Renal disorders – nephritis, nephrosis, renal calculi.(calcium –oxalate ) dialysis.

#### Book for study:

- 1.AvantinaSharma*Principles of Therapeutic Nutrition andDietetics*(1<sup>st</sup>edn.), CBS Publishers &Pvt.Ltd,New Delhi, 2017.
- 2.Srilakshmi. B, *Dietetics* (7<sup>th</sup>edn.), New 4Age International Publications, Ninth edition, New Delhi, 2023.

#### Books for Reference :

- 1.PoojaVerma,*Foods,Nutrition&Dietetics*(1<sup>st</sup>edn),CBSPublishers &Pvt.Ltd, New Delhi ,2015.
- 2.RaneenaBegum,M,*Foods,Nutrition&Dietetics*(3<sup>rd</sup>edn),SterlingPublishingPvtLimited,New Delhi,2013.
- 3.ShrinandanBansal, *Food and Nutrition* (3<sup>rd</sup>edn), AITBS Publisher,India,2012.
- 4.Srilakshmi.B, *HumanNutrition( For B.Sc Nursing Student )*(2<sup>nd</sup>edn.), New Age International Publications, New Delhi, 2011.
- 5.Swaminathan, M. *Advanced Text Book on Food and Nutrition*, Vol. I & Vol. II (22<sup>nd</sup>edn.),Published by The Bangalore Printing and Publishing Co.Ltd, 2010.

#### Wed Resource:

- 1.<https://www.topdoctors.co.uk/medical-dictionary/diet-therapy>
- 2.<https://my.clevelandclinic.org/health/diseases/17179-liver-disease>
- 3.<https://www.mayoclinic.org/diseases-conditions/high-blood-pressure/symptoms-causes/syc-20373410>

#### Pedagogy

Demo, Menu Planning ,Preparation of Dish and RDA Calculation.

**LESSON PLAN: TOTAL HOURS (45 HRS)**

Unit	Description	Hrs	Mode
1	<b>Unit -I</b> Planning and preparation of therapeutic and modified diets. Soft diet Fluid diet-Clear & full fluid diet. Bland diet. High protein diet.	9	Menu planning Cooking method and RDA Calculation and Demonstration
2	<b>Unit-II</b> Planning and preparation of therapeutic and modified diets High fibre diet. Low fibre diet. Calorie restricted diet. Low sodium diet.	9	Menu planning Cooking method and RDA Calculation and Demonstration
3	<b>Unit-III</b> Planning and preparation of therapeutic and modified diets. Deficiency disorders – PEM, vitamin – A deficiency. Iron deficiency. Febrile diseases – typhoid, Tuberculosis.	9	Menu planning Cooking method and RDA Calculation and Demonstration
4	<b>Unit-IV</b> Planning and preparation of therapeutic and modified diets. Obesity and leanness. Diabetes mellitus. Peptic ulcer.	9	Menu planning Cooking method and RDA Calculation and Demonstration
5	<b>Unit-V</b> Planning and preparation of therapeutic and modified diets Cardiac diseases- hypertension, atherosclerosis. Liver disorders – cirrhosis, jaundice. Renal disorders – nephritis, nephrosis, renal calculi.(calcium –oxalate ) dialysis.	9	Menu planning Cooking method and RDA Calculation and Demonstration

**Course Designer****(MRS). K. GOWSALYA**

**EVALUATION (PRACTICAL)**

Internal (Formative) : 40 marks

External ( Summative ) : 60 marks

**Question Paper Pattern for Internal Practical Examination : 40 marks**

S. No	Components	Marks
1.	Menu Planning	5
2.	Calculation	5
3.	Menu Preparation	5
4.	Menu Display	10
5.	Observation Note Book	5
6.	Model Exam	10
	<b>Total</b>	<b>40</b>

**Question Paper Pattern for External Practical Examination (Major) : 60 marks**

S. No	Components	Marks
1.	Menu Planning	10
2.	Calculation	10
3.	Menu Preparation	15
4.	Menu Display	10
5.	Record	10
6.	Viva	5
	<b>Total</b>	<b>60</b>

In respect of External Examinations Passing Minimum is **35 %for Under Graduate** Courses and in total, **aggregate of 40%**



Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
VI	Core	22OUNDDSEPR6	Dietetic Internship – Project	2	2	20	80	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
	✓	

### Course Objectives

To enable students to

1. Know about the principles of medical nutrition therapy.
2. Develop the skills & principle in modification of the normal & therapeutic diet to suit the different disease condition.
3. Acquire practical knowledge as dietitian.

### Course Contents:

#### Unit-I

Observation and study of organization and management of the dietary department.

Understanding the medical history of the patients, study of case sheet and diagnostic tests used.

#### Unit-II

. Planning therapeutic diets and computation of nutritive value.

#### Unit-III

Observation and study of

- a. Purchase ,storage and issue.
- b. Production.
- c. Service.

#### Unit-V

Participation in diet counselling units, experience in imparting diet counseling and understanding the records maintained in diet counseling units.

**Unit-V**

Submission of case study project report at the end of the internship training

**Books for study :**

1. AmbigaShanmugam, *Fundamentals of Biochemistry for Medical Students*, Karthick offset printers, Chennai, 2015.
2. Arumugam N et al., *Biochemistry*, Saras Publication, Nagerkoil, 2014.
3. Geetha swaminathan et al., *Laboratory chemical methods in food analysis*, Chennai 2002.
4. Veerakumar L, *Biochemistry*, MJPPublisher, Chennai, 2010.

**Books for Reference :**

1. Chopra H.K et.al, TM, *Food chemistry* (1<sup>st</sup>edn), Narosa Publishing House, New Delhi, 2015.
2. Lajja Das, *Clinical Biochemistry* (1<sup>st</sup>edn), Venu Books Publishers & Distributors New Delhi 2014.
3. Patricia Trueman, *Nutritional Biochemistry* (1<sup>st</sup>edn), MJP Publishers Chennai 2007.
4. Rastogi SC *Biochemistry* (3<sup>rd</sup>edn), at a McGraw Hill Education Private Limited, New Delhi, 2010.
5. Satyanarayan.S et.al *Fundamentals of Biochemistry*, (1<sup>st</sup>edn) Books and Allied (P) Ltd, Kolkata, 2012.

**Web Resources / E Books:**

1. <https://www.bda.uk.com/about-dietetics/what-is-dietitian.html>
2. <https://www.topdoctors.co.uk/medical-dictionary/diet-therapy>
3. <https://my.clevelandclinic.org/health/diseases/17179-liver-disease>
4. <https://www.mayoclinic.org/diseases-conditions/high-blood-pressure/symptoms-causes/syc-20373410>
4. <https://www.mayoclinic.org/diseases-conditions/cancer/symptoms-causes/syc-20370588>

**Pedagogy**

Demo, Menu Planning, Preparation of Dish and RDA Calculation.

**LESSON PLAN: TOTAL HOURS (30 HRS)**

Unit	Description	Hrs	Mode
1	<b>Unit-I</b> Observation and study of organization and management of the dietary department. Understanding the medical history of the patients, study of case sheet and diagnostic tests used.	10	Dietetic Internship
2	<b>Unit-II</b> Planning therapeutic diets and computation of nutritive value.	4	Dietetic Internship
3	<b>Unit-III</b> Observation and study of a. Purchase ,storage and issue. b. Production. c. Service.	6	Dietetic Internship
4	<b>Unit-V</b> Participation in diet counselling units, experience in imparting diet counseling and understanding the records maintained in diet counseling units.	4	Dietetic Internship
5	<b>Unit-V</b> Submission of case study project report at the end of the internship training.	6	Dietetic Internship

**Course Designer**

**Mrs. K.GOWSALYA**

Department of N&D				Class : III N&D				
Sem	Category	Course Code	Course Title	Credits	Contact Hours / Week	CIA	SE	Total
VI	SBE	22OUNDSE6	Child Development	2	2	25	75	100

Nature of the Course		
Knowledge and Skill Oriented	Employability Oriented	Entrepreneurship oriented
✓		

### Course Objectives

To enable students to

- 1.An understanding of the Physical, Psychological and social development of the individual from infancy to adulthood, so that they can be guided effectively.
- 2.Develop skills in achieving positive human relationships.

### Unit – I Pregnancy

Signs and symptoms of pregnancy, care of the expectant woman, stages of pregnancy, discomforts, complications during pregnancy, Stages of birth, Types of birth. Care of nursing woman-food, clothing, health, sleep, exercise and rest.

### Unit – II Infancy

Physical and motor development, intellectual, language, social and emotional development. Infant care-feeding, bathing, clothing, toilet training, Immunization.

**Unit – III Early Childhood** - Physical and motor development, intellectual, language, social and emotional development. Behavioral problems- types, causes and prevention. Discipline - Types. Habit formation.

**Unit – IV Late childhood** – Physical and motor development, intellectual, language, Social and emotional development. Adolescence – Physical, intellectual, social and emotional development, problems of adolescence.

**Unit – V Early and Middle adulthood** – Characteristics, development tasks, health status.

Old age – Physical and Psychological changes during old age, problems of old age, beneficial measures available for the old age group.

**Book for study:**

- 1.Suriakanthi.A ( 1997 ) Child Development, 3<sup>rd</sup> Edition, Kavitha Publications, Tamil Nadu.
- 2.Devadas,R.P and Jaya,N(1981) textbook on Child development, Macmillian and co.

**Books for Reference:**

- 1.Hurlock, E.B(1972) child development, Mc Graw Hill, New York.
- 2.San trock, J.W(1997) Life Span development, Brown and Bench Mark, Newyork.
- 3.Craig,G(1999)Human Development, Pentice Hall, New Jersey.
- 4.Kaul, V(1991)Early childhood education programme, New Delhi, NCERT.
- 5.Muralidharan,R.,Asthana.S(1991) stimulation activities for young children, New Delhi, NCERT.

**Web Resources / E.Books:**

- 1.[http://www.wbnsou.ac.in/online\\_services/SLM/BED/SEM-01\\_A1.pdf](http://www.wbnsou.ac.in/online_services/SLM/BED/SEM-01_A1.pdf)
- 2.<https://ncert.nic.in/textbook/pdf/kepy104.pdf>
- 3.<https://egyankosh.ac.in/bitstream/123456789/17134/1/Unit-3.pdf>
- 4.[https://www.cukashmir.ac.in/departmentsdocs\\_16/Growth%20&%20Development%20-%20Dr.%20Ismail%20Thamarasseri.pdf](https://www.cukashmir.ac.in/departmentsdocs_16/Growth%20&%20Development%20-%20Dr.%20Ismail%20Thamarasseri.pdf)

**Pedagogy**

Chalk and Talk, PPT, Group discussion, Quiz, On the spot test.

**Rationale for nature of Course:****Knowledge and Skill:**

To gain knowledge on life span development.

To know about the physical & psychological development in various stages of life .

**Activities to be given:**

Assignment, Group discussion, quiz, virtual assignment.

**Course learning Outcomes (CLO's):**

CLO	Course Outcomes Statement	Knowledge (According to Bloom's Taxonomy)
CLO1	Describe the meaning and principles of Growth & Development.	K1 to K3
CLO2	Explain developmental aspects during infancy, early and late childhood.	K1 to K3
CLO3	Evaluate developmental aspects during adolescence.	K1 to K3
CLO4	Identify the developmental tasks during adulthood.	K1 to K3
CLO5	Analyse the physical & psychological changes during old age period.	K1 to K3

**Mapping of Course Learning Outcomes (CLOs) with Program Outcomes (POs)**

	PO1	PO2	PO3	PO4	PO5	PO6
<b>CLO1</b>	1	2	1	3	1	3
<b>CLO2</b>	2	3	2	2	3	2
<b>CLO3</b>	2	1	2	1	2	1
<b>CLO4</b>	1	2	3	2	2	2
<b>CLO5</b>	1	2	2	1	2	3

**1-Basic Level****2- Intermediate Level****3- Advanced Level**

### LESSON PLAN : TOTAL HOURS (30 HRS)

Unit	Description	Hrs	Mode
1.	<b>Unit – I Pregnancy</b> Signs and symptoms of pregnancy, care of the expectant woman, stages of pregnancy, discomforts, complications during pregnancy, Stages of birth, Types of birth. Care of nursing woman-food, clothing, health, sleep, exercise and rest.	6	Chalk and talk, Group Discussions, Quiz.
2.	<b>Unit – II Infancy</b> Physical and motor development, intellectual, language, social and emotional development. Infant care-feeding, bathing, clothing, toilet training, Immunization.	6	Chalk and talk, Quiz.
3	<b>Unit – III Early Childhood</b> - Physical and motor development, intellectual, language, social and emotional development. Behavioral problems- types, causes and prevention. Discipline - Types. Habit formation.	6	Chalk and talk, PPT, On the spot Test.
4	<b>Unit – IV Late childhood</b> – Physical and motor development, intellectual, language, Social and emotional development. Adolescence – Physical, intellectual, social and emotional development, problems of adolescence.	6	Chalk and talk, PPT, On the spot Test.
5	<b>Unit – V Early and Middle adulthood</b> – Characteristics, development tasks, health status. Old age – Physical and Psychological changes during old age, problems of old age, beneficial measures available for the old age group.	6	Chalk and talk, PPT, On the spot Test, Assignment

**Course Designer:**

**Mrs. B.RUBA RANI**