

**SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE  
(AUTONOMOUS)**

*(Affiliated to Bharathidasan University)*

*(Accredited with "A" Grade by NAAC; An ISO 9001:2015 Certified Institution)*

**SUNDARAKKOTTAI, MANNARGUDI – 614016.**

**TAMILNADU, INDIA.**



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**B.Sc., NUTRITION AND DIETETICS  
COURSE STRUCTURE WITH SYLLABUS UNDER CBCS  
*(For the candidates admitted in the academic year 2020–2021)***



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## B.Sc., NUTRITION AND DIETETICS COURSE STRUCTURE UNDER CBCS

(For the candidates admitted in the academic year 2020–2021)

**ELIGIBILITY:** Those who have completed +2 examinations with Chemistry and Biology as two of the cosubjects

Sem.	Part	Nature of the Course	Course Code	Title of the Course	Inst. Hour/Week	Credit	Exam Hours	Marks			
								CIA	ESE	Total	
<b>I</b>	<b>I</b>	Language Course (LC)-I- Tamil*/Other Languages ** #	20LC101	Ikkala Ilakkiyam	6	3	3	25	75	100	
	<b>II</b>	English Language Course (ELC) – I	20ELC101	Language through Literature I (Prose and Communication Skills)	6	3	3	25	75	100	
	<b>III</b>		Core Course(CC)–I	20ND101	Food Science	6	5	3	25	75	100
			Core Practical(CP-I)	20ND102P	Food Science Practical	3	2	3	40	60	100
			Allied Course(AC)–I	20AND101	Food Microbiology	4	3	3	25	75	100
			Allied Course Practical(AP)-I	20AND102P	Food Microbiology Practical	3	2	3	40	60	100
	<b>IV</b>	Value Education	18UGVED	Value Education	2	2	3	25	75	100	
	<b>TOTAL</b>					<b>30</b>	<b>20</b>	-	-	-	<b>700</b>
<b>II</b>	<b>I</b>	Language Course (LC) –II- Tamil*/Other Languages ** #	20LC201	Idaikkala Ilakkiyamum Pudinamum	6	3	3	25	75	100	
	<b>II</b>	English Language Course (ELC) –II	20ELC201	Language through Literature II (Poetry and Communication Skills)	6	3	3	25	75	100	
	<b>III</b>		Core Course(CC)–II	20ND203	Human Physiology	6	5	3	25	75	100
			Core Practical(CP)–II	20ND204P	Human Physiology Practical	3	2	3	40	60	100
			Allied Course(AC)–II	20AND203	Food Chemistry	4	3	3	25	75	100
			Allied Practical(AP)–II	20AND204P	Food Chemistry Practical	3	2	3	40	60	100
	<b>IV</b>	Environmental Studies	19UGCES	Environmental Studies	2	2	3	25	75	100	
	<b>TOTAL</b>					<b>30</b>	<b>20</b>	-	-	-	<b>700</b>
<b>III</b>	<b>I</b>	Language Course (LC) -III Tamil*/Other Languages ** #	20LC301	Kaapiyamum Naadakamum	6	3	3	25	75	100	
	<b>II</b>	English Language Course(ELC)-III	20ELC301	Language through Literature III (Drama and Communication Skills)	6	3	3	25	75	100	
	<b>III</b>		Core Course(CC)–III	20ND305	Nutrition Through Life Cycle	6	5	3	25	75	100
			Core Practical(CP)–III	20ND306P	Nutrition Through Life Cycle Practical	3	2	3	40	60	100
			Allied Course (AC)-III	20AND305	Family Resource Management and Interior Design	4	3	3	25	75	100
			Allied Course Practical (AP)–III	20AND306P	Interior Design Practical	3	2	3	40	60	100
<b>IV</b>	Non Major Elective I- for those who studied Tamil underPart-I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme	-	Non Major Elective I- for those who studied Tamil underPart-I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme	2	2	3	25	75	100		
<b>TOTAL</b>					<b>30</b>	<b>21</b>	-	-	-	<b>700</b>	

Sem.	Part	Nature of the Course	Course Code	Title of the Course	Inst. Hour/ Week	Credit	Exam Hours	Marks			
								CIA	ESE	Total	
IV	I	Language Course (LC) -IV Tamil*/Other Languages ** #	20LC401	Sanga Ilakkiyam	6	3	3	25	75	100	
	II	English Language Course(ELC)-IV	20ELC401	Language through Literature IV (Short stories and Communication Skills)	6	3	3	25	75	100	
	III	Core Course (CC)—IV		20ND407	Nutritional Biochemistry	5	5	3	25	75	100
		Core Course Practical (CP)—IV		20ND408P	Nutritional Biochemistry Practical	3	2	3	40	60	100
		Allied Course(AC)—IV		20AND407	Basic Food Processing and Preservation	3	2	3	25	75	100
	Allied CoursePractical(AC)—IV		20AND408P	Basic Food Processing and Preservation Practical	3	2	3	40	60	100	
	IV	Non Major Elective II- for those who studied Tamil underPart-I a)Basic Tamil for other language students b)Special Tamil for those who studied Tamil upto +2 butopt for other languages in degree programme		-	Non Major Elective II- for those who studied Tamil under Part-I a)Basic Tamilfor other language students b) Special Tamil for thosewho studied Tamil upto +2 but opt for other languages in degree	2	2	3	25	75	100
	Skill Based Elective (SBE) - I		-	-	2	2	3	25	75	100	
<b>TOTAL</b>					<b>30</b>	<b>21</b>	-	-	-	<b>800</b>	
V	III	Core Course(CC)—V		20ND509	Dietetics—I	6	5	3	25	75	100
		Core Course (CC)—VI		20ND510	Food Service Management-I	5	5	3	25	75	100
		Core Course (CC)—VII		20ND511	Family and Child Welfare	6	5	3	25	75	100
		Major Based Elective(MBE)-I		20MBEND1	Changing Trends in Extension Education	5	5	3	40	60	100
		Core Practical(CP)—V		20ND512P	Dietetics –I Practical	3	3	3	25	75	100
	IV	Skill Based Elective (SBE)- II		-	-	2	2	3	25	75	100
		Skill Based Elective (SBE)- III		-	-	2	2	3	25	75	100
		Soft Skills Development		RUGSDC	Soft Skills Development	2	2	3	25	75	100
<b>TOTAL</b>					<b>30</b>	<b>29</b>	-	-	-	<b>800</b>	
VI	III	Core Course(CC)—VIII		20ND613	Dietetics—II	6	6	3	25	75	100
		Core Course(CC)—IX		20ND614	Food Service Management- II	6	6	3	25	75	100
		Major Based Elective(MBE)- II		20MBEND2	Textile Science	6	6	3	40	60	100
		Major Based Elective(MBE)-III		20MBEND3	Dietary Internship	6	5	3	25	75	100
		CoreCoursePractical(CP)— VI		20ND615P	Dietetics II Practical	5	5	3	25	75	100
	V	Extension Activities.		-	**Extension Activities- Gender Studies	1	2	3	25	75	100
		Gender Studies		-	-						
<b>TOTAL</b>					<b>30</b>	<b>30</b>	-	-	-	<b>600</b>	
<b>G. TOTAL</b>					<b>180</b>	<b>140</b>	-	-	-	<b>4300</b>	

## CURRICULUM DESIGN LIST OF ALLIED COURSES

### ALLIED COURSE I – FOOD MICROBIOLOGY

### ALLIED COURSE II – FOOD CHEMISTRY

Subject	No. of Courses	Total Credit
Language Part – I	4	12
English Part –II	4	12
Core Course	9	47
Core Practical	6	16
Allied Course	4	11
Allied Practical	4	08
Non-Major Elective	2	04
Skill Based Elective	3	06
Major Based Elective	3	16
Project	1	02
Environmental Studies	1	02
Value Education	1	02
Soft Skill Development	1	01
Gender Studies	-	01 (Credit only)
<b>Total</b>	<b>43</b>	<b>140</b>

\* For those who studied Tamil upto 10<sup>th</sup> +2 (Regular Stream);

+ Syllabus for other Languages should be on par with Tamil at degree level;#

those who studied Tamil upto 10<sup>th</sup> +2 but opt for other languages in degree

level under Part I should study special Tamil in Part IV;

\*\* Extension Activities shall be outside instruction hours.

#### **Note:**

	<b>CIA</b>	<b>ESE</b>
1. Theory	25	75
2. Practical	40	60
3. Project	25	75

Separate passing minimum is prescribed for CIA and ESE

#### **FOR THEORY**

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks] The passing minimum for ESE shall be 40% out of 75 marks [i.e. 30 marks]

**FOR PRACTICAL**

The passing minimum for CIA shall be 40% out of 40 marks [i.e. 16 marks]The passing minimum for ESE shall be 40% out of 60 marks [i.e. 24 marks]

**NON MAJOR ELECTIVE (NME) OFFERED BY THE DEPARTMENT**

Semester	Part	Nature of the Course	Course Code	Title of the Course
III	-	NME -I	20NMEND31	Women's Health and Nutrition
IV	-	NME -II	20NMEND42	Basics of Nutrition

**SKILL BASED ELECTIVE (SBE) OFFERED BY THE DEPARTMENT (PHYTOMEDICINE)**

Semester	Part	Nature of the Course	Course Code	Title of the Course
IV	-	SBE-I	20SBEND1	Bakery and Confectionary
V	-	SBE-II	20SBEND2	Food QualityControl
V		SBE-III	20SBEND3	Food Packaging

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**Question Paper Pattern ( Theory)**

**Max time: 3 hours**

**Max Marks: 75**

**Section – A (10 x 2 = 20)**

**Answer all the questions**

**Answer in One or Two sentences each**

1.  
2. Unit I }

3. }  
4. } Unit II

5. }  
6. } Unit III

7. }  
8. } Unit IV

9.  
10. Unit V }

**Section – B (5 x 5 = 25)**

**Answer all the questions**

**Each answer should not exceed 500 words**

11. a (or) Unit I  
b }

12. a (or) Unit II  
b }

13. a (or) Unit III  
b }

14. a (or) Unit IV  
b }

15. a (or) Unit V  
b }

**Section – C (3 x10 = 30)**

**Answer any THREE questions in 1200 words**

16. ---- Unit I

17. ---- Unit II

18. ---- Unit III

19. ---- Unit IV

20. ---- Unit V

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**DEPARTMENT OF NUTRITION AND DIETETICS**

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**Semester: I –CC-I: Food Science**

**Ins. Hrs./Week:6**

**Course Credit : 5**

**Course Code:20ND101**

**OBJECTIVES:**

- This subject aims to introduce different food groups, their composition and their role in diet.
- To Study the different methods of cooking foods.
- Obtain knowledge about the nutrients present in the foods.

**UNIT- I: Introduction to Food Science**

Definitions: Food Science, Food, Nutrients, Nutritional Status, Mal-nutrition- Under– nutrition, over-nutrition, Balanced diet, Hunger – Hollow Hunger, Hidden Hunger, Appetite, Satiety, Health, Meal, Menu.

Food Groups: Basic five, Nutritional classification of foods – Energy yielding, Body building and protective foods.

Cooking: Objectives, cooking methods- Moist and Dry heat methods of cooking, merits and demerits. Recent Methods of Cooking- microwave cooking and Induction Cooking

**UNIT-II: Cereals, Pulses & Nuts**

Cereal and Cereal products: Structure -Wheat and Nutritive value - rice and wheat, Changes during cooking, nutritional importance of millets– maize, jowar, ragi, bajra, milling of rice, parboiling of rice, Products of wheat and rice, Enrichment and fortification of cereals and flours, Batters and dough; Malting of cereals.

Pulses and Nuts: Nutritive value, factors affecting cooking quality of pulses, germination – process, advantages, Role of nuts in Indian Cookery

**UNIT- III: Vegetable & Fruit Science**

Vegetables: Classification, Selection of vegetables, Nutritive value; Pigments - fat soluble, water soluble, selection of vegetables, vegetables- changes during cooking, nutrient loss, effect of cooking on the pigments.

Fruits: Classification, Nutritive value, changes during ripening of fruits, enzymatic browning and prevention, storage. Pigments-fat soluble, water soluble, effect of cooking on the pigments, flavours

**UNIT- IV: Milk & Meat Science**

Milk and Milk Products: Composition and Nutritive value, Different types of milk, pasteurization of milk, milk products, Maillard reaction

Egg: Structure, Composition and Nutritive value, Measures of egg quality, role of egg in cookery. Factors affecting coagulation and foam formation

Meat- Structure, composition, effect of cooking on meat, a list of different types of meat, cuts of meat, post mortem changes in meat, and tenderness of meat. Poultry- Composition and classification.

Fish- Structure, classification, composition, nutritive value, selection of fish.

## **UNIT- V: Fats & Oils, Sugars, Spices & Beverage Science**

Fats and oil- Rancidity, processing and refining of fats, refined oil, plasticity, hydrogenation, winterization, Smoking point, factors that lower smoking point, absorption of fat during cooking.

Sugar- Stages of sugar cookery, crystallization, factors affecting crystallization. Nutritive value, sugar products.

Spices and condiments- Types and uses in Indian cookery, medicinal value.

Beverages-Classification and Nutritive value- Coffee and Tea

### **COURSE OUTCOME**

The Students will be able to

1. Know the concept and principle of Food science.
2. Understand the nutritive value & characteristics of Cereals, Pulses & Nuts in nature and during processing.
3. Know the changes in physiochemical and functional properties of Vegetable & Fruit science due to processing.
4. Understand the changes in physiochemical and functional properties of Milk & Meat science due to processing.
5. Acquire the Knowledge on changes in physiochemical science and functional properties of Fats & Oils, Sugars, Spices & Beverage Science.

### **TEXT BOOK(S)**

1. Potter N Norman. and Hotchkiss JH. 1998. Food Science. 5th Ed. CBS Publications and Distributors, Daryaganji, New Delhi.
2. Shakuntala Manay, Shadaksharaswamy, M. 2000. Foods, Facts and Principles. 2nd Edition. New Age International Pvt Ltd Publishers.
3. Srilakshmi B. 2010. Food Science. New Age International Publishers, New Delhi.
4. Swaminathan M. 1992. Hand Book of Food Science and Experimental Foods. BAPPCO, Bangalore.
5. Usha Chandrasekhar. 2002. Food Science and Application in Indian Cookery. Phoenix Publishing House, P. Ltd, New Delhi.

### **REFERENCE BOOK(S)**

1. Avantina Sharma. 2017, Textbook of Food Science and Technology CBS Publishers and Distributors.
2. Brown A. 2000. Understanding Food, Thomson Learning, Publications, Wadsworth.
3. Mehas KY. Rodgers S.L. 2000. Food Science and You. McMillan McGraw Company, New York.
4. Parker R. 2000. Introduction to food Science, Delmer, Thomson Learning Co., Delma.
5. Vickie A. Vaclavik, Elizabeth W. Christian. 2014. Essentials of Food Science Springer Science and Business Media, New York.

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**Semester: I CP-I: Food Science Practical**

**Ins. Hrs./Week:3**

**Course Credit :2**

**Course Code:20ND102P**

**General**

- Different types of cereals, pulses, vegetables, fruits and nuts and oil seeds – Observation
- Guidelines to be followed in laboratory.
- Method of Measuring Ingredients.
- Demonstration of Cooking Methods.

**Food Science Practical**

1. Cereals – Preparation of rice by steaming, absorption method, Straining and Pressure cooking. Batters and dough. Preparation of Idli, Dosa, Upma, Chapathi, Poori, Fried and variety rice.
2. Pulses – Factors affecting the cooking quality of pulses. Preparation of Sambar, Sundal, Vada, Channa Masala, Green gram payasam, Sprouted salad and koottu.
3. Vegetables – Selection, cleaning, coring, pitting and chopping of fruits and vegetables. Different techniques, Avial, stew, cutlet, chips, stuffed chapathi.
4. Fruits –, Salad, Stuffed items, Jelly, Thokku, Sauce and Jams.
5. Milk – Cottage Cheese, Paneer, Ice cream, kova, Buttermilk, Basanthi
6. Egg – Boiled, Scrambled, Poached, Omelette.
7. Three Course, Five Course and Seven Course menu planning.
8. Score card preparation and sensory evaluation.

**TEXT BOOK(S):**

1. Shakuntala Manay N. 2001. Foods facts and principles. New Age International Publishers, New Delhi.
2. Potter N Norman. 2007. FoodScience. CBS Publications and distributors, New Delhi.

**REFERENCE BOOK(S):**

1. Brow A. 2000. Understanding Food, Thomson Learning Publications, Wadsworth.
2. Mehas KY. Rodgers. 2000. S.L. Food Science . McMillan McGraw Company, New York.
3. Parker R. 2000. Introduction to food Science. Delmer, Thomson Learning Co, Delma.
4. Raheena Begum, M. 2008. Textbook of Foods, Nutrition and Dietetics, Sterling Publishers, Pvt. Ltd, New Delhi.
5. SumathiMudambi R. Rajagopal MV. 2004. Fundamentals of Foods and Nutrition. New Age International Publishers, New Delhi

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**Semester: I AC-I Food Microbiology**

**Ins. Hrs./Week:4**

**Course Credit :3**

**Course Code: 20AND101**

**OBJECTIVES:**

- Acquire an elementary knowledge and understand the relevance of microscopy.
- Learn and apply the basic of microbiology and its applications in everyday life.
- Develop an understanding of the role of microorganisms in food industry and in the maintenance of health.

**UNIT- I: Introduction to Microbiology**

Definition and History: Microscopy, Light and electron Microscopy, General Morphology of Microorganisms -Bacteria, Fungi, Algae, Yeast and Virus- Bacteriophage.

**UNIT- II: Growth and Multiplication**

Growth phase, Factors Affecting Growth: Intrinsic Factors, Nutrient Content, pH, Redox Potential, Antimicrobial Barrier and Water Activity. Extrinsic Factors: Relative Humidity, Temperature and Gaseous Atmosphere

**UNIT- III: Microbiology of Perishable, Semi and Non-Perishable Foods**

Outline of Contamination- Spoilage and Preservation of Cereal and Pulses, Vegetables and Fruits, Milk and Meat Products, Fish, Egg and Poultry

**UNIT- IV: Beneficial Effects of Microorganisms**

Fermented Foods – Cheese, Sauerkraut, Meat, Soy Based Foods, Alcoholic Beverages and Vinegar, Microbial Biomass

**UNIT- V: Microbial Diseases**

Food Borne Diseases – Botulism and Poliomyelitis;

Water Borne Diseases- Amoebiasis and Diarrhea;

Air Borne Diseases – Influenza and Chicken pox; Preventive and control measures.

**COURSE OUTCOME**

The student will be able to

1. Gain thorough knowledge on history and scope of microbiology and deep insight in the application of microscopy technique.
2. Acquaint with the basic concept of microbes, their taxonomy, their differentiation and factors influencing their growth and survival.
3. Gain Knowledge of microbes and their importance, application in day to day life with special reference to food.
4. Explain the effects of fermentation in food production and how it influences the microbial quality and status of the food product.
5. Describe the characteristics of food borne, water borne and air borne microbial diseases.

**TEXT BOOK(S)**

1. Adams MR. 2014. Food Microbiology. New Age International Publishers, New Delhi.
2. Adams MR. and Moss, M.O. 2005. Food Microbiology, New Age International (P) Ltd, New Delhi.
3. Pelczar Jr. Michael J. 2014. Microbiology. Mcgraw Hill Education Private Ltd, New Delhi.
4. Vijaya Ramesh K. 2007. Food Microbiology, MJP Publishers, Chennai.
5. William C. Frazier. 2014. Food Microbiology, Tata McGraw Hills Publishing Company Limited, Chennai.

**REFERENCE BOOK(S)**

1. Adams Tamine. 2005. Probiotic Dairy Products. Blackwell Publishing, USA.
2. Anathanaraya. 2013. Textbook of Microbiology. University Press (India), Pvt. Ltd, Hyderabad.
3. Bohraand Parihar. 2012. Food Microbiology Student edition.
4. James M. Jay. 2005. Modern Food Microbiology, Fourth Edition, CBS Publishers and Distributors, New Delhi.
5. James G. Cappuccino, Natalie Sherman, 2008. Microbiology – A Laboratory Manual. Pearson Education Publishers, USA.

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**Semester: I AP-I: Food Microbiology Practical**

Ins. Hrs./Week:3

Course Credit :2

Course Code:20AND102P

1. Instrumentation in Microbiology laboratory and their function (Microscope, Autoclave, Hot air oven).
2. Preparation of Culture media.
3. Pure culture techniques (spread plate, streak plate and pour plate methods).
4. Staining techniques-simple and differential.
5. Microbiological evaluation of milk and milk products.
6. Microbiological analysis of water and air.
7. Isolation of spoilage organisms from different food commodities.

**REFERENCE BOOK(S)**

1. James G. Cappuccino and Natalie Sherman. 2008. Microbiology – A Laboratory Manual. Pearson Education Publishers, USA.
2. James M. Jay. 2005. Modern Food Microbiology. Fourth Edition, CBS Publishers and Distributors, New Delhi.
3. Adams Tamine. 2005. Probiotic Dairy Products, Blackwell Publishing, USA.

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## Part IV - VALUE EDUCATION (Revised syllabus)

### Unit I Philosophy of Life and Social Values

Human Life on Earth (Kural 629) Purpose of Life (Kural 46) Meaning and Philosophy of Life (Kural 131, 226) Family (Kural 45), Peace in Family (Kural 1025) Society (Kural 446), The Law of Life (Kural 952), Brotherhood (Kural 807) Five responsibilities / duties of Man (a) to himself (b) to his family (c) to his environment (d) to his society, (e) to the Universe in his lives (Kural 43, 981).

### Unit II Human Rights and Organisations

Definitions, Nature of Human Rights. Universal Declaration of Human Rights, International covenant on Civil and Political Rights - International covenant of Economic, Social and Cultural Rights. Amnesty International Red Cross.

### Unit III Human Rights : Contemporary Challenges

Child labour - Womens Right - Bonded labour - Problems of refugees - Capital punishment. National and State Human Rights Commissions

### Unit IV Yoga and Health

Definition, Meaning, Scope of Yoga - Aims and objectives of Yoga - Yoga Education with modern context - Different traditions and schools of Yoga - Yoga practices: Asanas, Pranayama and Meditation.

### Unit V Role of State Public Service Commission

Constitutional provisions and formation - Powers and Functions - Methods of recruitment - Rules and notification, syllabi for different exams - written and oral - placement.

### BOOKS FOR REFERENCES:

1. Thirukkural with English Translation of Rev. Dr. G.U. Pope, Uma Publication, 156, Serfoji Nagar, Medical College Road, Thanjavur 613 004
2. Leah Levin, Human Rights, NBT, 1998
3. V.R. Krishna Iyer, Dialectics and Dynamics of Human Rights in India, Tagore Law Lectures.
4. Yogic Therapy - Swami Kavalayananda and Dr.S.L.Vinekar, Government of India, Ministry of Health, New Delhi.
5. SOUND HEALTH THROUGH YOGA - Dr.K.Chandrasekaran, Prem Kalyan Publications, Sedappti, 1999.

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**Semester: II CC-II: Human Physiology**

**Ins. Hrs./Week:6**

**Course Credit :5**

**Course Code:20ND203**

**OBJECTIVES:**

- Understand the structure and functions of various organs of the body.
- Obtain a better understanding of the principles of nutrition through the study of physiology to prevent & cure disease through diet.
- Understand the importance of hormonal and nervous regulation of the body.

**UNIT-I: Blood and Circulatory System**

**Blood** – Composition and functions. Structure and functions; Red Blood Cells, White Blood Cells, Platelets and Haemoglobin. Erythropoiesis; Blood coagulation, Blood groups, Rh Factors

**Heart and Circulation** – Structure of heart and circulation. Structure of blood vessels; Properties of cardiac muscle; Cardiac cycle; Heart Rate, Cardiac output; Origin and conduction of heart beat; Measurement of arterial blood pressure.

**Lymphatic system:** Description and functions

**UNIT-II: Digestive System**

General Anatomy of the digestive system. Digestion in the Mouth, Stomach and Intestines; structure of Villi, Movements of the small intestine; Role of Liver and Pancreas – Structure and Functions.

**UNIT-III: Respiratory and Excretory System**

**Respiratory System** –Anatomy and physiology of Respiratory organ, Mechanics of Respiration, Subdivisions of Lung air, Artificial Respiration, Control of respiration Chemistry of Respiration.

**Excretory system** –Structure & functions of kidney and nephron; Formation of urine, Micturition. Skin – Structure and functions, Regulations of body temperature

**UNIT-IV: Endocrine and Reproductive System**

**Endocrine System** – Structure and functions of thyroid, pituitary, parathyroid, adrenals, islets of Langerhans of pancreas

**Reproductive System** – Structure and functions of male and female reproductive organ Physiology of Menstruation, Spermatogenesis, Oogenesis, Fertilization; Hormonal regulation and feedback mechanism

**UNIT-V: Nervous System and Sense Organs**

**Nervous System** – Brain, Spinal cord & Neurons- Structure & functions; Conduction of nerve impulse and Neuro- transmitters.

**Sense Organs** – Structure and function - Eye & ear; Tongue in Perception of stimuli;

## **COURSE OUTCOME**

The students will be able to

1. Know the role and importance of blood and circulatory system.
2. Know the structure & mechanism of human body digestive system.
3. Know the mechanism of respiratory and excretory function and its role in body regulation.
4. Understand the importance of endocrinology and comprehend the reproductive system.
5. Have an enhanced knowledge on nervous system and sense organs.

## **TEXT BOOK(S)**

1. Sembulingam K. 2000. Essentials of Medical Physiology. Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
2. Chatterjee CC. 2004. Human Physiology Volume II, Medical Allied Agency, Kolkata.
3. Sembulingam. 2016. Essentials of Medical Physiology. Health Sciences Publisher, New Delhi.
4. Subramanyam Sarada. 2018. Text book of Human Physiology. S.Chand and company Ltd, New Delhi.

## **REFERENCE BOOK(S)**

1. Best and Taylor. 1992. The Physiological Basis for Medical Practice. Saunders Company.
2. Chaudhri K. 1993. Concise Medical Physiology, New Central Book Agency (Parentraltd., Calcutta.
3. Guyton and Hal. 2000. Text book of Medical Physiology. Saunders, United States of America.
4. Waugh Anne Ross and Wilson. 2003. Anatomy and Physiology in Health and Illness. Churchill Livingstone, New York.
5. Muruges N. 2011. Anatomy and Physiology. Sathya Publishers, Madurai.
6. Wilson, Ross. 2014. Anatomy and Physiology in Health and Illness. Reed Elsevier India Private Limited, New Delhi

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**B.Sc., NUTRITION AND DIETETICS**



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**Semester: II –CP-II: Human Physiology Practical**

**Ins. Hrs./Week:3**

**Course Credit :2**

**Course Code: 20ND204P**

**Practical:**

- Histology of Tissues – Columnar, cubical, ciliated, squamous, stratified squamous.
- Microscopic structure of organs – lungs, artery, vein, stomach, ovary, testis, uterus, pancreas.
- Histology of muscles – cardiac, striated, non – striated.
- Estimation of Haemoglobin, Bleeding time, Clotting time.
- Measurement of Blood pressure – before and after exercise.
- Determination of Respiratory rate and Pulse rate – before and after exercise.
- Determination of Blood group.
- Determination of Rh factor.
- Enumeration of Red blood cells – Demonstration.
- Enumeration of White blood cells – Demonstration.
- Differential Leucocyte count – Demonstration.
- Visit to a Clinical laboratory.

**REFERENCE BOOK(S)**

1. Wilson Ross. 2014. Anatomy and Physiology in Health and Illness. Reed Elsevier India Private Limited, New Delhi.
2. Pal GK and Parvati Pal. 2016. Textbook of practical physiology. Universities press (India) private limited.

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Semester: I–AC-II: Food Chemistry

Ins. Hrs./Week:4

Course Credit :3

Course Code:20AND203

**OBJECTIVES:**

- Gain insight into the chemistry of foods.
- Understand the scientific principles involved in food preparation.
- Understand the various properties exhibited by foods.
- Study the physico-chemical changes occurring in foods during cooking.

**UNIT- I: Introduction to Food Chemistry and Water**

Definition and history of food chemistry. Role of food chemist in food industry; Physico-chemical properties of foods Physical properties of water and ice; types of water, Water Activity in Foods and stability, packaging, sorption phenomenon, temperature dependence, Determination of Moisture Content in Foods. True Solutions, Dispersions, Sols, Gels, Foams, Colloids and Emulsions

**UNIT- II: Chemistry of Starch and Sugars**

Structure of important polysaccharides (starch, glycogen, cellulose, pectin, hemicellulose, gums) Modified celluloses and starches. Components of Starch, Swelling of Starch Granules, Gel Formation, Retrogradation, Syneresis,. Effect of Sugar, Acid, Alkali, Fat and Surface-Active Agents on Starch. Stages of Sugar Cookery, Crystallization and factors affecting it. Chemistry of Milk Sugar, Non-Enzymatic Browning

**UNIT- III: Chemistry of Proteins**

Nature of Food Proteins (Plant and Animal)  
Properties of Protein- Electrophoresis, Sedimentation, Amphoterism and Denaturation, Solubility, Viscosity, Binding, Gelation, Texturization, Emulsification and Foaming

**UNIT- IV: Chemistry of Fats and Oils**

Classification and Characteristics of lipids.  
Physical properties-melting point, softening point, specific gravity, refractive index, smoke, flash and fire point, turbidity point. Chemical properties-reichertmeissel value, polenske value, Iodine value, peroxide value, saponification value. Effect of frying on fats Changes in fats and oils- rancidity, lipolysis, flavor reversion. Technology of edible fats and oils- Refining, Plasticity, Hydrogenation and Interesterification. Shortening Power of Fats, Changes in Fats and Oils during Heating, Factors Affecting Fat Absorption in Foods

**UNIT- V: Enzymes and Flavours :**

**Enzymes-** Introduction, classification General characteristics, Enzymes in food processing, Industrial Uses of Enzymes, Immobilized enzymes.

**Flavors-** Definition and basic tastes, Chemical structure and taste, Description of food flavors and Flavor enhancers

**COURSE OUTCOME:**

The students will be able to

1. Know the chemistry of underlying properties and reactions of water and basics of food chemistry.
2. Have sufficient knowledge of starch and sugars to control reactions in foods and also Know the major chemical reactions that limit shelf life of foods using sugars.
3. Apprehend the chemistry of protein, their functional properties in food.
4. Select the appropriate fats to be used in cooking and their storage and functional uses.
5. Have an enhanced knowledge on the role of enzymes and flavours in Indian cookery.

**TEXT BOOK(S)**

1. Shakuntala Manay, Shadaksharaswamy M. 2000. Foods, Facts and Principles, 2nd Edition New Age International Pvt Ltd Publishers.
2. Chandrasekhar U. 2002. Food Science and applications in Indian Cookery. Phoenix Publishing House, New Delhi.
3. Swaminathan M. 2005. Food Science. Chemistry and Experimental Foods, Bappco Publishers, Bangalore.
4. Yadav, Seema. 2006. Food Chemistry. Anmol Publications (P)Ltd, New Delhi.
5. Iqbal, SyedAftab. 2011. Advanced Food Chemistry. Discovery Publishing House, New Delhi.
6. Chopra HK and Panesar PS. 2015. Food Chemistry. Narosa Publishing House (P) Ltd, New Delhi.
7. Srilakshmi B. 2016. Food Science. New Age International Publishers, New Delhi.

**REFERENCE BOOK(S)**

1. Meyer L H. 2004. Food Chemistry. 4th edition, CBS Publishers and Distributors.
2. Paul PC and Palmer H H. 2000. Food Theory and Applications. Revised Edition, John Wiley and Sons, New York.
3. Chopra H.K., Panesar P.S. 2010. Food Chemistry Narosa Publishing House, New Delhi.
4. Satarkar, Archana. 2008. Food Science and Nutrition ABD Publishers, Jaipur.
5. Shubhangini A, Joshi, 2010. Nutrition and Dietetics with Indian case studies, McGraw Hill Education (India), Pvt. Ltd, New Delhi.

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**Semester: II –AP-II: Food Chemistry Practical**

**Ins. Hrs./Week:3**

**Course Credit :2**

**Course Code:20AND204P**

**1. Chemistry of Starch and Sugars**

- Gelatinization of Starch, Microscopic Examination of uncooked and gelatinized Starch.
- Retrogradation and Syneresis, Gluten Formation,
- Stages of Sugar Cookery, Preparation of Fondant, Fudge, and Toffee, Scum formation in milk.

**2. Chemistry of Proteins**

- Gluten Formation.
- Effect of Soaking, germination and fermentation of Pulses Coagulation of egg white and egg yolk .
- Boiled Egg, Poached Egg, Omlettes, Custards, Cake and Mayonnaise .
- Coagulation and precipitation of milk proteins.
- Changes observed in Cooking Meat, Fish and Poultry, Testing the Tenderness of meat.

**3. Chemistry of Fats and Oils**

- Smoking Temperature of Different Fats, Factors Affecting Absorption of Fats.

**4. Chemistry of Pectic Substances and Plant Pigments.**

- Effect of acids, alkali and heat on water soluble and fat-soluble pigments.
- Enzymatic Browning and Methods of prevention.

**REFERENCE BOOK(S):**

1. Brow A. 2000. Understanding Food. Thomson Learning Publications, Wadsworth.
2. Mehas KY. Rodgers SL. 2000. Food Science. McMillan McGraw Company, New York.
3. Parker R. 2000. Introduction to food Science. Delmer, Thomson Learning Co, Delma.

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# SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE

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(Applicable to the candidates admitted from the Academic year 2019-20 onwards)  
ENVIRONMENTAL STUDIES

- Unit: 1**      The Multidisciplinary nature of environmental studies  
Definition, scope and importance. (2 lectures)  
Need for public awareness
- Unit: 2**      Natural Resources:  
Renewable and non-renewable resources:  
Natural resources and associated problems.
- a) Forest resources: use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
  - b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems.
  - c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
  - d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
  - e) Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.
  - f) Land resources: Land as a resources, land degradation, man induced Landslides, soil erosion and desertification.
- Role of an individual in conservation of natural resources.
  - Equitable use of resources for sustainable lifestyles. (8 lectures)
- Unit: 3**      **Ecosystems**
- Concept of an ecosystem.
  - Structure and function of an ecosystem.
  - Producers, consumers and decomposers
  - Energy flow in the ecosystem
  - Ecological succession.
  - Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem:-
- Forest ecosystem

- b. Grassland ecosystem
- c. Desert ecosystem
- d. Aquatic ecosystems, (ponds, streams, lakes, rivers, oceans, estuaries)

(6 lectures)

**Unit: 4      Biodiversity and its conservation**

- Introduction – Definition : Genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values
- Biodiversity at global, National and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Biological Diversity Act 2002/ BD Rules, 2004

(8 lectures)

**Unit: 5      Environmental Pollution**

Definition

Causes, effects and control measures of :

- a. Air Pollution
  - b. Water Pollution
  - c. Soil Pollution
  - d. Marine Pollution
  - e. Noise pollution
  - f. Thermal Pollution
  - g. Nuclear hazards
- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
  - Role of an individual in prevention of pollution
  - Pollution case studies
  - Disaster management: floods, earthquake, cyclone and landslides.
  - Ill-Effects of Fireworks: Firework and Celebrations, Health Hazards, Types of Fire, Firework and Safety

(8 lectures)

**Unit: 6 Social Issues and the Environment**

- From Unsustainable to Sustainable development.
- Urban problems related to energy.
- Water conservation, rain water harvesting, watershed management.
- Resettlement and rehabilitation of people; its problems and concerns.

Case studies

- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and Control of Pollution) Act.
- Wildlife Protection Act.
- Forest Conservation Act.
- Issues involved in enforcement of environmental legislation
- Public awareness.

(7 lectures)

**Unit: 7 Human Population and the Environment**

- Population growth, variation among nations.
- Population explosion – Family Welfare Programmes
- Environment and human health
- Human Rights - Value Education
- HIV/ AIDS - Women and Child Welfare
- Role of Information Technology in Environment and human health
- Case studies.

**Unit: 8 Field Work**

- Visit to a local area to document environmental assets-river / forest/ grassland/ hill / mountain

**References:**

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Public Ltd Bikaner.
2. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt ltd, Ahamedabad – 380013, India, E-mail: [mapin@icenet.net](mailto:mapin@icenet.net)(R)
3. Brunner R.C. 1989, Hazardous Waste Incineration, McGraw Hill Inc 480 p
4. Clark R.S. Marine Pollution, Clarendon Press Oxford (TB)
5. Cunningham, W.P.Cooper, T.H.Gorhani E & Hepworth, M.T. 2001.
6. De A.K. Environmental Chemistry, Wiley Eastern Ltd
7. Down to Earth, Centre for Science and Environment (R)
8. Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford University, Press 473p.
9. Hawkins, R.E. Encyclopedia of India Natural History, Bombay Natural History Society,

- Bombay (R)
10. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment. Cambridge University Press 1140 p.
  11. Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws Himalaya Pub. House, Delhi 284 p.
  12. Mckinney, M.L. & Schoch R.M. 1996. Environmental Science systems & Solutions, Web enhanced edition 639 p.
  13. Mhaskar A.K. Matter Hazardous, Techno-Science Publications (TB)
  14. Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
  15. Odum, E.P. 1971 Fundamentals of Ecology. W.B. Saunders Co. USA. 574 p
  16. Rao MN & Datta, A.K. 1987 Waste Water treatment, Oxford & IBH Publication Co. Pvt Ltd 345 p.
  17. Sharma B.K. 2001 Environmental chemistry Goel Publ House, Meerut.
  18. Survey of the Environment, The Hindu (M ).
  19. Townsend C. Harper, J and Michael Begon, Essentials of Ecology, Blackwell science (TB)
  20. Trivedi R.K. Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II, Enviro Media (R).
  21. Trivedi R.K. and P.K. Goel, Introduction to air pollution, Techno-Science Publications (TB).
  22. Wagner K.D. 1998 Environmental Management. W.B. Saunders Co. Philadelphia USA 499 p  
(M) Magazine (R) Reference (TB) Textbook
  23. <http://nbaindia.org/uploaded/Biodiversityindia/Legal/33%20Biological%20Diversity%20Rules,%202004.pdf>.

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**Semester III – CC- III: Nutrition through Life Cycle**

**Ins Hrs. /Week: 6**

**Course Credit: 5**

**Course Code:20ND305**

**OBJECTIVES**

- Gain knowledge on the importance of nutrition during life span.
- To do computation of nutrient allowances during life span.
- Enlighten on the dietary modifications.

**UNIT-I: Meal Planning**

**(16 Hours)**

Principles of meal planning, Recommended Dietary Allowances, Food groups and food exchange list; Factors affecting meal planning and types of eating 17 behavior, Dietary guidelines for Indians.

**UNIT-II: Nutrition During Pregnancy and Lactation**

**(20 Hours)**

Nutrition during pregnancy, Importance of pre and periconceptional nutrition during pregnancy; Pre pregnancy weight and foetal outcome. Foetal weight gain. Physiological changes during pregnancy, complications in pregnancy. Intrauterine growth retardation. High risk pregnancies. Importance of antenatal care. Maternal nutrient metabolism and recommended dietary allowances in pregnancy.

Nutrition during lactation- Breast feeding biology, Psycho – physiological aspects of lactation, Recommended Dietary Allowances and nutritional needs of a nursing mother, nutritional guidelines, composition of breast milk and advantages, disadvantages of bottle feeding, Factors affecting lactation capacity, Effect of breast feeding on maternal health.

**UNIT-III: Nutrition During Infant**

**(18 Hours)**

Nutrition during Infant – Growth and physiological development. Infant nutritional needs and concerns. Nutrition and brain development. Infant feeding, Weaning – Definition, types of supplementary foods, points to be considered in introducing weaning foods. Nutritional problems in infant feeding. Preterm and Low Birth Weight infants.

**UNIT-IV: Nutrition During Preschool Children, School Children and Adolescence**

**(19 Hours)**

Nutrition during preschool children- Growth and development, Nutritional needs and feeding for preschool children. Malnutrition among preschool children.

Nutrition during school children- Growth and development, Nutritional requirements and RDA. Feeding school children, behavioural characteristics and feeding problems. Dietary patterns, packed lunch – factors to be considered, sample menu, school lunch programmes and nutritional problems.



Nutrition during adolescence- Growth during adolescence, nutritional requirements, hormonal influences, age of menarche-factors affecting, physiological problems and nutritional problems in adolescence.

**UNIT-V: Nutrition for Adulthood and Nutrition for Old Age (17 Hours)**

Nutrition for Adulthood- Food and nutritional requirements, dietary guidelines, nutritional problems.

Nutrition for old age – Process of ageing, food and nutritional requirement, dietary guidelines, nutrition related problems, degenerative diseases.

**Total Lecture Hours- 90**

**COURSE OUTCOME**

The students will be able to:

1. Apply the knowledge of the science of nutrition to human health across the life span.
2. Describe the physiological basis for nutritional needs of normal healthy humans as they move through life cycle stages.
3. Explain the importance of maternal nutrition on foetal outcome and can identify the critical periods where the foetus at most risk for nutritional deficiency.
4. Assess and compare diet and nutritional requirements relative to age, developmental and disease status.
5. Evaluate nutrition products for composition, quality, and appropriateness of use (e.g. infant formulas, supplements and specialty foods) and formulate dietary interventions to address nutritional deficiencies.

**TEXT BOOK(S)**

1. Khanna K. Gupta S. Passi S.J. Seth R. Mahna R. Puri S. 2013. Textbook of Nutrition and Dietetics. Phoenix Publishing House.
2. Mahtab S. Bamji, Kamala Krishnaswamy G.N.V Brahman. 2012. Text book of Human Nutrition. 3<sup>rd</sup> edition. Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi.
3. Ravinder Chadha and Pulkit Mathur. 2015. Nutrition: A Lifecycle Approach Publisher The Orient Blackswan, First edition ISBN-10: 812505930X; ISBN-13:978-8125059301
4. Seth V and Singh K. 2006. Diet planning through life cycle. Part 1. Elite publishing house Pvt. Ltd, New Delhi.
5. Srilakshmi B. 2013. Dietetics, New Age International (P). Ltd, New Delhi.
6. Swaminathan M. 2012. Advanced Textbook on Food and Nutrition. Vol-1, Second Edition, Bangalore Printing and Publishing Co. Ltd, Bangalore.

**REFERENCE BOOK(S)**

1. Chadha R and Mathur P. 2015. Nutrition: A Lifecycle Approach. Orient Blackswan, Delhi.
2. Gopalan C. Rama Sastri BV. Balasubramanian SC. 2014. Nutritive Value of Indian Foods. National Institute of Nutrition. ICMR, Hyderabad.
3. Krause MV. and Hunscher M.A. Food, Nutrition and Diet Therapy, 14<sup>th</sup> Edition W.B. Saunders.
4. Park K. 2011. Text Book of Preventive and Social Medicine. 21<sup>st</sup> edn, Banarsidas Bhanot Publishers, Jabalpur, India.
5. Shills ME. Olson JA. Moshe S and Ross CA. 2006. Modern Nutrition in Health and Disease, 9<sup>th</sup> edn, Lippincott Williams and Wilkins.

6. Smolin and Grosvenor. 2000. Nutrition Science and Applications, 3rd edn, Saunders College Publishing, Philadelphia.
7. Wardlaw GM. Hampi JS. DiSilvestro RA. 2004. Perspectives in Nutrition. 6<sup>th</sup> edition, McGraw Hill.

**E – Resources**

1. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5104202/>
2. <https://www.ncbi.nlm.nih.gov/books/NBK525242/>
3. <https://www.health.gov.au/english/topics/seniorhealth/healthpromo/pages/nutrition-elderly.aspx>
4. <https://youtu.be/2d0ane8uuR8>
5. <https://youtu.be/TTIOQN24YJ4>
6. [https://nptel.ac.in/content/storage2/courses/126104004/LectureNotes/Week-1\\_05-pdf](https://nptel.ac.in/content/storage2/courses/126104004/LectureNotes/Week-1_05-pdf)
7. <https://www.biologyonline.com/dictionary/degenerative-disease>

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**Semester: III CP – III: Nutrition Through Life Cycle Practical**

**Ins Hrs./Week:3**

**Course Credit: 2**

**Course Code:20ND306P**

**CONTENTS**

1. Prepare a Food list based on food groups
  - a. Calculate Calories (Kcal)
  - b. Calculate Protein (g)
  - c. Calculate Fat (g)
2. Menu planning and preparation for the following groups with variation  
Plan, calculate nutritive value and prepare meal for
  - a. Pregnant women
  - b. Lactating women
  - c. Infant
  - d. Preschooler
  - e. School going children
  - f. Adolescent
  - g. Adult
  - h. Old age

**REFERENCE BOOK(S)**

1. Chadha R and Mathur P. 2015. Nutrition: A Lifecycle Approach. Orient Blackswan, Delhi.
2. Gopalan C. Rama Sastri BV. Balasubramanian SC. 2014. Nutritive Value of Indian Foods. National Institute of Nutrition, ICMR, Hyderabad.
3. Krause MV and Hunscher MA. Food. Nutrition and Diet Therapy. 14<sup>th</sup> Edition, W.B.Saunders.
4. Park K. 2011. Text Book of Preventive and Social Medicine. 21<sup>st</sup>edn, Banarsidas Bhanot Publishers, Jabalpur. India.
5. Shills ME. Olson JA. Moshe S and Ross CA. 2006. Modern Nutrition in Health and Disease, 9<sup>th</sup>edn, Lippincott Williams and Wilkins. .
6. Wardlaw GM. Hampi JS. DiSilvestro RA. 2004. Perspectives in Nutrition. 6<sup>th</sup> edition, McGraw Hill.

**E- RESOURCES**

1. <https://youtu.be/kdfFTRbHsIU>
2. [https://youtu.be/\\_Ap4BXhig5c](https://youtu.be/_Ap4BXhig5c)
3. <https://www.healthychildren.org/English/healthy-living/nutrition/Pages/The-5-Food-Groups-Sample-Choices.aspx>
4. <https://heas.health.vic.gov.au/early-childhood-services/menu-planning/babies>
5. [http://www.efad.org/media/1351/nutritional\\_guidelines\\_and\\_menu\\_checklist\\_march2014.pdf](http://www.efad.org/media/1351/nutritional_guidelines_and_menu_checklist_march2014.pdf)

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**Semester: III AC –III: Family Resource Management and Interior Design**

**Ins Hrs. /Week: 4**

**Course Credit: 3**

**Course Code: 20AND305**

**OBJECTIVES**

- Students have a foundation in the fundamentals of art and design; theories of design, green design, and discipline-related history.
- Students understand and apply the knowledge, skills, processes, and theories of interior design.
- Individual with customer service experience, extensive knowledge of design techniques, and a background in management seeking interior design position at any company.

**UNIT – I: Management & Concepts**

**(11 Hours)**

Management – Definition, Principles and elements involved in management, Process – planning, controlling and evaluation. Motivation in management. Management Concepts - Goals and Values – their relationship to decision-making, Standard of Living – Definition, constituents – Means for raising the standard of living of families. Decision Making – steps, importance, types of decisions, Habitual versus Conscious decision making. Individual and group decisions, resolving conflicts in group decisions

**UNIT – II: Resources & Family**

**(12 Hours)**

Resources – Human and non-human resources. Characteristics of Resources, utilization of resources to achieve family goals. Family Income – Definition, Types - Money, Real and Psychic income, various ways of improving the income of the family, Family finance management.

Family Budget – Definition and meaning, importance of budgeting, steps, factors affecting the budget. Engles's Law of Consumption. Savings – Meaning, objectives, Needs for savings in the family, types of savings schemes.

**UNIT III: Basic Interior Design & Colour**

**(12 Hours)**

Concept of Interior Design-Meaning of Interior Design and Interior Decoration. Design – Definition, Meaning, Purpose. Types, elements and principles Concept of colour. Dimensions of colour – Hue, value and intensity, Colour therapy & Psychology of Colour systems, harmonies, Application of colour harmonies in the interiors and exteriors

**UNIT- IV: Lighting, Accessories & Furnitures**

**(13 Hours)**

Importance of lighting. Sources, Types, Glare- its types, causes and prevention.

Accessories-Meaning, Types-functional, decorative, both functional and decorative, Lighting accessories- fixtures, Lighting for areas and specific activities. Picture mounting, wall hangings.

Styles of furniture – traditional, contemporary and modern design. Furniture for different purpose, furniture materials. Selection and arrangement – Furniture for various rooms, Furniture Dimensions, Care and maintenance.

**UNIT -V: Window/ Door Treatments & Flower Arrangements (12 Hours)**

Draperies, curtains - different doors and window and its coverings - Selection, Use & Care of furnishing materials. Use of flowers and containers for Interior Decoration – Importance, materials required, care and maintenance of flowers, vase selection, basic shapes. Styles in flower arrangement, dried and pressed flowers, and Japanese arrangements – IKEBANA, MORIBANA & SHABANA.

**Total Lecture Hours- 60**

**COURSE OUTCOME**

The students will be able to

1. Recognize the importance of wise use of resources to achieve one's goals, & Become a good home maker.
2. Gain knowledge in various aspects in home economics.
3. Recognize the effective use of resources and learn skills in using principles elements of art & design.
4. Acquire the ability to conceptualize and design interior spaces for homes, retails, hotels, offices.
5. Gain knowledge how to work as an interior designer, visual merchandiser and interior decorator.

**TEXT BOOK(S)**

1. Anita T. 2011. Textiles for Apparel and Home Furnishing. Sonali Publications, New Delhi, India.
2. Chaudhari SN. 2005. Interior Design. Aavishkar Publishers, Jaipur, India.
3. Kasu AA. 2005. Interior Design. Ashish Book Centre Delhi.
4. Kharuna S. 2012. Fabrics for Fashion and Textile Design. Sonali Publications, New Delhi, India.
5. Neeru Garg Sushma Gupta. 2008. Text book of Family Resource Management, 9<sup>th</sup> Edition.
6. Seetharaman P and Pannu P. 2009. Interior Design and Decoration. CBS Publishers and Distributors Pvt Ltd, New Delhi.
7. Sylvia M., Asay, Tami, J., Moore. 2016. Family Resource Management, Third Edition,
8. Varghese MA. Ogale, Srinivasan K. 1992. Home Management. Wiley Eastern Ltd.

**REFERENCE BOOK(S)**

1. Chaudhari SN. 2006. Interior Design. Aavishkar Publishers Jaipur.
2. Gary Gordon & Jamco L. Nuckolls. 1995. Interior lighting for Designers, Third edition John Wiley & Sons, New York.
3. Nickell P and Dorsey. J.M. 1960. Management in Family Living. John Wiley and Sons Inc, New York.
4. Sharma N. 2006. Home Management. Murari Lal Publishers, Ahmedabad.
5. Sharma V. 2005. Modern Home Management. Shree Niwas Publications, Jaipur.
6. Shukul M and Gandotra, V. 2006. Home Management and Family Finance. Dominant Publishers, New Delhi.

7. Tamilnadu State Council for Higher Education. 1974. Interior Design & Decoration, Fourth Edition, Sherrill Whiton Prentice Hall,
8. Varghese M.A et al. Home Management, Second Edition, New Age International (P) Limited, Publishers, New Delhi .
9. William Hardy & Steve Adams. 1988. The Encyclopaedia of Decorative Styles. New Burlington books, London.

#### **E –RESOURCES**

1. <https://youtu.be/Q25Ig09kK-A>
2. <https://youtu.be/rkDquOipXLA>
3. <https://youtu.be/2YMCQAUnfm4>
4. [http://www.hillagric.ac.in/edu/coa/vegetables/lectures/vsf\\_233\\_HSc/VSF\\_233\\_HSc\\_Lect\\_15.pdf](http://www.hillagric.ac.in/edu/coa/vegetables/lectures/vsf_233_HSc/VSF_233_HSc_Lect_15.pdf)
5. [https://www.brainkart.com/article/Decision-Making\\_33511/](https://www.brainkart.com/article/Decision-Making_33511/)
6. <https://www.yourarticlelibrary.com/family/family-income-types-money-real-and-psychic-income/47908>
7. [https://www.brainkart.com/article/Expenditure-and-Budget-Management\\_33516/](https://www.brainkart.com/article/Expenditure-and-Budget-Management_33516/)
8. <https://nymag.com/strategist/article/curtains-for-windows.html>

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**SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE  
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**DEPARTMENT OF NUTRITION AND DIETETICS**

**B.Sc., NUTRITION AND DIETETICS**



**Semester: III AP – III: Interior Design Practical**

**Ins Hrs./Week: 3**

**Course Credit: 2**

**Course Code: 20AND306P**

**CONTENTS**

Eliciting values of students

- Maintaining family accounts.
- Developing budget for the family
- Analysis of design for their qualities.
- Arrangement of furniture using cut-outs.
- Arranging flowers suitable for various areas.
- Application of colour in the interior
- Application of designing in the interior.

**REFERENCE BOOK(S)**

1. Ahmedabad, Shukul M. Gandotra V. 2006. Home Management and Family Finance.
2. Chaudhari SN. 2006. Interior Design. Aavishkar Publishers ,Jaipur. Dominant Publishers New Delhi.
3. Gary Gordon & Jamco L. Nuckolls.1995. Interior lighting for Designers, Third edition John Wiley & Sons, New York.
4. Sharma N.2006. Home Management. Murari Lal Publishers ,
5. Sharma V. 2005. Modern Home Management. Shree Niwas Publications, Jaipur.
6. Varghese MA et al. Home Management, Second Edition,New Age International (P) Limited, Publishers, New Delhi .
7. William Hardy & Steve Adams.1988.The Encyclopaedia of Decorative Styles.New Burlington books, London.

**E –RESOURCES**

1. [https://youtu.be/lyjC\\_QYZdx4](https://youtu.be/lyjC_QYZdx4)[https://youtu.be/lyjC\\_QYZdx4](https://youtu.be/lyjC_QYZdx4)
2. [https://youtu.be/BYHrefWA\\_eE](https://youtu.be/BYHrefWA_eE)
3. <https://newskillsacademy.com/wp-content/uploads/cs-portal/pdfs/interior-design-certification/module-04-use-colour-interior-design.pdf>
4. <https://interiordesignstudent.com/study-notes/colour-in-interior-design/>
5. <https://www.yourarticlelibrary.com/home-management/interior-decoration-arrangement-of-furniture/4786>

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**Semester: III NME – I: Women's Health and Nutrition**

**Ins Hrs. /Week:2**

**Course Credit: 2**

**Course Code:20NMEND31**

**OBJECTIVE:**

- Identify nutrition principles to women's health choices and behaviors.
- Plan proper dietary intake during pregnancy and throughout the lifetime.
- Critically analyze and transfer current nutrition trends in women's health.
- Recommend approaches to disorders, medical conditions, and weight management.

**UNIT- I: Principles of Nutrition and Women's Health (05 Hours)**

Principles of Nutrition - Nutrients and their functions. Food groups, meal planning, Balanced diet, RDA, malnutrition-over nutrition, under nutrition, .Importance of Women's Health, Psycho social aspects of women's health.

**UNIT- II: Nutrition During Pregnancy (07 Hours)**

Nutrition during Pregnancy - Physiological changes during pregnancy. Importance of Nutrition during pregnancy. Complications in pregnancy, food and nutritional requirements.

**UNIT – III: Nutrition During Lactation (07 Hours)**

Nutrition during Lactation- Physiology and psychology of lactation, hormonal control, composition of colostrums and breast milk, nutritional requirements of a nursing mother.

**UNIT- IV: Nutritional Care Of Infants (06 Hours)**

Nutritional care of Infants- Birth weight, growth and development, advantages of breast feeding, food and nutritional requirements for infants, weaning and supplementary foods for infants and immunization.

**UNIT- V: Nutrition for Adolescents and Adulthood (05 Hours)**

Nutrition for Adolescents- Growth and development, nutritional requirements, nutritional problems, food habits and factors influencing food intake.

Nutrition for Adulthood- Food and nutritional requirements, dietary guidelines, nutritional problem

**Total Lecture Hours- 30**



## **COURSE OUTCOME**

The students will be able to

1. Acquaint with status of women in Family and Society.
2. Understand the various factors influencing health and nutritional status of women.
3. Plan and undertake various activities to improve the status of women.
4. Understand the implications of women's health on family and community development.
5. Encourage women to understand basic to advance concept of health.

## **TEXT BOOK(S)**

1. Arpita Verma. 2017. Women's Health and Nutrition. Role of State and Voluntary Organizations, Rawat publishers, ISBN-10: 8131609138 ISBN-13:978-8131609132.
2. Mahtab S. Bamji KamalaKrishnaswamy, G.N.V., Brahman. 2012. Text book of Human Nutrition. 3<sup>rd</sup> edition. Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi.
3. Srilakshmi E. 2014. Dietetics. Seventh multicolour edition, New Age International Publishers, New Delhi.
4. Srilakshmi E. 2017. Nutrition Science. Sixth edition .New Age International Publishers, New Delhi.
5. Swaminathan M. 2010. Hand book of Foods and Nutrition. Bappco Publishers.

## **REFERENCE BOOK(S)**

1. Mahan Kathleen L. Krause. 2004. Food, Nutrition and Diet Therapy. 11<sup>th</sup> Edition. W.B. Saunders.
2. Gordon M. Wardlaw Anne M. 2006. Smith contemporary Nutrition. Mc Graw – Hill International Edition.
3. Vishwannath M. Sardesai. 2011. Introduction to clinical Nutrition. 3<sup>rd</sup> edition. CRC Press.
4. Roberta Larson Duyff. 2002. Complete food and Nutrition guide. 2<sup>nd</sup> edition. John Wiley & sons, Inc American Dietetic Association.
5. Gopalan C. Rama Sastri BV. Balasubramanian SC. 2014. Nutritive Value of Indian Foods. National Institute of Nutrition, ICMR, Hyderabad.
6. Krause MV. and Hunscher MA., Food, Nutrition and Diet Therapy, 14<sup>th</sup> Edition W.B. Saunders.

## **E- RESOURCES**

1. <https://youtu.be/z47vm5JSGJ0>
2. <https://apps.who.int/iris/bitstream/handle/10665/204764/B0239.pdf;jsessionid=8105F6F7E5A54939A9E8AB5CAB1BA128?sequence=1>
3. <https://www.sciencedirect.com/topics/medicine-and-dentistry/overnutrition>
4. <https://patient.info/doctor/physiological-changes-in-pregnancy>
5. <https://www.medela.com/breastfeeding/mums-journey/breast-milk-composition>
6. <https://www.thewomens.org.au/health-information/staying-well/adolescent-girls/food-and-nutrition-for-adolescents>

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**Semester: IV CC – IV: Nutritional Biochemistry**

**Ins Hrs. /Week:5**

**Course Credit: 5**

**Course Code:20ND407**

**OBJECTIVE:**

- Review the biological system of energy metabolism.
- Study the chemical/biochemical properties and metabolic pathways of carbohydrates, lipids, and proteins.
- Examine the regulatory mechanisms of macronutrient metabolism and associated signalling pathways.
- Understand the research techniques used in basic biochemistry and nutritional biochemistry research.

**UNIT- I: Carbohydrate**

**(15 Hours)**

Carbohydrate – Structure, General reactions of mono, di, tri and oligo saccharides, inter conversion of sugars, Metabolism of carbohydrate –glucose oxidation through Glycolysis, Krebs-TCA cycle, Pentose Phosphate Pathway, Gluconeogenesis. Inborn errors of metabolism – Fructosuria and galactosemia

**UNIT II: Proteins**

**(15 Hours)**

Proteins-primary, secondary, tertiary structure of proteins, Hydrolysis of proteins-Denaturation, precipitation, coagulation. Nutritional classification of proteins, Amino Acids – Classification, chemical properties due to amino and carboxyl groups. General pathways of metabolism of amino acids- Deamination, Transamination, Decarboxylation – urea cycle, fate of carbon skeleton of amino acids. Inborn errors of metabolism-Phenyl ketonuria, Alcaptonuria, Maple Syrup Urine Disorder

**UNIT- III: Lipid and Lipid Metabolism**

**(14 Hours)**

**Lipids and Lipid Metabolism**– Classification of fats, oxidation of fatty acids, Bio synthesis of fatty acids, ketogenesis. Nutritional importance of Saturated and Unsaturated fatty acids, Tri acylglycerols, Phospholipids and Cholesterol.

**UNIT-IV: Nucleotides, Nucleic Acids And Enzyme**

**(15 Hours)**

**Nucleotides and nucleic acids:** Structure of purine and pyrimidines nucleotides, RNA – structure and types, double helical structure of DNA, biosynthesis and catabolism of purine and pyrimidine nucleotides.

**Enzyme-** Definition, Enzyme classification, Nomenclature, Factors affecting enzymatic activity, Mechanism of action. Co- enzyme and prosthetic group- role of B vitamins.

**UNIT- V: Vitamins and Minerals****(16 Hours)**

**Vitamins:** Fat Soluble Vitamins – Classification (A, D, E, K) and its metabolism. Water Soluble Vitamins – Classification (Vitamin B and Vitamin C) and its metabolism.

**Minerals: Macro Minerals** – Classification (Calcium, Phosphorus, Sodium, Potassium, Magnesium) and its metabolism.

**Micro Minerals** – Classification (Iron, Fluorine, Zinc, Iodine, Selenium) and its metabolism.

**Total Lecture Hours- 75****COURSE OUTCOME**

The students will be able to

1. Understand the role of enzymes in metabolism and clinical conditions.
2. Interpret the significance of macronutrient metabolism, and thereby understand the implications of disorders resulting from these.
3. Acquire skills in qualitative tests and quantitative estimation of nutrients.
4. Understand and gain theory & practical knowledge on Biological cycles involved in metabolism.
5. Evaluate and criticize the experimental approaches and scientific information presented in the research articles related to nutritional biochemistry.

**TEXT BOOK(S)**

1. AmbikaShanmugam. 2008. Fundamentals of Biochemistry for Medical Students. Lippincott Williams & Wilkins.
2. Rafi MD. Dr. N.T.R. 2015. Textbook of Biochemistry for Medical Students. University of Health Sciences, Universities Press.
3. Ranganatha Rao. K. 2000. Text book of Biochemistry. Prentice Hall of India, New Delhi.
4. Sathyanarayanan U. Chakrapani U. 2010. Textbook of biochemistry. 3<sup>rd</sup> edition. books and allied (p) ltd, Kolkata.
5. Ambika Shanmugham. 1985. Fundamentals of bio-chemistry to medical students. NVA Bharat Printers, and traders, Madras.

**REFERENCE BOOK(S)**

1. Agarwal GR. Meerut. 2014. Text Book of Biochemistry. Krishna Prakashan Media (p)
2. Conn EE. Stumpf PK. 1981. Outlines of Biochemistry. 4<sup>th</sup>. Ed. Wiley Eastern Ltd, New Delhi.
3. Harvey R. Ferrier D. Lippincott's Illustrated Reviews Biochemistry. 6<sup>th</sup> edition, Lippincott Williams and Wilkins, Philadelphia. Ltd.
4. Murray, R.K., Granner, D.K. and Rodwell, V. W. 2006. Harper's Illustrated Biochemistry. 27<sup>th</sup> ed. The McGraw-Hill Companies, USA.
5. Satyanarayanan, U. 2014. Biochemistry. Elsevier India Private Limited, New Delhi.

**E- RESOURCES**

1. <http://eagri.org/eagri50/GBPR111/lec16.pdf>
2. <https://courses.lumenlearning.com/boundless-microbiology/chapter/the-citric-acid/>
3. <http://watcut.uwaterloo.ca/webnotes/Metabolism/Gluconeogenesis.html>
4. <https://www.nhs.uk/conditions/phenylketonuria/>
5. [https://ddu.collegedu.ac.in/Datafiles/cms/ecourse%20content/B.Sc.%20\(H\)%20Bot%20VI%20sem\\_Dr%20Sandeep%20Kumar%20Botay.pdf](https://ddu.collegedu.ac.in/Datafiles/cms/ecourse%20content/B.Sc.%20(H)%20Bot%20VI%20sem_Dr%20Sandeep%20Kumar%20Botay.pdf)



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**Semester: IV CP – IV: Nutritional Biochemistry Practical**

**Ins Hrs./Week:3**

**Course Credit: 2**

**Course Code:20ND408P**

**CONTENTS**

- Qualitative Tests for Carbohydrates – Glucose, Fructose, Lactose, Maltose, Starch
- Qualitative Test for Protein – Caesin, Egg albumin.
- Qualitative Tests for Lipids – Coconut oil, Gingelly oil.
- Qualitative Tests for Minerals – Copper Sulphate, Ammonium Phosphate.
- Quantitative Estimation of Glucose – BQR method
- Quantitative Estimation of Protein – Biuret Method
- Quantitative Estimation of Lipid
- Quantitative Estimation of Phosphorus – Fiske and Subarrow Method
- Quantitative Estimation of Ascorbic Acid – 2,6 Dichloro Indophenol Dye Method
- Determination of Iodine Value.

**REFERENCE BOOK(S)**

1. Oser BL. 2001. Harke's Physiological Chemistry. XIV Edition. Tata McGraw Hill Publishing Company Ltd, Bombay.
2. Raghuramulu N. Madhavannair K. and Kalyana Sundaram. 2003. A Manual of Laboratory Techniques, National Institute of Nutrition, Hyderabad, 500007.
3. Sadasivam S and Manickam A. 2003. Biochemical Method. Second Edition. New Age International P. Ltd Publishers, New Delhi.
4. Varley H. Gowenlak AH. and Hill M. 2000. Practical Clinical Biochemistry. William Itinmaon Medical Books, London.

**E - RESOURCES**

1. <https://youtu.be/fQ1hSNGnXYY>
2. <https://youtu.be/ZN3bz3EftJ0>
3. <http://www.chem.boun.edu.tr/wp-content/uploads-415-Experiment-1.pdf/2014/04/Chem>
4. <https://portlandpress.com/biochemj/article-abstract/62/4/675/50235/The-use-of-p-chloromercuribenzoic-acid-in-the?redirectedFrom=PDF>

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**Semester: IV AC – IV: Basic Food Processing and Preservation**

**Ins Hrs./Week: 3**

**Course Credit: 2**

**Course Code:20AND407**

**OBJECTIVES**

- Apply different techniques used in the preservation of foods.
- Understand the processing techniques for food products.
- Understand and learn basics of foods, food composition, nutritive value, functions and roles of foods in relation to human consumption.

**UNIT- I: Food Preservation and Processing (08 Hours)**

Definition and scope of food preservation, principles and role of preservation, preservatives and its types, shelf life of food products, Permitted Preservatives, FPO Specification. Principles of fresh food storage : storage, effect of cold storage and quality – storage of grains – Water activity, spoilage- Types of Spoilage ,Factors influencing the spoilage.

**UNIT-II: Processing of Cereals and Millets (08 Hours)**

Milling products and by products of wheat, rice, corn, barley, oats, sorghum and other millets, whole wheat atta, blended flour, fortified flour, flaked, puffed and popped cereals, malted cereals, processed foods – bakery products, pasta products and value added products.

**UNIT-III: Processing of Milk and Milk Products (10 Hours)**

Milk – manufacture of different types of milk, drying of whole and skim milk, cream separation, churning of butter, processing of different types of cheese, Probiotic milk products- yoghurt, dahi and ice-cream, indigenous milk products – khoa, burfi, kalakhand, gulab jamun, rasagola, srikhand, channa, paneer, ghee,lassi

**UNIT- IV: High Temperature – Processing and Preservation (09 Hours)**

Blanching, pasteurization, sterilization and UHT processing, canning, extraction cooking, dielectric heating microwave heating, baking, roasting and frying. Retort processing of Ready to Eat (RTE) products.

**UNIT-V: Low Temperature Processing and Preservations (10 Hours)**

Refrigeration, freezing, Food irradiation, Food Freezing and thawing process: Introduction, freezing point and freezing rate, comparison of Freezing and thawing process; freezing methods: Air freezing, plate freezing, liquid immersion freezing and cryogenic freezing. Freezer selection. Advantages and disadvantages of freezing. Freezing curve. Freezer selection, advantages and disadvantages of freezing and changes in food during freezing storage.

**Total Lecture Hours- 45**

## **COURSE OUTCOME**

The students will be able to

1. Recognize it as a subject with integrating knowledge from various fields applied to the study of foods; describe the main areas of specialty.
2. Understand fundamental principles of food to be preserved and processed.
3. Learn basic principles of food processing and preservation methods.
4. Comprehend the role of food components, with emphasis on nutritive value and various food groups, including meats, dairy, eggs, grains, legumes, fruit and vegetables.
5. Food processing and unit operations and describe the principle involved in the processing of food products using various preservation techniques.

## **TEXT BOOK(S)**

1. Avantina Sharma. 2019 Textbook of Food Science and Technology, 3<sup>rd</sup> edition, CBS publishers, ISBN-10: 9789386478009, ISBN-13:978-9386478009.
2. Sivasankar. 2002. Food Processing and Preservation, Prentice Hall India Learning Private Limited. ISBN-10: 8120320867; ISBN-13:978-8120320864
3. Subbulakshmi G. 2006. Food Processing and Preservation . First edition. New age publishers; ISBN-10: 8122412831, ISBN-13:978-8122412833
4. Vijaya Khader. 2001.Text book of Food Science and Technology. Indian Council of Agricultural Research, NewDelh.
5. Warris DS. 2020. Food Processing and Preservation .2 –Vol, ISBN-10: 9389688590 ISBN-13:978-9389688597.

## **REFERENCE BOOK(S)**

1. Arthey D and Ashurst PR. 1996. Fruit processing, Blackie academic and professional. London.
2. Fellows PJ. 2016. Food Processing Technology. Second edition, Principles and Practice, CRC Wood head publishing Ltd, Cambridge.
3. Gould GW .1995. New methods of food preservation. Blackie academic and professional. London.
4. John, Kingslee. 2014. A professional text to Bakery and Confectionary, New Age International (P) Limited.
5. NeelamKhetarpaul,RajBalaGrewalandSudeshJood.2013.Bakery science and cereal technology, Daya publishing house.

## **E- RESOURCES:**

1. [http://labgraos.com.br/manager/uploads/arquivo/cap--26-handbook-of-food-preservation-pdf-](http://labgraos.com.br/manager/uploads/arquivo/cap--26-handbook-of-food-preservation-pdf)
2. <http://www.uop.edu.pk/ocontents/Lecture%20no%202.pdf>
3. [https://www.canr.msu.edu/smprv/uploads/files/Safe\\_Practices\\_for\\_Food\\_Processes\\_Chpt.\\_3\\_Factors\\_that\\_Influence\\_Microbial\\_Growth.pdf](https://www.canr.msu.edu/smprv/uploads/files/Safe_Practices_for_Food_Processes_Chpt._3_Factors_that_Influence_Microbial_Growth.pdf)
4. <https://www.medicalnewstoday.com/articles/318630>
5. <https://www.ifst.org/resources/information-statements/food-irradiation>

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**Semester: IV AP – IV: Basic Food Processing and Preservation Practical**

**Ins Hrs. /Week: 3**

**Course Credit: 2**

**Course Code: 20AND408P**

**CONTENTS**

- Stages of Preparation and Observation of Sugar Syrup
- Preparation of Bakery Products – Cakes, Cookies, Breads, Pies, Pastries
- Extrusion Cooking – Preparation of Pastas
- Dehydration & Evaporation – Preparation of Condensed Milk & Salted Dry Fish
- Fruit & Vegetable Processing; Use of Chemical Additives for Preservation;
- Thermal Processing of Foods – Preparation of Jams, Jellies, Squashes, Pickles, Chutneys, Sauces (Preservation by salt, sugar and oil)
- Emulsions and Emulsifying Agents – Preparation of Mayonnaise & Vinaigrettes
- Fermented Foods – Preparation of idlis and curds/ yoghurt
- Frozen Foods – Preparation of Ice Cream & Fruit/ Vegetable Pulp

**E – RESOURCES**

1. <https://youtu.be/DnwC8t8aCAQ>
2. <https://youtu.be/V5pddQGbHKQ>
3. <https://www3.epa.gov/ttn/chief/ap42/ch09/final/c9s09-5.pdf>
4. <https://www.indianhealthyrecipes.com/masala-pasta/>
5. <https://www.allrecipes.com/article/making-mayonnaise/>

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**Semester: IV NME – II: Basics of Nutrition**

**Ins Hrs./Week:2**

**Course Credit: 2**

**Course Code:20NMEND42**

**OBJECTIVES:**

- To be able to discriminate in dealing with a vast amount of nutrient information.
- Recognize the consequences of over nutrition, under-nutrition, and malnutrition.
- Describe the principle of caloric balance.

**UNIT- I: Basic of Nutrition and Water**

**(06 Hours)**

**Basic of Nutrition-** History of Nutrition – Development of Nutrition as a Science. Food as a source of nutrients, definition of nutrients, dietary guidelines for good nutrition. Signs and symptoms of adequate, optimum and good nutrition, malnutrition (Under nutrition, and over nutrition).

**Water-** As a nutrient, functions, sources, requirements. Distribution of water in the body, exchange of water in the body, Water balance, dehydration, water intoxication, Role of ADH, vasopressin in water balance.

**UNIT- II: Carbohydrates, Proteins and Lipids**

**(07 Hours)**

**Carbohydrates-** Classification, Sources, Requirements and Functions of carbohydrates in the body. Dietary fiber- Definition, soluble and insoluble fibers, sources of fiber, Role of fiber in human nutrition.

**Proteins -** Classification, Sources, Requirements and functions of protein. Protein deficiency-Protein Energy Malnutrition- Kwashiorkor and Miasmas – etiology, clinical features, treatment and prevention.

**Lipids-** Classification, Sources, Requirements and functions, Essential fatty acids- deficiency, food sources and functions, dietary lipids and its relation to Cardiovascular diseases.

**UNIT- III: Fat Soluble Vitamins and Water Soluble Vitamins**

**(06 Hours)**

**Fat Soluble Vitamins -** Functions, food sources, requirements, unit of measurements and hyper vitaminosis of vitamins A, D, E and K, Effect of deficiency.

**Water Soluble Vitamins -** Ascorbic acid and B Complex vitamins- Thiamine, Riboflavin and Niacin- Functions, effects of deficiency, food sources and requirements for different age groups. Importance of folic acid, Pyridoxine, Vitamin B12, Biotin and Pantothenic acid to the body.

**UNIT-IV: Macro and Micro Minerals**

**(06 Hours)**

**Macro Minerals-** Calcium, Phosphorous, Magnesium, Potassium,& Sodium Distribution in the body; functions, effects of deficiency, food sources and RDA.

**Micro / Trace Minerals-** Iron, Zinc, Iodine, Selenium, Fluoride and Copper Distribution in the body; functions, effects of deficiency, food sources and requirements for different age groups.



## **UNIT- V: Basics of Assessing Nutritional Status**

**(05 Hours)**

**Basics of assessing nutritional status** – Anthropometric measurements (BMI, WHR, Broka's Index), Biochemical, Clinical and Dietary (24 hour recall method and Food Frequency Method)

**Total Lecture Hours- 30**

### **COURSE OUTCOME**

The students will be able to

1. Understand the importance of various macronutrients in relation to health.
2. Understand the dietary guidelines for various nutrients and contribute towards a better lifestyle for prevention of non-communicable diseases.
3. Develop skills pertaining to practical experiments.
4. Apply the concepts of nutrition in personal food selection and Assist others in planning healthy adequate diets.
5. Identify the major nutrients, their functions, interactions, and needs of the body.

### **TEXT BOOK(S)**

1. Gajalakshmi R. 2014. Nutrition Science. CBS Publishers and distributors Pvt Ltd, New Delhi.
2. Raheena Begum M. 2012. A Text Book of Foods Nutrition and Dietetics. Sterling publishers private Limited.
3. Ranjana Mahna & Seema PuriKumud Khanna, Sharda Gupta, Santosh Jain Passi, Rama Seth.2016. Textbook of Nutrition and Dietetics. Elite Publishing House Pvt. Ltd, ISBN-10 : 8188901539; ISBN-13 : 978-8188901531
4. Srilakshmi B.2017.Nutrition Science. sixth edition. New Age International Publishers ISBN- 10 : 9386418886; ISBN-13 : 978-9386418883,
5. Swaminathan M. 1993. Principles of Nutrition and Dietetics. Bappco 88, Mysore Road, Bangalore-560 018.

### **REFERENCE BOOK(S)**

1. Bogert J.G.V. Briggs, D.H. 1985. Calloway Nutrition and physical fitness 11th edition W.B. Saunders Co., Philadelphia, London, Toronto.
2. Guthrie H.A. – Introductory Nutrition C.V. Mosby Co. St. Louis.
3. Maurice E, Shils, James A. Olson, Moshe Shike “Modern Nutrition in health and disease” (1994) eighth edition, Vol. I & II Lea & febiger Philadelphia, A waverly Company.
4. Wardlaw G.M. Insel, P.H. – Perspectives in Nutrition (1990) Times Mirror / Mosby College Publishing Co. St. Louis, Toronto, Boston.
5. William S.R. 1985. Nutrition and Diet Therapy. 5th edition, Mosbey Co. St. Louis.

### **E - RESOURCES**

1. <https://youtu.be/HxequpJWJ5U>
2. [https://youtu.be/WecTpcuha\\_4](https://youtu.be/WecTpcuha_4)
3. <http://www.kgmu.org/download/virtualclass/biochemistry/Fat%20Soluble%20Vitamins.pdf>
4. <https://www.megazyme.com/focus-areas/dietary-fiber-portal/what-is-dietary-fiber>
5. <https://www.ncbi.nlm.nih.gov/books/NBK218759/>
6. <https://www.aaopt.org/eye-health/diseases/vitamin-deficiency>
7. <https://www.medicalnewstoday.com/articles/248>

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**SENGAMALA THAYAR EDUCATIONAL TRUST WOMEN'S COLLEGE  
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**DEPARTMENT OF NUTRITION AND DIETETICS**

**B.Sc., NUTRITION AND DIETETICS**



**Semester IV – SBE – I Bakery and Confectionary**

**Ins Hrs. /Week: 2**

**Course Credit: 2**

**Course Code:20SBEND1**

**OBJECTIVES**

- Understand the principles & methods of baking.
- Acquire basic skills in baking and confectionery.
- Understand the role of various food components in baking and the interaction of the elements used for baking.
- Expand their knowledge related to the art of decoration of baked foods and confectionery items.

**UNIT-I: Basic Baking & Equipments**

**(06 Hours)**

Baking: Meaning, process and scientific principles involved. Classification of baked products. Basic plan and layout of a bakery unit. Equipments used in bakery: Large & small equipments and tools; types of ovens. Standards and Statutory regulations for bakery products Nutritional aspects of bakery products Storage and evaluation (objective and subjective methods) of baked products.

**UNIT-II: Baking Ingredients**

**(07 Hours)**

Ingredients used in bakery: Functional classification of ingredients- structure builders, tenderizers, moisteners, driers and flavors. Flour: Composition, types and quality characteristics. Sugar: Sources, uses and types of commercially available sugars.

Fats: Fats used as shortenings- Butter, margarine, emulsified fats and flavored oils; properties and uses of shortenings. Leavening agents: Definition and classification- physical; chemical-baking powder and its types, baking soda; biological- yeast- types and role in baking.; Moisturizing agents: Egg, water and milk- their role in baking.

**UNIT-III: Bread & Cakes**

**(06 Hours)**

Bread: Ingredients used, steps in bread making process, processing methods, characteristics of good bread (external and internal), faults in shape, texture, crust and flavor of bread. Cakes: Ingredients, types, cake making methods, test for doneness, characteristics of good cake (external and internal), cake faults and remedies. Icing: Meaning, types, ingredients used and preparation guidelines.

**UNIT-IV: Cookies & Pastries**

**(05 Hours)**

Cookies: Characteristics, preparation methods and problems in cookie making.

Biscuits: Steps involved in biscuit making. Pastries: Types and method of preparation.

## **UNIT-V: Sugar Confectionaries**

**(06 Hours)**

Sugar confectionery – types, role of sugar in preparation, other ingredients and their role in preparation, hard candies – (clear, hard, pulled, grained, filled); soft candies – basic fondant, modified fondant like toffee, fudge, marshmallows, gums, jellies, chocolates – properties of these candies. Indian confectionary / Sweets – Types, preparation, ingredients and their role in preparation. Types – milk/ khoa based (gulabjamun, rasgulla), flour based (jelabi Mysore pak).

**Total Lecture Hours- 30**

### **COURSE OUTCOME**

The students will be able to

1. Describe the properties and functions of various ingredients and equipment used in the production of baked foods.
2. Recognize, produce, preserve and use a variety of doughs, batters, and fillings for baking with a sound understanding of mixing methods and baking techniques.
3. Classify and prepare basic confectionary products.

### **TEXT BOOK(S)**

1. Avantina Sharma . 2019. Textbook of Food Science and Technology. 3<sup>rd</sup> edition. CBS publishers, ISBN-10: 9789386478009, ISBN-13:978-9386478009.
2. Dubey SC. 2002. Basic Baking. society of Indian Bakers, New Delhi.
3. John Kingslee.2006. A professional text book to Bakery and Confectionary. New Age International Pvt Limited Publisher, New Delhi.
4. Uttam K. Singh. 2011.Theory of Bakery and Confectionary An operational approach. Kanishka Publishers and Distributors, New Delhi.
5. Yogambal Ashokkumar. 2012. Bakery and Confectionary. PHI publication.

### **REFERENCE BOOK(S)**

1. John Kingslee. 2014. A professional text to Bakery and Confectionary. New Age International (P) Limited.
2. Lilian Hiagl and Meyer.2004. Food chemistry. CBS publishers and Distributors.
3. Shakunthala Manay N and Shadak sharaswamy M. 2005. Food Facts and Principles, New Age International (P) Ltd Publishers.
4. Neelam Khetarpaul, Raj Bala Grewal and Sudesh Jood. 2013. Bakery science and cereal technology. Daya publishing house.
5. Vijaya Khader. 2001.Text book of Food Science and Technology. Indian Council of Agricultural Research, New Delhi

### **E- RESOURCES**

1. <https://www.sihmbalangir.org/upload/Cakes%20&%20Pastries%20Book.pdf>
2. <https://www.cookingandme.com/2010/05/31/types-of-ovens-how-tochoose-oven/>
3. <https://www.chinimandi.com/types-of-sugar/>
4. <http://penyrheol-comp.net/technology/wpcontent/uploads/sites/2/2014/06/Cake-Making-Methods.p>
5. <http://ecoursesonline.iasri.res.in/mod/resource/view.php?id=5880>

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**Semester V – CC-V: Dietetics - I**

**Ins Hrs. /Week:5**

**Course Credit: 5**

**Course Code:20ND509**

**OBJECTIVES**

- Provide comprehensive knowledge on principles and planning of therapeutic diets.
- Acquire knowledge on nutritional needs of normal and sick persons.
- Assess the nutritional problems of community and effectively manage the nutritional needs of community.
- Develop capacity and aptitude for taking up dietetics as a profession.

**UNIT-I: Dietician and Nutrition Care Concept**

**(15 Hours)**

Introduction to term Dietician: Definition; Educational Qualification of Dietician, Types and Role of dietician, Difference between registered dietician & Nutritionist, tools used by dietician. Introduction to Nutrition Care Process: Definition, Steps of Nutrition Care Process, Nutrition Assessment: -Definition, Methods of Nutrition assessment. Nutrition Interventions: - Definition, objectives, Nutrition Monitoring &Evaluation: - Definition, components, goals & objectives, evaluation of Nutrition care.

**UNIT –II: Diet Therapy**

**(14 Hours)**

Definitions & Principles of Diet Therapy, Concepts &objectives of therapeutic diet, Therapeutic Adaptation of Normal Diet: Definition; therapeutic adaption: Special feeding methods- Enteral nutrition- methods- nasogastric, gastrostomy and jejunostomy types of food, infusion techniques. TPN- Types of infusion, TPN formula for adults. Normal diet, Routine Hospital Diet: - clear liquid diet, Full fluid diet/liquid diet, semi-solid diet, soft diet, normal diet, bland diet, high &low-calorie diet, high & low protein diet, high & low fiber diet, low cholesterol diet.

**UNIT –III: Febrile Condition &Life Style Disorders / Diseases**

**(16 Hours)**

Causes, symptoms, dietary management of- Febrile conditions : Acute & Chronic (Typhoid, influenza, malaria, tuberculosis). Obesity, Underweight, Diabetes mellitus, Cardio vascular diseases – hypertension, atherosclerosis, congestive cardiac failure

**UNIT –IV: Diet in Deficiency Disorders**

**(14 Hours)**

Causes, symptoms, dietary management based of PEM – Kwashiorkor & Miasmas  
Constipation, Vitamin A, C & D, Mineral – Calcium, Iron

**UNIT –V: Diet in Addictive Behavior**

**(16 Hours)**

Anorexia nervosa& Bulimia nervosa: – Introduction, Definition, types, symptoms, causes, risk factor, effect, treatment, nutritional management. Alcoholism: – Introduction, symptoms, causes, diagnosis, treatment, nutritional management. Nutrient and drug interaction classification of

nutrient drug, effect of drug on nutritional status, stages of drug absorption, nutrient drug interaction list. Common Nutrient Deficiencies in Recovering Addicts, nutritional planning for pre and post rehabilitation

**Total Lecture Hours- 75**

### **COURSE OUTCOME**

The students will be able to

1. Provide comprehensive knowledge on role and need of dietician and the importance of nutritional care process.
2. Understand the changing needs of normal and therapeutic nutrition and Apply knowledge on nutritional needs of normal and sick persons.
3. Assess formulate & prepare diet for specific conditions of life style disorders
4. Have a thorough knowledge on drug addiction and need of the nutritional problems requirement for the addictive behaviours
5. Familiar with the essential deficiency disorders and effectively manage the nutritional needs for the same.

### **TEXT BOOK(S)**

1. Antia FP. 2008. Clinical dietetics and nutrition .Oxford University Press, New Delhi.
2. Gopalan SC. Balasubramanian SV. 1971. Diet Atlas. ICMR, New Delhi, India.
3. Shubhangini A. Joshi. 2011. Nutrition and Dietetics. 3rd edition. Tata McGraw Hill Education private limited, New Delhi.
4. Srilakshmi B. 2014. Dietetics. New age international publishers ,NewDelhi.
5. Swaminathan M. 1993. Principles of Nutrition and Dietetics. Bappee 88, Bangalore.

### **REFERENCE BOOK(S)**

1. Davidson & Passmore R & Brock JB. 1976. Human Nutrition & Dietetics. The English Languages Book Society & Churchill Living stone.
2. Krause MV & Mahan, M.A. 1992. Food Nutrition and Diet Therapy. W.B. Saunders company, Philadelphia, London.
3. Maurice E. Shils James A, Olson Moshe Shike. 1994. Modern Nutrition in health and disease. eighth edition, Febiger Philadelphia, A waverly company.
4. Micheal J. Gibney I. Macdonald A and Helan M. Roche. 2004. Nutrition and Metabolism. Blackwell Publishing Company, Bangalore.
5. Robinson CH. Lawles MR. Chenoweth WL. Garwick AE. 1990. Normal and Therapeutic Nutrition. The Macmillan Company, New York.

### **E - RESOURCES**

1. <https://youtu.be/VC8e8r3OxCs>
2. <https://youtu.be/ZD5yze3bGEI>
3. <https://youtu.be/oc7XLrKp-yA>
4. <https://www.mdpi.com/2072-6643/12/11/3521/pdf>
5. [https://www.nios.ac.in/media/documents/SecHmscicour/english/Home%20Science%20\(Eng\)%20Ch-8.pdf](https://www.nios.ac.in/media/documents/SecHmscicour/english/Home%20Science%20(Eng)%20Ch-8.pdf)

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**Semester V – CC- VI: Food Service Management - I**

**Ins Hrs. /Week: 5**

**Course Credit: 5**

**Course Code:20ND510**

**OBJECTIVES**

- Understand the basic principles of management in food services units.
- Develop managerial skills among the learners.
- Understand the concept and principles of management.

**UNIT- I: Food Service Systems**

**(13 Hours)**

Food Service Industry: Definition – types of catering- Hotel, Motel, Restaurant, Cafeteria Bar, Pub and Fast Food Restaurant and chain hotels. Welfare catering– Hospital, School lunch, Residential establishment and Industrial catering. Transport catering– Air, Rail, Sea and Space, Miscellaneous – Contract and outdoor.

**UNIT – II: Management Tools & Principles**

**(14 Hours)**

The Organization Chart - Definition, types of organization, Process and principles and theories of organization. Job Description and specification, Work schedule, Job Analysis, staff analysis, Budget, leadership style, decision making and communication. Principles of management Definition, evolution of management, tools, principles and functions types and theories of management.

**UNIT – III: Material & Resource Management**

**(16 Hours)**

Material Management- Food materials, cleaning, table ware, staff, Fuels – Type, advantage, fuel saving practices. Equipment: Classification of equipment - electrical and non-electrical equipment for food storage, Preparation, serving, dishwashing and laundering. Factors involved in selection, use and care of major equipment. Base materials used for equipment finishes. Inventory management- assessing requirements, receiving of stock, release of stocks. .Record maintenance. systems for maintaining quality in food preparation and service Kitchen control and maintenance of Kitchen records.

**UNIT – IV: Personnel Management**

**(15 Hours)**

Definition, development and policies, sources of Recruitment, selection induction, training, development, motivation supervision and leadership. promotion, personnel records, work appraisals. labour benefits and laws. Employee benefits

## **UNIT – V: Financial Management**

**(17 Hours)**

Cost control- principles, Buying and accounting procedures in food service institution: budget, Cost accounting/analysis-Cost concepts- types of cost-fixed cost, semi fixed cost, variable cost. Costing of foods-selling price factors affecting cost control - labor cost, operating cost and overhead cost. Book- keeping- records to be maintained, books of account and Break-even analysis.

**Total Lecture Hours- 75**

### **COURSE OUTCOME**

The students will be able to

1. Make understanding of the concept of management, its essentiality, principles and techniques for effective execution in catering establishment.
2. Impart knowledge of various tangible and intangible tools used in management and techniques for work improvement.
3. Administer a food service system in an effective manner.
4. Manage the human resources within a food service organization or department.
5. Develop appropriate Skills required for a food service industry.
6. Develop and provide best nutritional menu and food to the client.

### **TEXT BOOK(S)**

1. Andrews S. 2008. Text book of Food & Beverage Management. Tata McGraw-Hill Publishing Company Limited.
2. Jyoti S. Sharma. 2006. Food Service Modern Technique and Practices. Akansha Publishing House.
3. Mary B. Gregoire, Marian C. Spears. 2007, Food Service Organizations. Pearson Prentice Hall.
4. Sethi M. 2011. Institutional Food Management. Second edition. New age International (P) Limited. New Delhi.
5. Swaminathan M. 1979. Food Service and Experimental Foods. Ganesh & Co, Madras.

### **REFERENCE BOOK(S)**

1. Davis B. Lockwood. A and Stone. S 2008. Food and Beverage Management. Third Edition. Elsevier Publication. New Delhi.
2. Kinton R And Ceserani V. 1992. The Theory of Catering . ELBS Publishers.
3. Manay Shakunthala N and Shadakshaiswamy M. 1987. Foods, Fats & Principles. Willey Eastern Ltd, New Delhi, Bangalore.
4. Mohini Sethi and Surjeet Malhan. 2007. Catering Management – an integrated approach. 2<sup>nd</sup> edition, Wiley Eastern Limited, New Delhi.
5. Mudambi SR. and Rao SM. 1986. Food Science. Wiley Eastern Ltd. New Delhi,
6. Pechkam G.C. 1979. Foundations of food preparation. The Macmillan Publishing Co., New York.
7. West BB and Wood L. 1979. Food Service in Institutions. John Wiley, New York.

### **E- RESOURCES**

1. <https://youtu.be/2EqbC4aC5kc>
2. <https://youtu.be/ce5kS9UCGGY>
3. <https://youtu.be/bO4d7V8Vcuo>
4. <https://youtu.be/HqzdWs3mprA>
5. [http://vcmdrp.tums.ac.ir/files/financial/istgahe\\_mali/5D.pdf](http://vcmdrp.tums.ac.ir/files/financial/istgahe_mali/5D.pdf)

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**Semester V – CC VII: Family and Child Welfare**

**Ins Hrs./Week:6**

**Course Credit: 5**

**Course Code:20ND511**

**OBJECTIVES**

- Aware of history, concept of family and child welfare.
- Understand different approaches to protection of children.
- Gain knowledge on the role of national and international agencies working for child and family welfare.

**UNIT –I: Family as a Social Institution**

**(16 Hours)**

Family as a Social Institution: Definition and concept of family, Family: Common characteristics, rituals, routines, traditions, functions, structures and dynamics, violence. Marriage: Definition and concept, Types of Marriage and changes in Marriage and family.

**UNIT –II: Premise and Origin**

**(19 Hours)**

Premise and Origin – Psychosocial Theories, Role theory, Structural theories, and Family development theory. The Family in the Context of Social Change: Concept and characteristics of social change. Impact of migration, industrialization, urbanization, liberalization, privatization and globalization of family.

**UNIT – III: Work with Families**

**(18 Hours)**

Work with Families: Family centered social work – Definition and concept, Principles of Family centered social work, Components of family centered social work, family therapy, crisis intervention in families- steps, prevention of family crisis.

**UNIT – IV: Child – Concept and Child Welfare**

**(20 Hours)**

Child – Concept and Definition, Psychoanalytic child development Theories, Piaget, Behavioural child development theory. Problems of Children - child labour, female foeticide, child trafficking, child abuse and child neglect.

Services for child welfare – Adoption services, foster care, Child guidance clinics, ICDS, CARE, UNICEF. Role of NGO's in the field of Child Development.

**UNIT – V: Institutions for Family Welfare**

**(17 Hours)**

Institutions for Family Welfare: Ministry of Health and Family Welfare, National Institute of Health and Family Welfare, National Rural Health Mission, Planning Commission, Family Courts, Legal Service Authority, INGOs' and NGOs' role in empowering families.

**Total Lecture Hours- 90**



## **COURSE OUTCOME**

The students will be able to:

1. Understand the family structures and family dynamics.
2. Develop a theoretical understanding of families and children.
3. Know the National policy and board for child welfare.
4. Identify Regulations in child welfare institutions & Different institutional services for children.
5. Aware of Rights of the children & Gain knowledge on Different services for maternal and child care.

## **TEXTBOOK(S)**

1. Ajit K. Singh. 2011. Family and Child Welfare Publisher, Centrum Press ISBN-10: 9381293708, ISBN-13:978-9381293706
2. Michael J. Gibney, Barrie M. Margetts, John, M. Kearney and Lenore Arab. 2005. Public health nutrition. Blackwell publishing company.
3. Patel, Tulsi. 2005. The Family in India: Structure and Practice. Sage Publications. New Delhi.
4. Rao Shankar C.N. 2007. Indian Society. S. S. Chand and Company Ltd. New Delhi.
5. Roy, Kalpana. 2000. Women and Child Development. Commonwealth Publications. New Delhi.

## **REFERENCEBOOK(S)**

1. Barik S. 2011. Domestic Violence in India. Adhyayan Publishers. New Delhi.
2. Goel Manju. 1997. Marital Disputes and Counselling Methodology. APH Publishing Corporation, New Delhi.
3. Khan MZ. 1991. Trends in Family Welfare Planning. International Publishers. New Delhi.
4. Lewis, David and Ravichandran, N. 2008. NGOs and Social Welfare. Rawat Publications, New Delhi.
5. Mathur, Hari Mohan. 1992. The Family Welfare Programmes in India. Vikas Publishing House, New Delhi.
6. McCurdy Karen and Jones, Elizabeth. 2000. Supporting Families Lessons from the Field. Sage Publications, USA.

## **E- RESOURCES**

1. <https://youtu.be/Ef3GzFnEMYw>
2. <https://youtu.be/HKKVaZ8gzAc>
3. <https://youtu.be/oRVax88N16Y>
4. <https://youtu.be/87ZqKLVENpw>
5. [http://mospi.nic.in/sites/files/Statistical\\_year\\_book\\_india\\_chapters/ pdf](http://mospi.nic.in/sites/files/Statistical_year_book_india_chapters/ pdf)
6. <https://education.gov.scot/improvement/Documents/par2-section9-mar19.pdf>

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**Semester V – MBE I: Changing Trends in Extension Education**

**Ins Hrs./Week:5**

**Course Credit:5**

**Course Code:20MBEND1**

**OBJECTIVES**

- Understand the role of extension workers in planning programmes for the community.
- Obtain necessary skills in extension teaching and field work.
- Understand the meaning and scope of rural development .
- Learn genesis, origin and development of rural development.

**UNIT- I: Concept of Extension Education**

**(16 Hours)**

Concept of Extension Education: Meaning, objectives and principles of Extension Education and Home Science Extension Education; Role of home science in developing a community.

Historical review of extension education in India and abroad; Role and qualities of an Extension worker; Role and Functions of Extension Educator; Qualities of extension educator; Role of Home Science in National Development.

**UNIT-II: Community Development and Panchayat Raj**

**(17 Hours)**

Community Development and Panchayat Raj: Meaning, Principles, Objectives, Scope and Philosophy of community development in India. Historical review of community development in India; Evolution of Panchayat Raj set up and functions at the central, state, District, Block and village level, Three tier system and the principle of Democratic decentralization; Problems of the community development and Panchayat Raj; Similarities and Dissimilarities between community Development and extension education.

**UNIT- III: Community Participation**

**(13 Hours)**

Community Participation: Meaning, Importance, Factors influencing community participation, measures to improve community participation. Recent extension approaches: Participatory Rural Appraisal (PRA), Action plays, child-to-child approach, Woman-to-Woman approach, Rapid Rural Appraisal (RRA).

**UNIT- IV: Communication**

**(12 Hours)**

Communication - concept, Forms of communication- verbal and nonverbal - Meaning and significance. Communication Aids: Audio visual aids in extension work. Conventional aid - motion pictures, slides, flannel graphs, flash cards, graphs, puppet shows and Mass media.

**UNIT – V: Program Planning**

**(17 Hours)**

Program planning - Meaning and importance, Principles of programme planning, steps involved in programme planning. Evaluation: Meaning and types of evaluation. Five-year plans and Social Welfare. Programmes National and International agencies for the development and welfare of women and children – UNICEF, CARE, WHO, IRDP, ANP, ICDS, ICPS, TRYSEM, DWCRA and NAEP. Special Programmes - POSHAN Abhiyaan, Rashtriya Mahila Kosh, Rajiv Gandhi Scheme for Empowerment of Adolescent Girls, Mother and Child Tracking System (MCTS)

Pradhan Mantri Matritva Vandana Yojana, Sukanya samriddhi yojana, Deen Dayal, Upadhaya Antyodaya yojana (Self employment programme), Kasturba Gandhi Balika Vidyalaya.

**Total Lecture Hours- 75**

### **COURSE OUTCOME**

The students will be able to:

1. Gain knowledge on fundamental of rural development and community development.
2. Acquire knowledge on early experiments conducted in the field of rural development and its outcomes.
3. Understand the community development schemes for and apply the skill to assess the developmental status of rural area.
4. Gain knowledge on program planning and participatory methods in rural development programme.
5. Identify & utilize the National and International agencies for the development and welfare of women and children.

### **TEXT BOOK(S)**

1. Addivi, Reddy. 1987. Extension Education. Sree lakshmi press, Andrapradesh.
2. Bhattacharya SA. 1970. Community Development - An analysis of the Programme in India. Academic Publishers, Calcutta.
3. Bhattacharya SN. 1983. Rural Development in India and other Developing Countries, Metropolitan Publishers, New Delhi.
4. Gupta DK. 2010. Mass Communication in Information Era. Rajat Publications, New Delhi.
5. Khan PM. and Somani LL. 2009. Fundamentals of Extension Education. Agrotech Publishing Academy.

### **REFERENCEBOOK(S)**

1. Dahama OP and Bhat Nagar OP. 1985. Extension and Communication for Development. Oxford and IBH Publishing Company. New Delhi.
2. Desai AR. 1994. Rural Sociology in India. Popular Prakasham publishers.
3. Directorate of Extension, Ministry of Food and Agriculture, Govt. of India. 1961. Extension Education in Community Development. New Delhi,
4. NIRD .1991. Rural development Statistics. Rajendra Nagar, Hyderabad.
5. Patnayak Rama. 1990. Rural Development in India. Vikas Publishing House Pvt. Ltd, New Delhi .
6. Ray GL. 1991. Extension Communication and Management. Calcutta.
7. Reddy A. 2006. Extension Education. Sree Lakshmi Press, Bapatla, A.P.
8. Sharma SK and Malhotra SL. 1977. Integrated Rural Development. Abhinar Publications. New Delhi.
9. Shelat KN. 1988. Evaluation of Rural Development. Kathan Education Communication Unit, Ahmedabad.
10. Supe SV. 1994. An Introduction to Extension Education. Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi.

## **E- RESOURCES**

1. <https://youtu.be/hEOzATJqByM>
2. <https://youtu.be/OBtkdXy4IPQ>
3. <https://youtu.be/8xCrd-tqB48>
4. <https://youtu.be/Lin5VqiFQfg>
5. <https://youtu.be/Tjri76reSSQ>
6. <http://accioneduca.org/admin/archivos/clases/material/planning1563990283.pdf>
7. [http://ec.europa.eu/echo/files/evaluation/watsan2005/annex\\_files/WEDC/es/ES12D.pdf](http://ec.europa.eu/echo/files/evaluation/watsan2005/annex_files/WEDC/es/ES12D.pdf)

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**Semester V – CP V: Dietetics – I Practical**

**Ins Hrs./Week:3 Course Credit: 3**

**Course Code:20ND512P**

**1. Planning, preparation and calculation of following diets:**

- Therapeutic Diet -Normal, Clear fluid, full fluid & soft diet.
- Tube Feeding.
- High and low caloric diet .
- High and low Protein diet.
- High and low Fibre diet &
- High and low Cholesterol diet.
- Diet in febrile conditions - Typhoid, tuberculosis.
- Obesity.
- Under weight.
- Diabetes mellitus.
- Cardio vascular diseases – hypertension, atherosclerosis.
- Anorexia nervosa & Bulimia nervosa.
- Drug addiction diet.
- Diet for Deficiency – Constipation, Vit A., D, Ca, Fe, I.

**REFERENCE BOOK(S)**

1. Antia FP.1973. Clinical nutrition & Dietetics. Oxford University Press, Delhi, London, New York.
2. Davidson & Passmore R & Brock JB.1976. Human Nutrition & dietetics. The English Languages Book Society & Churchill Living stone.
3. Krause MV & Mahan MA. 1992. Food Nutrition and Diet Therapy. W.B. Saunders company, Philadelphia, London.
4. Maurice E. Shils James A. Olson, Moshe Shike.1994. Modern Nutrition in health and disease. eighth edition, Febiger Philadelphia, A waverly company.
5. Micheal J. Gibney I. Macdonald A and Helan M. Roche. 2004. Nutrition and Metabolism, Blackwell Publishing Company, Bangalore.
6. Robinson CH. Lawles MR. Chenoweth WL. Garwick A.E.1990. Normal and Therapeutic Nutrition. The Macmillan Company, New York.

## **E- RESOURCES**

1. <https://youtu.be/gOOQR3BAuHE>
2. <https://youtu.be/zvbXjm2ThvQ>
3. <https://youtu.be/VC8e8r3OxCs>
4. <https://youtu.be/ZD5yze3bGEI>
5. <https://youtu.be/oc7XLrKp-yA>
6. <https://www.gillettechildrens.org/your-visit/patient-education/full-liquid-diet>

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**Ins Hrs. /Week: 2      Semester V – SBE – II    Food Quality Control      Course Credit: 2      Course Code:20SBEND2**

**OBJECTIVES:**

- To study about quality control and common food standards.
- Understand the role of quality in food production.
- Become familiar with Food standards/ laws involved in food quality control.
- Understand the process involved in safe handling of food and production of quality food products

**UNIT-I: Concepts of Food Quality (05 Hours)**

Quality Control: Objectives, Importance, functions of quality control, stages of quality control in food industry. Quality Control Concepts as applied to the food industry; General Concepts of quality control and quality control FDA; indicators of quality in different foods- specification for cereals, pulses, oil seeds, fruits and vegetables.

**UNIT-II: Perspectives of Food Quality (07 Hours)**

Factors affecting food quality- Pre and post-harvest factors- processing and production, storage, trade conditions ,humidity, temperature and transportation. Determination of quality of food- Subjective method: types of sensory evaluation Objective method: instrumental, physical, chemical, physico chemical and microscopic.

**UNIT-III: Food Safety and Hazards (05 Hours)**

Food safety Definition, types of hazard-physical, chemical and biological, factors affecting Food Safety. Food additives- Definition, intentional and unintentional food additives, Safety of food additives. Food adulteration- Definition, PFA Act, classification, simple tests for identifying food adulterants.

**UNIT-IV: Food Standard & Laws (07 Hours)**

Food Standards: Cereals and bakery products, Fruit Products, Oils and Fats, Milk and Products, Other products - coffee, tea, sugar, honey, toffees. Voluntary and Compulsory standards Packaging and labelling standards. ISO, HACCP, FSSAI & Government Regulations In Quality Control: FAO/WHO codex Alimentarius commission, Consumer Protection Act (CPA)PFA, AGMARK, BIS, FPO, fair average quality (FAQ) specification for food grains, ISO- 9000 series.

**UNIT-V: Food Quality Assurance (FQA) & Management (06 Hours)**

Definition of Quality Assurance, Difference between QA and Quality Control. Definition of Total Quality Control, its nature, approaches and role of management. Definition of Statistical Quality Control (SQC), determining the need for SQC. Definition –control chart, uses process control. Quality Improvement techniques: Quality Improvement Plans (QIP), Quality Control Circles (QCC), Total quality management (TQM).

**Total Lecture Hours- 30**

## **COURSE OUTCOME**

The students will be able to

1. Recognize the need and importance and functions of quality control unit in food industries.
2. Evaluate the methods used for checking the food quality.
3. Identify the food hazards.
4. Have a thorough understanding of national and international organization enforcing food quality and safety.
5. Know the need and importance of total quality management in food industry.

## **TEXT BOOK(S):**

1. Dev Raj, Rakesh Sharma and Joshi, V.K. 2011. Quality Control for Value Addition in Food Processing. New India Publishing Agency, New Delhi.
2. Mahindru SN. 2009. Food Science and Technology. Vol. II, APH Publishing Corporation, New Delhi.
3. Norman N. Potter and Joseph H. Hotchkiss. 1996. Food Science. CBS Publishers.
4. Prem Kumar Jaiswal. 2009. Food Quality and Safety, CBS Publishers and Distributors Pvt. Ltd, Noida. U.P.
5. Swaminathan M. 2012. Food Science, Chemistry and Experimental Foods. Bappco Publishers.

## **REFERENCE BOOK(S):**

1. Bhatia R. Ichhpujan RL. 2004. Quality assurance in Microbiology. CBS Publishers and Distributors, New Delhi.
2. Desrosier, Desrosier. 1999. Technology of food preservation. Fourth edition, CBS Publishers.
3. Kher CP. 2000. Quality control for the food industry. ITC Publishers, Geneva.
4. Philip AC. 2001. Reconceptualizing quality. New Age International Publishers, Bangalore.
5. Sathe AY. 1999. A first course in food analysis. New Age Publications, New Delhi.

## **E- RESOURCES**

1. <https://youtu.be/jtgmm4lnhQg>
2. <https://youtu.be/HJY1XWSaLbk>
3. <https://youtu.be/6EvsZkt0xRM>
4. <https://youtu.be/abGudok3mxk>
5. <https://youtu.be/abGudok3mxk>
6. <https://atheneum.libs.uga.edu/bitstream/handle/10724/12251/B997.pdf>

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**SENGAMALA THAYAR EDUCATIONAL TRUST WOMEN'S COLLEGE  
(AUTONOMOUS)**

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**DEPARTMENT OF NUTRITION AND DIETETICS**

**B.Sc., NUTRITION AND DIETETICS**



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**Semester V – SBE – III Food Packaging**

**Ins Hrs./Week:2 Course Credit: 2**

**Course Code:20SBEND3**

**OBJECTIVES**

- To identify the types of primary and secondary processing for different foods before packaging.
- To know the Objectives and functions of food packaging.
- To understand the need for food packaging and the recent packaging materials and labelling.
- Learn and gain knowledge on food packaging and applications during transportation.

**UNIT-I: Basic of Food Packaging**

**(05 Hours)**

Introduction of Food packaging; Definition, functions of packaging materials for different foods, Need of food packaging, characteristics of packaging material. Role of packaging in extending shelf life of foods. Designing of package materials. Testing of package materials.

**UNIT-II: Packaging Materials**

**(07 Hours)**

Packaging Materials: Introduction, purpose, requirements, types of containers. Types of packaging materials their characteristics and uses. Use of paper as a packaging material-Pulping Fibrillation, Beating, Types of papers, Use of glass as a packaging material-Composition, Properties, Types, Methods of bottle making. Use of metals as a packaging material-Tinplate container, Tinning process, Components of tinplate, Tin free steel (TFS), Types of cans, composite containers, aerosol containers, Aluminium containers, Lacquers. Use of plastics as a packaging material-Types of plastics, Plastic films, laminated plastic materials, rigid plastic packages, Co-extrusion.

**UNIT-III: Advanced Packaging**

**(06 Hours)**

Packages of Radiation Stabilized Foods: Introduction, rigid containers, flexible containers, general methods for establishing radiation stabilization. Radiation measurement of radiations. Biodegradable packaging material - biopolymer based edible firm.

**UNIT-IV: Packaging Technology**

**(07 Hours)**

Package accessories and advances in Packaging Technology-Introduction, Active packaging, Modified atmosphere packaging, Aseptic packaging, Packages for microwave ovens, Biodegradable plastics, Edible gums, Coatings. Packaging equipment and machinery- Vacuum packaging machine, CA & MA packaging machine, Gas packaging machine, Seal and shrink-packaging machine. Form & fill sealing machine, Aseptic packaging systems, Retort pouches, Bottling machines, Carton making machines, Package printing machines.

**UNIT-V: Labeling And Standards****(05 Hours)**

Packaging of Finished Goods: Weighing, filling, scaling, wrapping, cartooning, labeling, marking and trapping. Labeling: Standards, purpose, description, types of labels, labeling regulation barcode, Nutrition labeling, health claims, and mandatory labeling provision

**Total Lecture Hours- 30****COURSE OUTCOME**

The students will be able to

1. Apply knowledge on Packaging requirement of food product and different types of food packaging system.
2. Identify various packaging materials used in packaging industry.
3. Have a thorough knowledge on Packaging technology and equipments /machinery used in packaging.
4. Understand over the advanced packaging technology.
5. Understand packaging rules, labeling techniques, packaging techniques, bar coding etc.

**TEXT BOOK(S):**

1. Charls L.2002. Cutting, Fish – Processing and Preservation. Agrobios, India.
2. John P. Jacob.2010. Handbook on Food Packaging .Daya Publishing House .ISBN-10: 9788170356493; ISBN-13: 978-8170356493.
3. Neelam Khetarpaul. 2008. Food Packaging .Daya Publishing House ,ISBN-10: 9788170355427; ISBN-13: 978-8170355427.Potter, N.M. 2015.Food Science.The AVI Publishing Company Inc, West Post, USA.
4. Subbulakshmi G. Shobha AL. 2001. Food Processing and Preservation . New age international publishing.
5. Vijaya Khader. 2001.Text book of Food Science and Technology. Indian Council of Agricultural Research, New Delhi.

**REFERENCE BOOK(S):**

1. Crosby NT. Food Packaging materials. Applied Science Pub., Ltd, London.
2. F.A. and Paine HY. Leonard, Hill.2000. A hand book of Food Packaging. Blackie Sons Ltd, London.
3. NIIR Board of Consultants and Engineers. 2014.Modern Packaging Industries.National Institute of Industrial Research, New Delhi.
4. NIIR Board of Consultants and Engineers.2013. Food Packaging Technology Handbook. National Institute of Research, New Delhi.
5. NIIR. Food Packaging Technology hand book, Delhi.
6. Paine FA. The packaging media. Blackie and Sons Ltd, London.
7. Stanley Sacharous, Roger C.Griffin. Principles of Food Packaging .2nd Edition, AVI Publishers Co. Westport.

**E- RESOURCES**

1. <https://youtu.be/e8McIQODPmU>
2. <https://youtu.be/wt32GgQGTcI>
3. <https://youtu.be/8sdX5RCpBfc>
4. <https://www.fda.gov/files/food/published/Food-Labeling-Guide-%28PDF%29.pdf>
5. <https://polymerinnovationblog.com/wp-content/uploads/2017/02/pdf>

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# SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE



(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI - 614016

(For the candidate admitted from the academic year 2020-2021)

**DEPARTMENT OF NUTRITION AND DIETETICS**

**B.Sc., NUTRITION AND DIETETICS**

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## SOFT SKILLS DEVELOPMENT

### Learning Objective

Today's world is all about relationship, communication and presenting oneself, one's ideas and the company in the most positive and impactful way. This course intends to enable students to achieve excellence in both personal and professional life.

#### Unit I

Know Thyself/ Understanding Self

Introduction to Soft skills-Self discovery-Developing positive attitude-Improving perceptions-Forming values

#### Unit II

Interpersonal Skills/ Understanding Others

Developing interpersonal relationship-Team building-group dynamics-Net working-Improved work relationship

#### Unit III

Communication Skills / Communication with others

Art of listening-Art of reading-Art of speaking-Art of writing-Art of writing e-mails-e mail etiquette

#### Unit IV

Corporate Skills / Working with Others

Developing body language-Practising etiquette and mannerism-Time management-Stress management

#### Unit V

Selling Self / Job Hunting

Writing resume/cv-interview skills-Group discussion- Mock interview-Mock GD - Goal setting - Career planning

**TEXT BOOKS:Meena.K and V.Ayothi (2013) A Book on Development of Soft Skills (Soft Skills : A Road Map to Success), P.R. Publishers & Distributors, No, B-20 & 21, V.M.M. Complex, Chatiram Bus Stand, Tiruchirappalli- 620 002.**

(Phone No: 0431-2702824: Mobile No: 94433 70597, 98430 74472)

Alex K. (2012) Soft Skills - Know Yourself & Know the World, S.Chand & CompanyLTD, Ram Nagar, New Delhi- 110 055.

Mobile No : 94425 14814 (Dr.K.Alex)

#### REFERENCE BOOKS:

- (i) Developing the leader within you John c Maxwell
- (ii) Good to Great by *Jim Collins*
- (iii) The seven habits of highly effective people Stephen Covey
- (iv) Emotional Intelligence Daniel Goleman
- (v) You can win Shive Khera
- (vi) Principle centred leadership Stephen Covey

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**Semester VI – CC VIII: Dietetics - II**

**Ins Hrs./Week:6**

**Course Credit: 6**

**Course Code:20ND613**

**OBJECTIVES**

- Provide comprehensive knowledge on principles and planning of therapeutic diets.
- Acquire knowledge on nutritional needs of diseased persons.
- Assess the nutritional problems of diseased and effectively manage the nutritional needs.

**UNIT - I: Diet Counseling & Disorders/Diseases of Respiratory & GI Tract (20 Hours)**

Dietary counselling – clients and counselors, client responsibility, attributes of a successful counselor, steps in counseling process, counseling guidelines. Aetiology, symptoms, dietary management/modification of diets in Upper respiratory infection - Common Cold Lower respiratory infection - Bronchitis and Pneumonia Gastro intestinal disease, peptic ulcer, Irritable bowel syndrome, diarrhoea and dysentery. Diseases of liver, gall bladder -hepatitis, cirrhosis Cholecystitis & Cholelithiasis

**UNIT- II: Disorders/Diseases of Excretory System (16 Hours)**

Aetiology, symptoms and modification of diet in - Disease of kidney - Glomerulo nephritis, nephritic syndrome, acute and chronic renal failure, dialysis - urinary calculi.

**UNIT–III: Disorders/Diseases of Endo, Exocrine System & Inborn Errors of Metabolism (19 Hours)**

Aetiology, symptoms and modification of diet in

**Endocrine disorder** - Hypo and Hyperthyroidism, and Addison's disease

**Exocrine disorders** - Cystic fibrosis, Acute & Chronic Pancreatitis

**Inborn Errors of Metabolism** - Galactosemia (Carbohydrate metabolism), Phenyl ketonuria (Amino acid Metabolism), Niemann-Pick disease (lipid storage Metabolism)

**UNIT- IV: Disorder/ Diseases in Special Conditions (19 Hours)**

Aetiology, symptoms and modification of diet in

- a. Allergy
- b. Surgery
- c. Burns
- d. HIV/AIDS and e.Cancer

**UNIT – V: Nutritional Care for Children with Special Needs (16 Hours)**

Overview of disability, Aetiology, symptoms and modification of diet in Attention deficit hyperactivity disorder

- a. Autism
- b. Cerebral palsy
- c. Down's syndrome

**Total Lecture Hours- 90**

## **COURSE OUTCOME**

The students will be able to

1. Capable of describing mechanism and pathways in relation to disease development and progression.
2. Compete in the skills of assessment, planning, management and evaluation of nutrition and dietetic services for clinical conditions.
3. Utilize advanced principles of dietary management, including critical thinking skills, literature searches, data collection and interpretation, necessary for the implementation of therapeutic services in clinical settings.
4. Analyse the relationships between nutrition, health and food selection.
5. Develop the capacity and attitude for taking dietetics as a profession.

## **TEXT BOOK(S)**

1. Gopalan S.C Balasubramanian S.V. Ramestri and Visweswara Rao Diet Atlas. 1971, ICMR New Delhi, India.
2. Shubhangini A. Joshi. 2011. Nutrition and Dietetics, 3rd edition, Tata McGraw Hill Education private limited, New Delhi.
3. Srilakshmi B.2010. Dietetics, New Age International Publishers, New Delhi.
4. Sumati R. Mudambi MV. Rajagopal.2015.Fundamental of food, nutrition and diet therapy. New age international publishers, New Delhi.
5. Swaminathan M.1993.Principles of Nutrition and Dietetics. Bappeo 88, Mysore Road, Bangalore.

## **REFERENCE BOOK(S)**

1. Davidson & Passmore R & Brock JB.1976. Human Nutrition & dietetics. The English Languages Bood Society & Churchill Living stone.
2. Krause M V & Mahan MA.1992.Food Nutrition and Diet Therapy .W.B. Sunders company, Philadelphia London.
3. Maurice E. Shils, James A. Olson, Moshe Shike.1994. Modern Nutrition in health and disease. eighth edition, Vol I & II Lea & Febiger Philadelphia, A waverly company.
4. Micheal J. Gibney IA. Macdonald and Helan M. Roche. 2004. Nutrition and Metabolism. Blackwell Publishing Company, Bangalore.
5. Robinson CH. Lawles MR. Chenoweth WL. Garwic AE. 1990.Normal and Therapeutic Nutrition. The Macmillan Co.
6. Robinson CH. 2006. Normal and therapeutic nutrition. Macmillan Pub. Company, NewYork

## **E- RESOURCES**

1. <https://youtu.be/E0IBMWQDEH4>
2. [http://ams2.kku.ac.th/fileaf/suchat/UTI/Diseases\\_of\\_the\\_urinary\\_system.pdf](http://ams2.kku.ac.th/fileaf/suchat/UTI/Diseases_of_the_urinary_system.pdf)
3. <https://youtu.be/4zUFV3m5uy8>
4. <https://youtu.be/JPO-uOPK5RI>
5. <https://www.friendshipcircle.org/blog/2012/12/03/the-top-10-diets-for-children-with-special-needs/>

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**Semester VI – CC IX: Food Service Management - II**

**Ins Hrs./Week:6**

**Course Credit: 6 Course Code:20ND614**

**OBJECTIVES**

- Gain knowledge about various types of food services.
- Gain knowledge about the Principles and functions of Management.
- To understand about personnel Management, financial management and legal aspects of catering.
- To realise the importance of sanitation and hygiene in food service institutions.

**UNIT –I: Classification Based on Delivery and Service of Food (19 Hours)**

Method of Processing: Types of food service systems: Conventional systems, Commissary system, ready prepared system and assembly – service system. Styles of Service: English, Russian, French & American. Types of Service of food- self-service, tray service, Waiter –Waitress Service and portable service.

**UNIT –II: Food Purchasing and Storage (16 Hours)**

Purchasing: Purchasing officer, duties, purchasing procedures, selection of supplier, methods of purchasing, purchase specifications, Purchase records, Receiving: Procedure and forms. Storing and issuing: Objectives, types of store records, and stores issues. Inventory control

**UNIT –III: Food Planning and Production (17 Hours)**

Meal/ Menu Planning Menu: Definition, need & functions of menu Planning, Types of menu, Principles involved in menu Planning, Factors in menu planning for large groups, techniques in writing menu card.

Food Production: Production forecasting, production scheduling, Standardization of recipes, recipe files and adapting recipes , portion control, Utilization of left-over foods.

**UNIT –IV: Food Costing and Service (18 Hours)**

Cost control, Menu merchandising, menu pricing. Ways and means of creating good ambience (mise en place & mise en scene) Informal and formal table setting styles

**UNIT –V: Food Plant Layout Furniture and Equipments (20 Hours)**

Types & characteristics of a typical food service layout, space allocation for the various areas; flow of traffic through receiving, storage, preparation, service and dish washing areas; arrangements of equipment in work centres; optimum working heights.

Classification of equipment, factors involved in selection of equipment; purchase of equipment, operational know-how, care and maintenance of equipment. Materials Used: Base materials used in the manufacture of equipment, materials used for finishes, materials used in the manufacture of dining room furnishings.

**Total Lecture Hours- 90**

## **COURSE OUTCOME**

The students will be able to

1. Know the different types of catering and food services, and the types of services used in the industry.
2. Be acquainted with the scope of the field of catering and food service management, and the career avenues available.
3. Understand the need for developing knowledge and different skills to become food service professionals.
4. Have a Thorough knowledge on ideal food service layout to utilize the optimum working environment.
5. Gain knowledge on proper resource utilization in terms of handling equipment, their maintenance and other furnishing materials.

## **TEXT BOOK(S)**

1. Andrews S .2008. Text book of Food & Beverage Management. Tata McGraw-Hill Publishing Company Limited.
2. Jyoti S. Sharma. 2006. Food Service Modern Technique and Practices. Akansha Publishing House.
3. Mary B. Gregoire, Marian C. Spears. 2007. Food Service Organizations. Pearson Prentice Hall.
4. Sethi M .2011. Institutional Food Management. Second edition ,New age International (P) Limited.
5. Sethi M. and Malhan SM. 2007. Catering Management an Integrated Approach. Wiley Eastern Limited, Mumbai.
6. Subba Rao P. 2014. Management Theory and Practice, Himalaya publication.
7. Swaminathan M.1979. Food Service and Experimental Foods, Ganesh & Co., Madras.

## **REFERENCE BOOK(S)**

1. Bennion M and Hughes D. 1975- Introductory foods, Macmillan publishing Co. Inc- New York.
2. Davis B. Lockwood A and Stone S .2008. Food and Beverage Management. Third Edition, Elsevier Publication.
3. Kinton R And Ceserani V. 1992. The Theory of Catering. ELBS Publishers.
4. Shakunthala Manay N and Shadakshaiswamy M. 1987. Foods, Fats& Principles. Willey Eastern Ltd. New Delhi, Bangalore.
5. Mohini Sethi and Surjeet Malhan. 2007.Catering Management – an integrated approach”, 2<sup>nd</sup> edition, Wiley Eastern Limited, New Delhi.
6. Mudambi SR. and Rao SM. 1986. Food Science. Wiley Eastern Ltd. New Delhi, Bangalore.
7. Pechkam GC. 1979 .Foundations of food preparation. The Macmillan Publishing Co, New York.
8. Ramaswamy T. Principles of Management Himalaya Publication.
9. West BB and Wood L. 1979. Food Service in Institutions. John Wiley, New York.

## **E- RESOURCES**

1. <https://youtu.be/E2ZV3YLulu8>
2. <https://youtu.be/uwWQSRM-63U>
3. <https://youtu.be/rrqZchGe0bo>
4. <https://youtu.be/4Bb1rOiQcLk>
5. <https://www.agrimoon.com/wp-content/uploads/Food-Processing-Plant-Design-layout.pdf>
6. <https://ncert.nic.in/textbook/pdf/lehe104.pdf>

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**SEMESTER VI – MBE II: Textile Science**

**Ins Hrs./Week:6**

**Course Credit: 6 Course Code:20MBEND2**

**OBJECTIVES:**

- To impart knowledge about basic science behind textiles.
- To acquaint learners with current scenario of the textile Industry.
- To be aware of properties & the sequence of developing fibres into fabric of textile fibre.

**UNIT –I: Textile Fibers (18 Hours)**

Terms and definition related to textile, Importance of textile, Fibers, filaments, yarns- spun yarns, filament yarns, sewing threads, Fabrics- woven, knitted, non-woven, Classification and nature of fibers

**UNIT– II: General Fiber Properties (17 Hours)**

Fiber length, Fiber strength, Flexibility, Spinnability, Uniformity, Density, Luster, Moisture & Moisture regain, Elasticity, elastic recovery, elongation. Water- repellent fibers. Resiliency & compressibility. Chemical, Environmental & other properties

**UNIT– III: Manufacturing Processes and Properties Of Textile Fibers (19 Hours)**

Brief introduction about manufacturing processes and physical & chemical properties of following textile fibers. Cotton, Silk, Wool, Polyester, Acrylic, Nylon.

**UNIT– IV: Yarns (16 Hours)**

Definition of yarn. Types of yarn. Yarn twist. Yarn count (definition, unit of yarn count), Sequence of spinning processes.

**UNIT-V: Conversion of Yarn Into Fabric (20 Hours)**

Processing - Woven fabric -Basic loom & its structure, Warp & weft yarns, grain line , Basic weaves.(Plain weave, Rib weave, Variation of plain weave, Basket variation of plain weave, Twill weave, Satin weave, Sateen weave) Decorative weaves.(Dobby weaves, Jacquard weave, Leno weaves, Surface figure weave, Pile, Double weave) Draft and peg-plan of weave. Fabric count. Knitted fabric. Non-Woven fabric. Other fabric construction process. Braided fabric Nets, Laces, Film fabric, Tufted fabric.

**Total Lecture Hours- 90**

**COURSE OUTCOME**

The students will be able to

1. Gain knowledge in textile production and processing.
2. Acquire knowledge about different types of fabric and structure.
3. Understand the fibre extraction procedures and processing.
4. Identify natural and man-made fibres. & Understand basic textile fabrication techniques.
5. Acquire knowledge of basic weaving in the textile industry.

### **TEXT BOOK(S)**

1. Bernard P. Corbman.2005. Textiles Fiber to Fabric. Sixth edition, McGraw Hill International Editions, New Delhi.
2. Deepali Rastogi and SheetalChopra. 2017. Textile Science, Orient Black-Swan Private Limited, Hyderabad.
3. Kaplan NS. 2008. Textile Fibres. Abhishek Publications, Chandigarh.
4. Kothari VK. 2010. Progress in Textile Science. Vol I, II and III, IAFL Publications, New Delhi.
5. Seema Sekhri. 2011. Textbook of Fabric science. Fundamentals to finishing, PHI Learning Private limited, New Delhi.

### **REFERENCE BOOK(S)**

1. Banner NN. Mechanism of Weaving, Vol – I & II, Textile Institute
2. Corbman B P andPotter MD.1984. Textiles fiber to fabric. International Edition, McGraw-hill book Co, New York.
3. Gohl EP and vilensky LD. 1983. Textile Science. 2nd Ed., Publishers, NewDelhi.
4. Joseph J. Pretal.1990.Fabric Science. 5th edition, Fairchild Publications, Newyork.
5. Klein WD. A Practical Guide to Ring Spinning Textile Institute, Manchester.
6. Mark and Robinson, Principles of weaving, Textile institute Manchester.
7. Premony Ghosh. 2004. Fibre science and Technology. Tata McGraw- Hill Publishing Company limited, New Delhi.

### **E- RESOURCES**

1. <https://youtu.be/CaoQWOaIUuE>
2. <https://youtu.be/PDuiSnBYCQc>
3. <https://youtu.be/bVjFP8LTa6c>
4. <https://youtu.be/JvLykvVV2sk>
5. <https://youtu.be/2aCT4Kk2P5U>
6. <https://youtu.be/5UBhRgRyx18>
7. [https://www.researchgate.net/publication/41651190\\_Fancy\\_yarns\\_-\\_An\\_appraisal](https://www.researchgate.net/publication/41651190_Fancy_yarns_-_An_appraisal)
8. <https://link.springer.com/content/pdf/10.1186/s40691-015-0027-8.pdf>

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**DEPARTMENT OF NUTRITION AND DIETETICS**

**B.Sc., NUTRITION AND DIETETICS**



**Semester VI – MBE III: Dietary Internship**

**Ins Hrs./Week:6**

**Course Credit: 5**

**Course Code:20MBEND3**

**OBJECTIVES**

- Gain hands on experience of applying theoretical concepts in a practical setting and Understand the working of hospital/ wellness centre.
- Relate to, interact with and learn from current professionals in the field and strengthen their professional skills and interpersonal relationships.
- Broaden the knowledge and plan for future career.

**CONTENTS**

Dietary internship for a period of 30 Days

Works under each speciality included in the hospital

- Different Wards
- Dietary Department layout
- Organization chart
- Duties and Responsibilities
- Store keeping (receiving and holding of provision, stock levels in the stores, supervision of the kitchen area, pre-preparation area and preparation of patient diet and hospital made enteral feeds, quality Control, kitchen hygiene and patient tray service.

**General Guidelines:**

- Every student of this courses will be required to undergo a practical training in an organization approved by the Institute for .... Weeks, normally during .....  
The candidates shall be required to undergo training in the various areas of the organization concerned.
- The organization may assign a specific project to the candidate, which will be completed by him/her during the period of training. The work done by the candidate during the training period shall be submitted in the form of a report as per the guidelines provided by the Department/ Hospital/Organization
- The Chief Dietitian/ concerned in charge is asked to evaluate the student based on her performance as well as their conduct for ..... Marks. The report has to be sent to the HOD of the concerned college department

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**Semester VI – CP VI: Dietetics – II Practical**

**Ins Hrs./Week:5**

**Course Credit: 5 Course Code:20ND615P**

**1. Planning, preparation and calculation of following diets:**

- Common cold and pneumonia.
- Peptic ulcer, IBS, diarrhoea and dysentery.
- hepatitis, cirrhosis.
- Nephritis, Nephrosis, Urinary calculi.
- Hyper and Hypothyroidism.
- Pancreatitis.
- Inborn Errors of Metabolism – Galactosemia and PKU.
- Allergy, Burns, Cancer, AIDS.
- Autism.
- Down syndrome.

**E- RESOURCES**

1. <https://youtu.be/Ec1FVkp2P2U>
2. <https://youtu.be/E0IBMWQDEH4>
3. <https://youtu.be/0fJbNN1577k>
4. [https://www.researchgate.net/publication/5289279\\_PhenylketonuriaAnInborn\\_Error\\_of\\_Phenylalanine\\_Metabolism](https://www.researchgate.net/publication/5289279_PhenylketonuriaAnInborn_Error_of_Phenylalanine_Metabolism)
5. <https://youtu.be/JPO-uOPK5RI>
6. <https://iubmb.onlinelibrary.wiley.com/doi/pdf/10.1002/iub.336>

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**SENGAMALA THAYAAR EDUCATIONAL TRUST WOMEN'S COLLEGE**  
(AUTONOMOUS)

SUNDARAKKOTTAI, MANNARGUDI - 614016

(For the candidate admitted from the academic year 2020-2021)

**DEPARTMENT OF NUTRITION AND DIETETICS**

B.Sc., NUTRITION AND DIETETICS



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(Applicable to the candidates admitted from the Academic year 2019-20 onwards)  
**Gender Studies**

**Objectives**

- ❖ To make boys and girls aware of each others strengths and Weakness.
- ❖ To develop sensitivity towards both genders in order to lead an ethically enriched life.
- ❖ To promote attitudinal change towards a gender balanced ambience and women empowerment .

**Unit – I**

**Concepts of Gender:** Sex – Gender – Biological Determinism – Patriarchy – Feminism – Gender Discrimination – Gender Division of labour – Gender Stereotyping – Gender Sensitivity – Gender Equity – Equality – Gender Mainstreaming - Empowerment.

**Unit – II**

**Women's Studies vs Gender Studies :** UGC's Guidelines – VII to XI Plans – Gender Studies : Beijing Conference and CEDAW – Exclusiveness and Inclusiveness.

**Unit – III**

**Areas of Gender Discrimination :** Family – Sex Ratio – Literacy – Health – Governance – Religion Work Vs Employment – Market – Media – Politics – Law – Domestic Violence – Sexual Harassment – State Policies and Planning .

**Unit – IV**

**Women Development and Gender Empowerment :** Initiatives – International Women's Decade – International Women's Year – National Policy for Empowerment of Women – Women Empowerment Year 2001 – Mainstreaming Global Policies .

**Unit – V**

**Women's Movements and Safeguarding Mechanism :** In India National /State Commission for Women(NCW) – All Women Police Station – Family Court – Domestic Violence Act – Prevention of Sexual Harassment at Work Place Supreme Court Guidelines – Maternity Benefit Act – PNDT Act – Hindu Succession Act 2005 – Eve Teasing Prevention Act – Self Help Groups – 73<sup>rd</sup> and 74<sup>th</sup> Amendment for PRIS

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