

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

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

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

## **DEPARTMENT OF NUTRITION & DIETETICS**



### **CBCS SYLLABUS**

### **BACHELOR OF SCIENCE**

**PROGRAMME CODE - N**

### **COURSE STRUCTURE**

(w.e.f. 2021 – 2022 Batch onwards)

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

(An Autonomous Institution – Affiliated to Madurai Kamaraj University)

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

(w.e.f. 2021 – 2022 onwards)

**COURSE STRUCTURE – SEMESTER WISE**

Sem	Part	Sub Code	Title of the Paper	Teaching hrs (per week)	Exam Duration (hrs)	Marks Allotted			Credits
						CIA	SE	Total	
I	I	211T1	Part – I Tamil	6	3	25	75	100	3
	II	212E1	Part – II English	6	3	25	75	100	3
	III	21N11	Core : Food Science - I	4	3	25	75	100	4
	III		Core : Lab – in - Food Science - I & II	2	-	-	-	-	-
	III	21AN11	Allied I : Human Physiology	6	3	25	75	100	4
	IV	21SEN11	SBE: Spices and Herbal Nutrition	2	3	25	75	100	2
	IV	21SEN12	SBE: Community Nutrition	2	3	25	75	100	2
	IV	21NMN1	NME : Basic Nutrition	2	3	25	75	100	2
II	I	211T2	Part – I Tamil	6	3	25	75	100	3
	II	212E2	Part – II English	6	3	25	75	100	3
	III	21N21	Core : Food Science - II	4	3	25	75	100	4
	III	21N2P	Core : Lab – in - Food Science - I & II	2	3	40	60	100	2
	III	21AN21	Allied I : Food Microbiology	6	3	25	75	100	5
	IV	21SEN21	SBE: Extension Education	2	3	25	75	100	2
	IV	21SEN22	SBE: Textiles and Clothing	2	3	25	75	100	2
	IV	21NMN2	NME : Food Preservation	2	3	25	75	100	2

## Annexure-13

III	I	211T3	Part – I Tamil	6	3	25	75	100	3
	II	212E3	Part – II English	6	3	25	75	100	3
	III	21N31	Core: Fundamentals of Nutrition	4	3	25	75	100	4
	III		Core : Lab – in -Nutritional Biochemistry	2	-	-	-	-	-
	III	21AN31	Allied I : Bakery	6	3	25	75	100	4
	III	21AKN3	Allied II : General Chemistry- I	4	3	25	75	100	4
	III		Allied II : Practical - I Inorganic Qualitative Analysis	2	-	-	-	-	-
IV	I	211T4	Part – I Tamil	6	3	25	75	100	3
	II	212E4	Part – II English	6	3	25	75	100	3
	III	21N41	Core : Nutritional Biochemistry	4	3	25	75	100	4
	III	21N4P	Core : Lab – in -Nutritional Biochemistry	2	3	40	60	100	2
	III	21AN41	Allied I : Food Preservation	4	3	25	75	100	4
	III	21AN4P	Allied I : Practical - I Bakery and Food Preservation	2	3	40	60	100	1
	III	21AKN4	Allied II : General Chemistry- II	4	3	25	75	100	4
	III	21AKN4P	Allied II : Practical - I Inorganic Qualitative Analysis	2	3	40	60	100	1
V	III	21N51	Core : Nutrition Through Life Cycle	4	3	25	75	100	4
	III		Core : Lab – in - Nutrition Through Life Cycle	3	-	-	-	-	-
	III	21N52	Core : Dietetics - I	4	3	25	75	100	4
	III		Core : Lab – in -Dietetics – I & II	3	-	-	-	-	-
	III		Elective - I	4	3	25	75	100	5
	III		Dietetic Internship Project	2	-	-	-	-	-
	III	21AKN5	Allied II : General Chemistry- III	4	3	25	75	100	4
	III		Allied II : Practical - II Volumetric Analysis	2	-	-	-	-	-
	IV	214EV5	Environmental Studies	2	3	25	75	100	2
	IV	21SEN51	SBE : Family Resource Management	2	3	25	75	100	2

VI	III	21N61	Core : Food Processing	4	3	25	75	100	4
	III	21N62	Core : Dietetics - II	4	3	25	75	100	4
	III		Elective II	4	3	25	75	100	5
	III	21N61P	Core : Lab – in -Nutrition Through Life Cycle	3	3	40	60	100	4
	III	21N62P	Core : Lab – in -Dietetics –I &II	3	3	40	60	100	4
	III		Elective III	2	3	20	80	100	5
	III	21AKN6	Allied II : General Chemistry- IV	4	3	25	75	100	4
	III	21AKN6P	Allied II : Practical - II Volumetric Analysis	2	3	40	60	100	1
	IV	21SEN61	SBE : Child development	2	3	25	75	100	2
	IV	214VE6	Value Education	2	3	25	75	100	2
	V	215NS4/ 215PE4	Extension Activities - NSS/Physical Education	-	3	25	75	100	1
		Total	180					140	

**Electives :****Semester – V****Elective – I (Choose any one)**

1. Food Service Management – 21NE5A
2. Functional Foods and Nutraceuticals – 21NE5B

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

1. Food Safety and Quality control – 21NE6A
2. Post Harvest Technology – 21NE6B

**Semester – VI****Elective – III**

Dietetic Internship Project – 21NEPR6

**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI-14.****(An Autonomous Institution – Affiliated to Madurai Kamaraj University)****Re-accredited (3<sup>rd</sup> Cycle) with Grade A<sup>+</sup> & CGPA 3.51 by NAAC****CBCS****DEPARTMENT OF NUTRITION AND DIETETICS-UG****(w.e.f. 2021 – 2022 onwards)**

<b>Title of the Paper</b>	<b>: Core-Food Science – I</b>	<b>Contact Hours: 4</b>
<b>Semester</b>	<b>: I</b>	<b>Credits: 4</b>
<b>Sub Code</b>	<b>: 21N11</b>	

---

**Objectives:**

To enable students to

1. Acquire knowledge on the structure of food , its composition, processing and changes during cooking.
2. Understand importance of various foods and composition of their nutrients.
3. Familiarize with different methods of cooking.

**Unit – I Food :** Meaning, classification and functions. food groups-basic four and Basic five. cooking- objectives, methods - moist heat, dry heat, microwave cooking,solar cooking and their merits and demerits.

**Unit – II Cereals and Millets :**Classification of cereals and millets, structure of wheat, nutritional composition - wheat, rice, maize or corn, jowar, ragi and bajra. processing- parching, extrusion and puffing parboiling-merits and demerits. cereal cookery – factors affecting gluten formation, effect of cooking - gelatinization, retrogradation and dextrinisation. culinary uses of cereals in cookery.

**Unit – III Pulses:** Classification, nutritional composition, changes during cooking of pulses, processing - soaking, germination, fermentation, parching, decortications and extrusion. Toxic constituents-lathrogens, trypsin inhibitors, haemagglutinins and ] cyanogenic glycoside, culinary use of Pulses.

**Unit – IV Nuts and Oil Seeds:** Nutritional composition - almonds, coconut,

groundnut, cashewnut, and gingelly seeds. Processing of oilseed – gingelly seed. toxic constituents aflatoxins and gossypol. culinary use of nuts and oilseeds.

**Unit –V** Vegetables & Fruits:Vegetable and fruits -classification, selection, nutritional composition, pigments - water soluble and fat soluble , effect of cooking , conservation of nutrients during cooking and processing , browning reaction – types, and prevention.

**Text Books:**

1. Shakuntala Manay and Shada Sharaswamy, *Food; Facts and Principles*, New Age International Pub., New Delhi, 2010.
2. Srilakshmi. B *Food Science* (7 ed.), New Age International Pub., New Delhi, 2018.

**Reference Books:**

1. Alex Ramani .V *Food Chemistry*, Mjp publishers Chennai ,2014 .
2. Norman N.Potter ,Joseph H.Hotchkiss *Food Science* (5 ed) CBS Published & Distributors Pvt.Ltd,2007.
3. Raheena Begum .M *A Text Book of Foods, Nutrition and Dietetics* ,Sterling Pub.Pvt.Ltd , New Delhi 2010.
4. Shrinandan Bansal *Food and Nutrition* AITBS Publishers., New Delhi 2012.
5. Sunetra Roday.*Food Science & Nutrition* (2 ed) Published in India by Oxford University Press, 2012.

**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI-14.****(An Autonomous Institution – Affiliated to Madurai Kamaraj University)****Re-accredited (3<sup>rd</sup> Cycle) with Grade A<sup>+</sup> & CGPA 3.51 by NAAC****CBCS****DEPARTMENT OF NUTRITION AND DIETETICS-UG****(w.e.f. 2021 – 2022 onwards)****Title of the Paper : Allied I -Human Physiology****Semester : I****Contact Hours: 6****Sub Code : 21AN11****Credits: 4****Objectives:**

To enable students to

1. Understand the integrated structure and functions of all systems.
2. Gain knowledge on human physiology.
3. Understand some of the relevant issues and topics of human physiology.

**Unit – I** Cells and Tissue: Cells - meaning, types and functions - bone, cartilage, nerve, epithelial, muscle, secretory, adipose, blood .tissues- meaning, types and functions - connective, muscle, nervous, epithelial . endocrine glands – structure and functions of pituitary, thyroid, parathyroid, adrenal, islets of langerhans.

**Unit –II** Digestive System: Structure, functions of saliva, stomach, small intestine and large intestine. process of digestion and absorption, Role of liver, pancreas and gall bladder.

**Unit – III** Circulatory and Respiratory System : Structure and functions of heart, cardiac cycle. Blood- function, composition, blood coagulation, blood grouping, blood transfusion. Structure and functions of respiration, mechanism of respiration, transport of gases in lungs.

**Unit – IV** Reproductive and Excretory System :: Structure of male and female reproductive organs, menstrual cycle, ovulation and hormones. functions of excretory system, formation of urine, composition of urine.

**Unit – V** Nervous System and sensory organs: Nervous system –sympathetic, parasympathetic. central nervous system - Structure of brain and functions. Structure of eye, ear, nose, skin ,tongue - mechanism of vision and hearing.

**Related Experience:**

1. Determination of haemoglobin by Sahli's method.
2. Demonstration of coagulation of blood and blood grouping.
3. Recording Pulse rate & measurement of blood pressure.

**Text Books:**

1. Arumugam et al., *Animal Physiology*, Saras Publications, 2013.
2. Umamaheswari B, Sampath. K.,*A Text Book of: Human Anatomy &Physiology (12<sup>ed</sup>)*,Birla Publication Pvt .Ltd. 2018.

**Reference Books**

1. Chatterjee's C.C *Human Physiology*,Volume I,II (11<sup>th</sup>) coloured edition CBS Publishers & Distributors Pvt.Ltd.2016.
2. Elaine N.Marieb ,*Essentials of human anatomy and physiology ,(10<sup>th</sup>)* Pearson India education services Pvt.ltd South Asia 2017.
3. Padma. B Sanghani *Human Anatomy and Physiology with Health Education* Tata Mc Graw Hill education Private Limited, New Delhi ,2012.
4. Suresh R *Essentials of human physiology (1<sup>st</sup>)* Books and Allied (P)Ltd 2013
5. Wilson, K.J.W and Waugh, A *Anatomy and Physiology in health and illness*, 8<sup>th</sup> Edition, Churchill living stone, 1996.



**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI-14.****(An Autonomous Institution – Affiliated to Madurai Kamaraj University)****Re-accredited (3<sup>rd</sup> Cycle) with Grade A<sup>+</sup> & CGPA 3.51 by NAAC****CBCS****DEPARTMENT OF NUTRITION AND DIETETICS-UG****(w.e.f. 2021 – 2022 onwards)****SKILL BASED ELECTIVE****Title of the Paper : Spices and Herbal Nutrition****Semester : I****Contact Hours: 2****Sub Code : 21SEN11****Credits: 2****Objectives:**

To enable the students to gain

1. Basic knowledge of spices and herbs.
2. Understanding about culinary uses.
3. Knowledge on therapeutic value of spices and herbs.

**Unit – I** Spices and Herbs –meaning , functions, and classification**Unit – II** Major spices of India- pepper , cardamom, chillies ,turmeric and ginger - nutritional composition ,culinary uses and therapeutic value.**Unit – III** Minor spices of India – garlic, onion ,asafoetida, fenugreek, cinnamon , cumin, omum, mustard ,and clove- nutritional composition, culinary uses and therapeutic value.**Unit – IV** Herbs- stevia, coriander leaves ,mint, curry leaves ,celery, aloe vera, basil and rosemary -nutritional composition , culinary uses and therapeutic value.**Unit – V** Preparation of herbal products -herbal Tea , juices, soups .

**Text Books:**

1. Shakuntala Manay and Shada Sharaswamy, *Food; Facts and Principles*, New Age International Pub., New Delhi, 2010.
2. Srilakshmi. B *Food Science* (7 ed.), New Age International Pub., New Delhi, 2018.

**Reference Books:**

1. Arunabha Ray Kavita Gulati *Recent Advantages in Herbal Drug Research and Therapy* I.K.International Publishing House Pvt.Ltd, New Delhi, 2010.
2. Bakhru Dr. H.K. *Healing Through Natural Foods* ,(14<sup>th</sup>ed) Jaico Publishing House Mumbai, 2013.
3. Bakhru .H.K *Natural Home Remedies for Common Ailments* Published by Orient Paperbacks, New Delhi, 2014.
4. Gajalakshmi R *Nutrition Science* (1ed) CBS Publishers &Distributors Pvt, Ltd, New Delhi, 2015.
5. Shakuntala Manay and Shada Sharaswamy, *Food; Facts and Principles*, New Age International Pub., New Delhi, 2010.

**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI-14.****(An Autonomous Institution – Affiliated to Madurai Kamaraj University)****Re-accredited (3<sup>rd</sup> Cycle) with Grade A<sup>+</sup> & CGPA 3.51 by NAAC****CBCS****DEPARTMENT OF NUTRITION AND DIETETICS-UG****(w.e.f. 2021 – 2022 onwards)****SKILL BASED ELECTIVE****Title of the Paper : Community Nutrition****Semester : I****Contact Hours: 2****Sub Code : 21SEN12****Credits: 2****Objectives:**

To enable the students to

1. Understand the concept of community nutrition.
2. To know about the various health intervention programmes in the community .
3. To understand national nutritional problems and their implications.

**Unit – I** Concept and scope of community nutrition. Mortality, Morbidity, IMR, MMR, sex ratio and life expectancy. PHC - Objectives, functions.

**Unit – II** Epidemiology of communicable diseases, common nutritional problems - Prophylaxis programme to combat vitamin A deficiency, anaemia, goiter and PEM.

**Unit - III** Nutrition intervention programmes - ICDS: Objectives and services, Noon meal programme, TINP, SNP.

**Unit – IV** Role of national organizations – ICMR, NIN, NNMB.

Role of international organizations – FAO, WHO, UNICEF.

**Unit – V** Nutrition education – meaning, importance and methods.

**Text Books:**

1. Park and Park, *Preventive and Social Medicine* (17 edn), Ms Banarsidas Bhanot, Jabalpur, 2003.
2. Srilakshmi B., *Nutrition Science* (7 Edn.), New Age International Publishers, New Delhi, 2018.

**Reference Books:**

1. Bamji et al *Text book of Human Nutrition* (4<sup>th</sup>) CBS Publishers & Distributors Pvt Ltd, New Delhi, 2016 .
2. Gajalakshmi R *Nutrition Science* (1ed) CBS Publishers & Distributors Pvt, Ltd, New Delhi, 2015.
3. Srilakshmi B., *Dietetics* (7 Edn.), New Age International Publishers, New Delhi, 2014.
4. Srilakshmi B., *Nutrition Science* (5 Edn.), New Age International Publishers, New Delhi, 2016.
5. Varinder Karu *Textbook of Nutrition for GNM students* ) CBS Publishers & Distributors Pvt, Ltd, New Delhi, 2018.

**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI-14.****(An Autonomous Institution – Affiliated to Madurai Kamaraj University)****Re-accredited (3<sup>rd</sup> Cycle) with Grade A<sup>+</sup> & CGPA 3.51 by NAAC****CBCS****DEPARTMENT OF NUTRITION AND DIETETICS-UG****(w.e.f. 2021 – 2022 onwards)****NON - MAJOR ELECTIVE****Title of the Paper : Basic Nutrition****Semester : I****Sub Code : 21NMN1****Contact Hours: 2****Credits: 2****Objectives:**

To help the students to

1. Understand the functions and sources of nutrients.
2. Acquire skills in the maintenance of good health
3. Know about the various deficiency disorders.

**Unit – I** Definition - nutrition, nutrients, health, nutritional status, malnutrition, under nutrition, over nutrition, balanced diet and RDA.

**Unit – II** Carbohydrates – definition, function, sources and RDA.

**Unit – III** Protein-definition, functions, sources, deficiency and RDA. lipids-definition, functions, types, sources, deficiency and RDA.

**Unit – IV** Vitamins- water soluble (thiamine,riboflavin,niacin,B12), fat soluble (A,D,E, and K) ,functions, sources, deficiency and RDA.

**Unit –V** Minerals –functions, sources, deficiency and RDA of calcium , iron, iodine, zinc and sodium.

**Text Books:**

1. Srilakshmi.B , *Nutrition Science* (5<sup>th</sup> edn), New Age International Publications, New Delhi, 2016
2. Sunetra Roday.*Food Science & Nutrition* (2 ed) Published in India by Oxford University Press, 2012.

**Reference Books:**

1. Monika Sharma *Textbook of Nutrition for Bsc Nursing Students* CBS Publishers & Distributors Pvt, Ltd, New Delhi, 2017.
2. Pooja Verma *Food Nutrition and Dietetics* CBS Publishers & Distributors Pvt, Ltd, New Delhi, 2015.
3. Shrinandhan *Bansal Food and Nutrition* AITBS Publishers India New Delhi 2012.
4. Shubhangini A Joshi *Nutrition and Dietetics with Indian Case studies* ,Tata Mc Graw –Hill Pvt.Ltd 2011.
5. Varinder Karu *Textbook of Nutrition for GNM students* ) CBS Publishers & Distributors Pvt, Ltd, New Delhi, 2018.

**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI-14.****(An Autonomous Institution – Affiliated to Madurai Kamaraj University)****Re-accredited (3<sup>rd</sup> Cycle) with Grade A<sup>+</sup> & CGPA 3.51 by NAAC****CBCS****DEPARTMENT OF NUTRITION AND DIETETICS-UG****(w.e.f. 2021 – 2022 onwards)****Title of the Paper :Core - Food Science - II****Semester : II****Contact Hours: 4****Sub Code :21N21****Credits: 4****Objectives:**

To enable students to

1. Learn the structure, composition, selection of different food and their changes during cooking.
2. Gain knowledge on evaluation of food quality.
3. Know about the food adulteration and tests for detection.

**Unit - I** Milk - nutritional composition, types, processing - pasteurization, homogenization, standardization. Milk products - butter, ghee, cheese. Milk cookery, problems encountered in cooking milk.

**Unit - II** Flesh Foods - Egg ,Poultry, Meat and Fish- structure (meat), classification, nutritional composition, changes during cooking and tenderization.

**Unit - III** Fats and oils- Nutritional composition, rancidity – types and role of fat in cookery. Sugars: Classification, stages of sugar cookery and culinary use in cookery Beverages - Definition, classification and function.

**Unit – IV** Sensory Evaluation- Sensory characteristics of food, reasons for testing food quality, trained panel members .Testing laboratory – preparation of samples, smelling and testing , testing time , evaluation card.

**Unit - V** Food Adulteration- meaning , types- intentional and incidental, simple methods of detection – Intentional - asafoetida, black pepper , cinnamon, common salt, dhal, ghee, honey, milk.

**Text Books:**

1. Shakuntala Manay and Shada Sharaswamy, *Food; Facts and Principles*, New Age International Pub., New Delhi, 2010.
2. Srilakshmi. B *Food Science* (7 ed.), New Age International Pub., New Delhi, 2018.

**Reference Books:**

1. Alex Ramani .V *Food Chemistry*, Mjp publishers Chennai ,2014 .
2. Norman N.Potter ,Joseph H.Hotchkiss *Food Science* (5 ed) CBS Published & Distributors Pvt.Ltd,2007.
3. Raheena Begum .M *A Text Book of Foods, Nutrition and Dietetics* ,Sterling Pub.Pvt.Ltd , New Delhi 2010.
4. Shrinandan Bansal *Food and Nutrition* AITBS Publishers., New Delhi 2012.
5. Sunetra Roday.*Food Science & Nutrition* (2 ed) Published in India by Oxford University Press, 2012.



**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI-14.****(An Autonomous Institution – Affiliated to Madurai Kamaraj University)****Re-accredited (3<sup>rd</sup> Cycle) with Grade A<sup>+</sup> & CGPA 3.51 by NAAC****CBCS****DEPARTMENT OF NUTRITION AND DIETETICS-UG****(w.e.f. 2021 – 2022 onwards)****Title of the Paper : Core - Food Science I and II Practicals****Semester : II****Contact Hours: 2****Sub Code : 21N2P****Credits: 2****Objectives:**

To enable students to

1. Understand different food groups, and their composition.
2. Know various methods of cooking foods .
3. Gain knowledge about the nutritive value and food selection.

**Contents:**

**Unit - I** Laboratory techniques, care of equipments and utensils, measurement of ingredients, determination of edible portion. Cereal cookery - Microscopic examination of starches, measurement of raw and cooked rice, gelatinization of starch, gluten formation, methods of cooking coarse and fine cereals, quality of raw and parboiled rice cooked by different methods, preparation of selected recipes.

**Unit - II** Pulse cookery - Germination, factors affecting cooking quality – hard water, soft water, soaked, un soaked, sodium chloride, sodium bicarbonate. Preparation of selected recipes.

**Unit - III** Vegetable and fruit cookery - Measurement of weight of fruits and vegetables, browning reaction, colour and textural changes on cooking, preparation of selected recipes. Milk cookery – problems in milk cooker and their prevention, preparation of selected recipes.

**Unit - IV** Egg cookery - Boiling, poaching, omelet, custard and egg nog preparation.  
Meat, Fish and Poultry - Methods of cooking, common recipes.

**Unit - V Beverages** - Preparation of hot and cold beverages. Smoking temperature of different oils. Stages of sugar cookery.

**Text Books:**

- 1.Mohini sethi etal *Food science Experiments and Applications* (2<sup>nd</sup>ed) CBS Publishers & Distributors Pvt.Ltd,2013.
- 2.Srilakshmi. B *Food Science* (7 ed.), New Age International Pub., New Delhi, 2018.

**Reference Books:**

- 1.Avantina Sharma *Text book of Food science &Technology* International Book Distributing Co, Lucknow, 2006.
- 2.Reddy SM *Basic Food Science and Technology* New age International Publishers New Delhi,2015.
- 3.Raheena Begum .M *A Text Book of Foods, Nutrition and Dietetics* ,Sterling Pub.Pvt.Ltd , New Delhi 2010.
- 4.Shrinandan Bansal *Food and Nutrition* AITBS Publishers., New Delhi 2012.
- 5.Sunetra Roday.*Food Science & Nutrition* (2 ed) Published in India by Oxford University Press, 2012.

**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI-14.****(An Autonomous Institution – Affiliated to Madurai Kamaraj University)****Re-accredited (3<sup>rd</sup> Cycle) with Grade A<sup>+</sup> & CGPA 3.51 by NAAC****CBCS****DEPARTMENT OF NUTRITION AND DIETETICS-UG****(w.e.f. 2021 – 2022 onwards)****Title of the Paper : Allied I - Food Microbiology****Semester : II****Contact Hours: 6****Sub Code : 21AN21****Credits: 5****Objectives**

To enable students to

1. Acquire knowledge on the nature of microorganisms involved in food spoilage.
2. Understand the importance of microorganisms in food biotechnology.
3. Distinguish between food poisoning and infection.

**Unit – I** Introduction to Micro Organism - Brief history of food microbiology, primary sources of microorganisms in foods, physical and chemical methods of destruction of micro organisms in food, extrinsic and intrinsic parameters affecting growth and survival of microbes.

**Unit – II** Contamination and spoilage of cereal and cereal products, vegetables and fruits – sources , types of contamination and microorganism involved.

**Unit – III** Contamination and spoilage of fish and other sea foods, meat and meat products, egg and poultry, milk and milk products - sources , types of contamination and microorganism involved .

**Unit – IV** Food Poisoning and Infection - meaning and difference fungal food borne diseases. Bacterial , fungal food borne diseases and prevention – salmonella, staphylococcus, clostridium, perfringens, pseudomonas.

**Unit – V** New Trends in Food Microbiology -Microbes used in food biotechnology, fermented foods and their benefits, Types and significance - prebiotics and probiotics.

**Text Books:**

1. Anna K. Joshua, *Microbiology* (4<sup>th</sup> Edn), Popular Book Depot, Madras, 1988.
2. Frazier, W C and Westhoff D C., *Food Microbiology* (4<sup>th</sup> Edn), MC Graw Hill Inc. 2017.

**Reference Books:**

1. Arumugam et al, *Microbiology*, Saras Publication, Tamilnadu, 2011.
2. Foster WM *Food Microbiology* CBS Publishers & Distributors Pvt.Ltd, New Delhi,2016.
3. Monika matlani *Microbiology* CBS Publishers & Distributors Pvt.Ltd, New Delhi,2016.
4. Neha charan *Advances in Microbiology* Green leaf Publication Varanasi India,2013.
5. Viswanath.B *Textbook of Microbiology* Biotech Pharma Publications, Hyderabad,2012.

**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI-14.****(An Autonomous Institution – Affiliated to Madurai Kamaraj University)****Re-accredited (3<sup>rd</sup> Cycle) with Grade A<sup>+</sup> & CGPA 3.51 by NAAC****CBCS****DEPARTMENT OF NUTRITION AND DIETETICS-UG****(w.e.f. 2021 – 2022 onwards)****SKILL BASED ELECTIVE****Title of the Paper : Extension Education****Semester : II****Contact Hours: 2****Sub Code : 21SEN21****Credits: 2****Objectives :**

To enable the students to

1. Understand the principles of extension and community development.
2. Prepare for higher studies in extension education.
3. Become effective home science extension worker.

**Unit – I** Extension education and community development - Introduction of extension education and community development, philosophy and principle of extension education. Origin, history, organization and functions of community development and extension services in India.

**Unit - II** Home science extension -Role of home science in developing a community, home science extension - concept, philosophy, objectives. Qualities and activities of home science extension workers, origin and activities of nutrition extension unit.

**Unit – III** Audio Visual aids - Principles and methods, audio visual aids motion pictures, radios, slides, flannel graphs, flash cards, graphs and puppet shows.

**Unit – IV** Communication and leadership – meaning, types and problems in communication, SMCRE model. Classification of social groups, leadership classification, role and training of a good leader.

**Unit – V** Health planning and management - objectives, planning cycle, management methods, management techniques.

**Text Books:**

1. Adivi Reddy, *Extension Education* (I Edn.) Sri Lakshmi Press, Andhra Pradesh, 1971.
2. Park K., *Textbook of Preventive Social Medicine*, Banarasidas Bhanot Publishing, Jabalpur, 2002.

**Reference Books:**

1. Dahama O.P and Bhatnagar, O.P, *Extension and Communication for Development*, Oxford and IBH Publishing Co. New Delhi, 1985.
2. Devdas R.P., *Introduction to Home Science*, Saradalaya Press, Coimbatore, 1976.
3. Gopalan, C. Food and Nutrition Board, *Community Food and Nutrition Extension Unit*, Rajaji Bhavan, Chennai, 1998.
4. Gopalan, C. Food and Nutrition Board, *Department of Women and Child Development*, Ministry of HRD, Government of India, New Delhi, 2004.
5. MA Varghese etall, *Home Management* (II Edn) New Age International Publishers (P) Ltd. 2017.

**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI-14.****(An Autonomous Institution – Affiliated to Madurai Kamaraj University)****Re-accredited (3<sup>rd</sup> Cycle) with Grade A<sup>+</sup> & CGPA 3.51 by NAAC****CBCS****DEPARTMENT OF NUTRITION AND DIETETICS-UG****(w.e.f. 2021 – 2022 onwards)****SKILL BASED ELECTIVE****Title of the Paper : Textiles and Clothing****Semester : II****Contact Hours: 2****Sub Code : 21SEN22****Credits: 2****Objectives:**

To enable the students to

1. Gain basic knowledge of planning the family clothing needs.
2. Understand about properties and their uses of textile fibres.
3. Get a basic concept of fabric production and finishing.

**Unit – I** Classification of textiles fibres , types of yarn , tests for fibre identification.**Unit – II** Weaving – Parts and functions of simple loom. Types of weaves – Basic (Plain , Twill , Satin , Fancy – Pile jacquard)**Unit – III** Basic finishes – Singing , kier boiling , mercerisaher, bleaching, tentering, sizing, , calendaring . Functional finishes - Water proof , water repellent , fire proof, moth proof, crease resistance.**Unit – IV** Factors influencing selection of clothes Principles of wardrobe planning.**Unit – V** Care of clothes - Laundering – soap ,properties of a good laundry soap, detergents, and dry cleaning.

**Text Books:**

1. Dantyagi, S., *Fundamentals of textiles and their Care*, Orient Longman Ltd., New Delhi, 1983.
2. Deulkar, D., *Household Textiles and Laundry Work*, Atma Ram and Sons, New Delhi, 1995.

**Reference Books:**

1. Dantyagi, S., *Fundamentals of textiles and their Care*, Orient Longman Ltd., New Delhi, 1983.
2. Deulkar, D., *Household Textiles and Laundry Work*, Atma Ram and Sons, New Delhi, 1995.
3. Padmavati, B. *Couture and Fashion Drafting*, Atlantic Publishers and Distributers Pvt. Ltd., 2009.
4. Padmavati, B. *Drafting and Pattern Making*, Atlantic Publishers and Distributers Pvt. Ltd., 2009.
5. Pooja Khurana and Monika Sethi, *Introduction to Fashion Technology*, Firewall media, New Delhi, 2009.



**E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI-14.****(An Autonomous Institution – Affiliated to Madurai Kamaraj University)****Re-accredited (3<sup>rd</sup> Cycle) with Grade A<sup>+</sup> & CGPA 3.51 by NAAC****CBCS****DEPARTMENT OF NUTRITION AND DIETETICS-UG****(w.e.f. 2021 – 2022 onwards)****NON – MAJOR ELECTIVE****Title of the Paper : Food Preservation****Semester : II****Contact Hours: 2****Sub Code : 21NMN2****Credits: 2****Objectives:**

To enable students to

1. Understand the basic principles underlying food preservation.
2. Develop the ability in preserving foods.

**Unit-I** Introduction to Food Preservation- meaning, importance, principles, types of preservation and preservatives – natural and chemical.

**Unit-II** Preservation by use of Low Temperature - principles, types of refrigeration, cold storage, freezing and Methods of Freezing.

**Unit-III** Preservation by use of High Temperature - principles, pasteurization, sterilization, canning and bottling – process.

**Unit-IV** Drying and dehydration –definition, principles, types- sun drying, mechanical dehydration. factors affecting drying.

**Unit-V** Preserved foods preparation of jam, jelly, squashes, Syrups, marmalades, ketchups, Pickle, rice vadam, and vegetable vatthal.

**Text Books:**

1. Srilakshmi. B *Food Science* (7 ed.), New Age International Pub., New Delhi, 2018.
2. Jagmohan Negi . Dr , *Food Presentation Techniques* (1 ed.), S. Chand & Company Pvt. Ltd, 2013.

**Reference Books:**

1. Mohini Sethi & Eran S.Rao (2001) *food science – experiments and applications*. CBS publishers, New Delhi.
2. Shakuntala Manay & Shada Sharaswamy (2014) *Food; Facts and Principles*, Wiley Eastern Co, New Delhi.
3. Sunetra Roday. *Food Science & Nutrition* (2 ed) Published in India by Oxford University Press, 2012.
4. Srivastava. R. P etal., *Fruit and Vegetale Preservation Revised and Enlarged*(3 ed) CBS publishers, New Delhi, 2017
5. Usha Chandrasekaran *Food Science and its application to Indian Cookery*, Phoenix Pub, New Delhi 2002.