

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)

Course : Part III: Core

Semester : I

Hours per week: 5

75 hrs. /semester

Sub. Code : N11

Credits: 5

Title of the paper: HUMAN PHYSIOLOGY

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI
	75	45	-		20	-	-

PREAMBLE

To enable the student to understand the:

1. Different systems of the body and their functions with special reference to digestion, absorption, transport and uptake of nutrients and elimination of waste products.
2. Physiological changes at different stages of life and
3. Importance of hormonal and nervous regulation of the body functions.

COURSE OUTCOME	Unit	Hrs. p/s
At the end of the semester, the students will be able to		
CO1: comprehend anatomy of various organs in the human system.	I	15
CO2: acquire knowledge on functions of organ systems.	II	15
CO3: describe the physiological processes of organ systems.	III	15
CO4: appraise the functions of reproductive system.	IV	15
CO5: define hormonal and nervous regulation of body functions.	V	15

SYLLABUS

UNIT I

Digestive system:

Brief study of the anatomical organisation of the digestive tract - functions of mouth, pharynx, oesophagus, stomach, small intestine, large intestine.

Urinary system:

Structure and functions of kidney, ureters, urethra, urinary bladder), physiology and formation of urine, physiology of micturition.

UNIT II

Circulatory system:

Heart - structure and functions. Blood – composition and their functions (plasma, plasma protein, RBC, WBC, platelets), circulations (systemic, pulmonary, coronary, portal, cerebral), coagulation, blood grouping, cardiac cycle and heart rate. Lymph – composition and function of lymphatic system.

UNIT III

Respiratory system:

Lung -parts and functions, process of respiration (inspiration, expiration).

Endocrine glands:

Structure and functions - pituitary, thyroid, adrenal and gonads, reproduction and lactation.

UNIT IV

Reproductive system:

Anatomy of the male reproductive organs - external genital organs – penis; internal genital organs – testes, vas deferens, seminal vesicles and prostate gland.

Female reproductive organs - external genital organ – mons veneris. Internal genital organ labia majora, labia minora. (vagina, uterus, ovaries and fallopian tube), menstrual cycle, conception, contraception, parturition.

UNIT V

Sense organs:

Structure and functions: eye – light transmitting structures, mechanism of vision (sight), ear – parts (external, middle, internal) mechanism of hearing. Nose – structure, sensation of smell. Tongue – structure, sensation of taste. Skin – layers of skin, functions

Nervous system:

Physiology of the nerve cell: structure and functions - sympathetic nervous system, para sympathetic nervous system. Parts and functions of - central nervous system and autonomic nervous system.

DEMONSTRATIONS

- Details of the various tissues – identification of slides
- Blood cells – fresh mount and stained.
- RBC and WBC count using neubauer’s counting chamber.
- Determination of haemoglobinsahli’s method.
- Demonstration of coagulation of blood and blood grouping.
- Recording pulse rate and measurement of blood pressure.

TEXT BOOKS

1. Uma maheshwari,b&sampath,k. (2007) a textbook of human anatomy & physiology, birla publications pvt. Ltd.

REFERENCES

1. Chatterjee, c.c. (1998) human physiology, medical allied agency, calcutta.
2. Joshi, d.v. (1995) preparatory manual for under graduate physiology, b.i. churchill living stone, new delhi.
3. Subramaniyam&kutty, s.m. (2001) text book of human physiology, s. Chand & company ltd., new delhi.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Digestive system: Brief study of the anatomical organisation of the digestive tract - functions of mouth	1	Lecture
	Pharynx , Oesophagus	2	Lecture
	Stomach	2	Lecture
	Small intestine , Large intestine	2	Lecture
	Urinary system: Structure and functions of kidney	1	Lecture
	Ureters, Urethra, Urinary bladder, Physiology of urine , Formation of urine	5	Seminar
	Physiology of micturition	2	Lecture
UNIT II	Circulatory system: Heart - structure , Functions	2	Lecture
	Blood – composition and their functions , Plasma, plasma protein	2	Lecture
	RBC, WBC, platelets	1	Lecture
	Circulations (systemic), Pulmonary, Coronary, Portal, Cerebral	5	Lecture
	Coagulation, Blood grouping, Cardiac cycle	3	Seminar
	Heart rate, Lymph – composition and function	3	Seminar
UNIT III	Respiratory system: Lung -part , Functions	2	Lecture
	Process of respiration-inspiration, Expiration	4	Lecture
	Endocrine glands: Structure and functions – pituitary	2	Lecture
	Thyroid	2	Lecture
	Adrenal	2	Lecture
	Gonads, Reproduction, Lactation	3	Seminar
UNIT IV	Reproductive system: Anatomy of the male reproductive organs	1	Lecture
	External genital organs – penis, Testes, Vas deferens,	3	Lecture
	Seminal vesicles, Prostate gland	2	Lecture

	Female reproductive organs - external genital organ – mons veneris, labia majora, labia minora	2	Lecture
	Internal genital organ, Vagina, uterus, Ovaries and fallopian tube	3	Lecture
	Menstrual cycle, Conception, Contraception, Parturition	4	Seminar
UNIT V	Sense organs: Structure and functions: eye light transmitting structures, Mechanism of vision (sight)	3	Lecture
	Ear – parts (external, middle, internal), Mechanism of hearing	2	Seminar
	Nose – structure, Sensation of smell	2	Lecture
	Tongue – structure, Sensation of taste	2	Lecture
	Skin – layers of skin, Function	1	Lecture
	Nervous system: Physiology of the nerve cell: structure and functions Sympathetic, Para sympathetic nervous system	3	Lecture
	Parts and functions of - central nervous system, Autonomic nervous system	2	Lecture

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)

Course : Part III: Core Paper

Semester : I

Hours per week: 5

75hrs/Semester

Sub. Code : N12

Credits: 5

Title of the Paper: HUMAN NUTRITION

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI
	70	44	-	-	-	26	-

PREAMBLE

This course equips the student to

1. Understand the functions & sources of nutrients.
2. Apply the knowledge in maintenance of good health for the individual and the community.
3. Be familiar with factors affecting availability and requirements.

COURSE OUTCOME

At the end of the Semester, the Students will be able to	Unit	Hrs P/S
CO1: Understand the concepts of food, nutrition and health	I	22
CO2: Relate knowledge of macro nutrients with health status	II	12
CO3: Estimate energy requirements of adults	III	11
CO4: Apply the acquired knowledge on micro nutrient requirement to identify deficiencies	IV	13
CO5: Summarize the significance of functional foods in relation to health	V	12

SYLLABUS

UNIT I

Nutrition and Health - Nutrient, Macronutrients & Micronutrients, Nutritional status, Malnutrition – Under nutrition, over nutrition, Functions of foods – Physiological, Social, Psychological. Functions of nutrients – Energy giving, body building, protective/regulatory. Food Groups – Classification, Uses.

Food Pyramid, Balanced Diet. Definition of RDA. Carbohydrates –Classification – simple and complex, functions, RDA, Dietary fibre- sources & types – soluble, insoluble.

UNIT II

Proteins – Nutritional classification – Essential Amino Acids, Non-Essential Amino Acids. Sources, functions, RDA, deficiency conditions – Kwashiorkor and marasmus – symptoms, treatment.

Lipids – sources, functions, RDA; Types of fatty acids - SFA, MUFA, PUFA, Characteristics Visible & invisible fats.

UNIT III

Energy in human nutrition – energy content of foods, Sources, RDA, Physiological fuel value, Bomb Calorimeter, SDA of foods. Energy balance- Positive and negative, BMR- factors affecting BMR.

UNIT IV

Minerals (Ca, P, Fe) & Trace elements (F, Zn, Se, I, Cr) – sources, physiological role, requirements, deficiency and excess.

Vitamins – classification, sources, physiological role, requirements, deficiency & excess.

Water – functions & requirements. Water balance.

UNIT V

Functional foods – sources & significance; Phytochemicals – classification & uses; Antioxidants in foods; Bioactive peptides in milk & meat – application as nutraceuticals; Oligosaccharides and their therapeutic role; Prebiotics & Probiotics – sources & physiological role.

TEXT BOOKS

1. Srilakshmi, B. (2016) Nutrition Science, 5th Edition, New Age International (P) Ltd., Chennai.

REFERENCES

1. Bamji, M.S., Rao, P., Reddy, V. (1998) Textbook of Human Nutrition, Oxford & IBH Pub., New Delhi
2. Gopalan, C. et.al (2010) Nutritive value of Indian Foods, ICMR.
3. Guthrie, A.H. (1986) Introductory Nutrition, 6thed, The C.V. Mosby Company.
4. Williams, S.R. (2001) Basic Nutrition & Diet Therapy, 11th ed., Mosby, Inc., St. Louis.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Nutrition and Health - Nutrient, Macronutrients & Micronutrients	3	Lecture
	Nutritional status, Malnutrition – Under nutrition, over nutrition	2	ICT
	Functions of foods – Physiological, Social, and Psychological	2	Lecture
	Functions of nutrients – Energy giving, body building, protective/regulatory	3	Lecture
	Food Groups – Classification, Uses	3	Lecture
	Food Pyramid, Balanced Diet, Definition of RDA	3	ICT
	Carbohydrates –Classification – simple and complex, functions, RDA	3	ICT
	Dietary fibre- sources & types – soluble, insoluble	3	Lecture
UNIT II	Proteins – Nutritional classification – Essential Amino Acids, Non-Essential Amino Acids. Sources, functions, RDA	3	Lecture
	Proteins-deficiency conditions – Kwashiorkor and marasmus – symptoms, treatment	3	ICT
	Lipids – sources, functions, RDA	3	Lecture
	Types of fatty acids - SFA, MUFA, PUFA, Characteristics Visible & invisible fats	3	Lecture
UNIT III	Energy in human nutrition – energy content of foods, Sources, RDA	3	Lecture
	Physiological fuel value, Bomb Calorimeter	2	
	SDA of foods	2	Lecture
	Energy balance- Positive and negative	2	Lecture
	BMR- factors affecting BMR	2	Lecture
UNIT IV	Minerals (Ca, P, Fe) - sources, physiological role, requirements, deficiency and excess	3	ICT
	Trace elements (F, Zn, Se, I, Cr) – sources, physiological role, requirements, deficiency and excess	2	ICT
	Vitamins –Fat soluble- classification, sources, physiological role, requirements, deficiency & excess	3	ICT
	Vitamins –Water soluble- classification, sources, physiological role, requirements, deficiency & excess	3	ICT

	Water – functions & requirements. Water balance	2	Lecture
UNIT V	Functional foods – sources & significance	2	Lecture
	Phytochemicals – classification & uses	2	Lecture
	Antioxidants in foods	2	Lecture
	Bioactive peptides in milk & meat – application as nutraceuticals	2	Lecture
	Oligosaccharides and their therapeutic role	2	Lecture
	Prebiotics & Probiotics – sources & physiological role	2	ICT

COURSE OUTCOME S (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Core
Semester : II **Hours per week: 5** **75 hrs/ Semester**
Sub Code : N21 **Credits: 5**

Title of the Paper: FOOD MICROBIOLOGY

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/Tutorial	GD/Seminar	ICT/ Blended Learning	IV/DI
	75	54	-	-	21	-	-
PREAMBLE							
To enable students to :							
1. Gain knowledge of the role of micro-organisms in health and disease. 2. Understand the role of microbes in relation to food spoilage & food borne diseases.							
COURSE OUTCOME						Unit	Hrs. P/S
At the end of the Semester, the Students will be able to							
CO1: Summarize the general characteristics of microorganisms.						I	15
CO2: Identify and apply techniques to control microbes.						II	15
CO3: Recognize microbial spoilage in various foods.						III	15
CO4: Distinguish food borne infections and intoxication and apply quality control measures.						IV	15
CO5: Explain the beneficial role of microbes in foods.						V	15
SYLLABUS							
UNIT I							
General characteristics of microorganisms - bacteria, viruses, yeasts, molds and protozoa. A brief study of their morphology and diseases produced by them.							
UNIT II							
Control of microbes: Introduction of control measures - Sterilisation, Disinfection, Pasteurisation. Physical agents – desiccation, electricity, irradiation and heat.							
Removal of microbes – filtration, sedimentation. Chemical agents – preservatives & antibiotics.							
UNIT III							
Food spoilage and prevention. Spoilage of cereals & cereal products, vegetables & fruits, sea foods, meat, egg, poultry and canned foods, milk & milk products.							
UNIT IV							
Food borne infections and intoxications - symptoms, mode & sources of transmission, methods of prevention. Importance of sanitation and hygiene in foods. HACCP – concept, principles & application in food safety.							
UNIT V							
Importance of microbes in foods. Fermented foods and fermenting agents. Cereal - pulse mixtures, wheat products, milk products, soy products, alcoholic beverages							
PRACTICAL EXPERIENCE							
Examination of yeasts, moulds, protozoa and pathogenic							
1) Bacteria under the microscope. 2) Visit to a milk processing plant. Demonstration of phosphatase test.							

Demonstration of certain types of food fermentations.

TEXT BOOKS

1. Joshua, A.K. (1988) Microbiology: III Edition, Popular Book Depot, Madras.

REFERENCES

1. Frazier, W.C. & Westhoff D.C (2013) Food Microbiology, 5th ed. Tata McGraw hill Book Company, New Delhi.
2. Jay, J.M., (1986) Modern Food Microbiology, 3rd ed. Van Nostrand Reinhold Co. Inc.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	General characteristics of microorganisms – bacteria, Viruses, Yeast	6	Lecture
	General characteristics of microorganisms – molds, Protozoa	4	Lecture
	A brief study of their morphology and diseases produced by them, Diseases produced by them	5	Seminar
UNIT II	Control of microbes: Introduction of control measures –Sterilizations, Disinfection, Pasteurization	4	Lecture
	Physical agents – desiccation, Electricity, irradiation and heat.	5	Lecture
	Removal of microbes – filtration, Sedimentation	3	Lecture
	Chemical agents preservatives, Antibiotics	3	Lecture
UNIT III	Food spoilage and prevention. Spoilage of cereals & cereal products, vegetables & fruits	4	Seminar
	sea foods, Meat, Egg	5	Lecture
	Poultry, canned foods, milk & milk products	6	Lecture
UNIT IV	Food borne infections and intoxications – symptoms, mode & sources of transmission, methods of prevention.	5	Lecture
	Importance of sanitation, Hygiene, HACCP – concept	6	Seminar
	Principles, application in food safety	4	Lecture
UNIT V	Fermented foods, fermenting agents, Cereal - pulse mixtures	6	Lecture
	wheat products, milk products, soy products	6	Seminar
	alcoholic beverages	3	Lecture

COURSE OUTCOME S (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO 1	PO 2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
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CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Core Paper
Semester : II **Hours per week: 5** **75hrs/Semester**
Sub. Code : N22 **Credits: 5**

Title of the Paper: FUNDAMENTALS OF FOODS

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/ OER/ Tutorial	GD/ Seminar	ICT/ Blended Learning	IV/ DI
		70	40	-	6	-	24
PREAMBLE							
This course will enable the student to							
<ol style="list-style-type: none"> 1. Understand the classification of foods based on their occurrence. 2. Learn about the structure, composition, selection of different foodstuffs and changes in them due to cooking. 3. Gain knowledge in the role of foods in cookery. 							
COURSE OUTCOME						Unit	Hrs P/S
At the end of the Semester, the Students will be able to							
CO1: Apply the acquired knowledge on composition and classification of foods in cookery						I	13
CO2: Identify best methods of cooking to conserve nutrients						II	12
CO3: Discuss various food processing methods						III	14
CO4: Predict the role of foods in cookery						IV	19
CO5: Associate changes in foods and cooking methods						V	12
SYLLABUS							
UNIT I							
Cereals & Cereals products – Classification, composition, nutritive value. Wheat and rice products, Parboiling – Advantages and Disadvantages, Malting, Role of cereals in cookery.							
UNIT II							
Pulses & Legumes – Composition, nutritive value, best methods of cooking; antinutritional factors. Methods of improving nutritional quality of foods - germination, fermentation, Role of pulses in cookery.							
UNIT III							
Nuts & Oilseeds – Classification, Fats – Animal & plant sources of fats. Properties of fats, rancidity, smoking temperature. Role of nuts, oilseeds and fats in cookery. Sugars – Kinds of sugars, properties, crystallization. Candies – classification, factors affecting; Sugar cookery.							

UNIT IV

Milk – Composition, nutritive value, types of milk, properties of milk protein- coagulation, curdling; fermentation; milk products – curd, khoa, butter, ghee, cheese, ice cream.

Egg – Composition, nutritive value, quality of eggs. Role of milk and eggs in cookery.

Meat, fish & poultry – Classification, composition, nutritive value, selection & quality factors, post mortem changes, ageing and tenderization, factors affecting cooking, changes on cooking.

UNIT V

Vegetables and fruits: Classification, nutritive value, composition, pigments and their occurrence, changes on cooking.

Spices – Classification, sources, use in Indian cookery;

Beverages – Classification, sources, composition, preparation methods.

PRACTICAL EXPERIENCE

1. Acquainting with standard weights and measures for raw & cooked food.
2. Basic preparations with different foods - cereals, pulses, vegetables, fruits, milk, egg, meat, poultry, fish, beverages & sugar cookery.
3. Comparing methods of cooking for different foods.
4. Preparation of Soups, sauces & snacks.

TEXT BOOKS

1. Srilakshmi, B. (2018) Food Science, 7th Edition, New Age International Ltd., New Delhi.

REFERENCES

1. Manay, S.M. & Shadaksharaswamy, M. (1987) Food Facts & Principles, The Bangalore Printing & Pub. Co.
2. Mathew, S. (2001) Practical manual of Introductory foods, Agrobios India, Jodhpur.
3. Potter, N.N., Hotchkiss, J.H. (1995) Food Science, 5th ed., Springer International.
4. Sethi, M. & Rao, E.S. (2001) Food Science, Experiments & Applications, CBS Publishers & Distributors, New Delhi.
5. Srilakshmi, B (2003) Food Science – Laboratory Manual, Scitech Pub. Pvt. Ltd., Chennai.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Cereals and Cereals products – Classification, composition, nutritive value	3	Lecture
	Wheat products	2	ICT
	Rice products	2	ICT
	Parboiling – Advantages and Disadvantages, Malting	2	ICT
	Role of cereals in cookery	2	Lecture
	Acquainting with standard weights and measures for raw and cooked food	1	Demonstration
	Basic preparations with different cereals	1	Demonstration
UNIT II	Pulses and Legumes – Composition, nutritive value	3	Lecture
	Best methods of cooking; anti nutritional factors	3	Lecture

	Methods of improving nutritional quality of foods - germination, fermentation	3	Lecture
	Role of pulses in cookery	2	ICT
	Basic preparations with different pulses	1	Demonstration
UNIT III	Nuts and Oilseeds – Classification	2	Lecture
	Fats – Animal and plant sources of fats, Properties of fats, rancidity, smoking temperature	4	Lecture
	Sugars – Kinds of sugars, properties, crystallization	3	Lecture
	Candies – classification, factors affecting; Sugar cookery	4	ICT
	Basic preparations of sugar cookery	1	Demonstration
UNIT IV	Milk – Composition, nutritive value, types of milk, properties of milk protein- coagulation, curdling; fermentation	3	Lecture
	Milk products – curd, khoa, butter, ghee, cheese, ice cream	3	ICT
	Egg – Composition, nutritive value, quality of eggs	3	Lecture
	Role of milk and eggs in cookery	1	ICT
	Meat, fish and poultry – Classification, composition, nutritive value, selection and quality factors	4	Lecture
	Post mortem changes, ageing and tenderization	2	Lecture
	Factors affecting cooking, changes on cooking	2	ICT
	Basic preparations with different foods - milk, egg, meat, poultry, fish	1	Demonstration
UNIT V	Vegetables and fruits: Classification, nutritive value, composition, pigments and their occurrence, changes on cooking	5	Lecture
	Spices – Classification, sources, use in Indian cookery	3	ICT
	Beverages – Classification, sources, composition, preparation methods	3	ICT
	Basic preparations with different foods -vegetables, fruits, beverages	1	Demonstration

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)

Course : Part III: Core

Semester : III

Hours per week: 4

60 hrs /semester

Sub Code : N31

Credits: 4

Title of the paper: FOOD PREPARATIONS

Pedagogy	Hours	Lecture	Peer Group learning	Demo/OER/ Tutorial	GD/Seminar	ICT/ Blended Learning	IV/DI
	60	21	-	13	-	12	-
PREAMBLE To enable students to : <ol style="list-style-type: none">1. Gain knowledge in preparation of ingredients and standardizing recipes2. Be familiar with the different methods of cooking, their advantages and disadvantages3. Gain knowledge of equipments in food preparation and service							
COURSE OUTCOME At the end of the semester, the students will be able to						Unit	Hrs. p/s
CO1: Apply skills in pre-preparation and standardization of recipes.						I	12
CO2: Compare the methods of cooking related to Indian cookery.						II	12
CO3: Demonstrate soups, sauces and salad preparations.						III	12
CO4: Calculate food cost and minimise food loss.						IV	12
CO5: Apply knowledge of equipment in food preparation and service.						V	12
SYLLABUS							
UNIT I Aims and objectives of cooking food – classification of raw materials, preparation of ingredients – methods of mixing foods – texture of food							
UNIT II Basic methods of cooking – moist heat methods, dry heat methods; baking, use of microwave oven, solar cooker – merits and demerits Methods of cooking foods related to Indian cookery. Selection of various types of flesh foods. Cuts of the above – use of various joints – tenderizing agents.							
UNIT III Salads and salad dressings: classification of salads, preparation of salad dressing, recipes for simple and compound salads. Soups–definition and classification, types of stocks and soups with examples.							
UNIT IV							

Quantity food preparation: standards for food selection, transport, handling and storage, standardizing of recipes, calculation of food cooked and portion control, utilization of left over foods.

UNIT V

Equipment in food service: classification of equipment, factors for selection of equipment, electrical and non electrical equipment for food storage, preparation, food serving, dish washing.

TEXT BOOKS

1. Srilakshmi, b. (2015) food science, sixth edition, new age international ltd., new Delhi.

REFERENCES

1. Khan, m.a. (1980) food service operations, avi publishing company, inc, usa.
2. Mohiniseti, surjeetmathan,(1997) catering management, 2nd ed., new age international pvt. Ltd., new Delhi.
3. Srilakshmi, b (2003) food science – laboratory manual, scitech pub. Pvt. Ltd., chennai.
4. West, b.b., wood – l hoglet. F and shukart g (1977) food service in institutions, john wiley and sons.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Aims and objectives of cooking food , Classification of raw materials	4	Lecture
	Preparation of ingredient, Methods of mixing foods	4	Blended leaning
	Texture of food	4	Lecture
UNIT II	Basic methods of cooking	2	Demonstration
	Moist heat methods, Dry heat methods	2	Lecture
	Baking, Use of microwave oven, Solar cooker – merits and demerits	3	Lecture
	methods of cooking foods related to Indian cookery	2	Lecture
	Selection of various types of flesh foods	2	Blended leaning
	Cuts of the above, Use of various joints, Tenderizing agents	3	Lecture
UNIT III	salads and salad dressings: classification of salads	4	Demonstration
	Preparation of salad dressing	2	Demonstration
	Compound salads ,Soups–definition and Classification	3	Blended leaning
	Types of stocks and soups with examples	3	Blended leaning
UNIT IV	Quantity food preparation, Standards for food selection	3	Lecture
	Transport, Handling, Storage	3	Lecture
	Standardizing of recipes, Calculation of food cooked, Portion control	3	Lecture
	Utilization of left over foods	3	Demonstration
UNIT V	Equipment in food service: classification of equipment	2	Demonstration
	Factors for selection of equipment	4	Lecture
	Electrical and non electrical equipment for food storage	2	Lecture
	Preparation, Food serving, Dish washing	4	Lecture

COURSE OUTCOME S (COs)	PROGRAMME OUTCOMES (POs)	PROGRAMME SPECIFIC OUTCOMES (PSOs)	MEAN SCORE OF COs
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	PO 1	PO 2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE(Nutrition, Food Service Management & Dietetics)
Course : Part III: Core
Semester : III/IV **Hours per week:**4 **60 hrs. /semester**
Sub Code : PN1 **Credits:** 4

Title of the paper: COOKERY PRACTICAL

Pedagogy	Hours	Lecture	Peer Group teaching	Demo/OER/ Tutorial	GD/Seminar	ICT/Blended learning	IV/DI
	60	6	-	44	4	-	6
PREAMBLE							
to enable the students to :							
1. Develop skills to prepare acceptable foods with regard to appearance, palatability and nutritive value.							
2. Understand basic rules for laying a table for various meal patterns.							
COURSE OUTCOME						Unit	Hrs. P/s
At the end of the semester, the students will be able to							
CO1: Apply principles of cooking to various food groups.						I	12
CO2: Demonstrate skill in different styles of table setting.						II	12
CO3: Display the acquired skills in food preparation and service.						III	12
CO4: Exhibit the developed skills to prepare value added food products.						IV	12
CO5: Demonstrate use of different food preparation equipments.						V	12
SYLLABUS							
PRACTICAL							

1. Principles of cookery - cereal cookery, pulse cookery, vegetable cookery, fruit cookery, milk cookery, egg cookery, meat, poultry and fish cookery, beverages, sugar cookery and bakery.
2. Table setting - styles and service of meals and beverages, napkin folds.
3. Preparation and service of a full course meal, soups, salads, main dish, side dish, desserts, sweets and savouries.
4. Preparation of squash, syrup, jam, jelly, preserves, pickles, chutneys, ketchup, vathal and vadagam.
5. Market survey on latest trends in kitchen equipment and visit to restaurant to gain knowledge on food service and management.

LESSON PLAN

UNIT	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Principles of cookery, Cereal cookery	2	Lecture
	Pulse cookery	2	Lecture
	Vegetable cookery	2	Demonstration
	Fruit cookery	2	Demonstration
	Milk cookery	2	Demonstration
	Egg cookery	2	Demonstration
	Meat	2	Demonstration
	Poultry	2	Demonstration
	Fish cookery	2	Demonstration
	Beverages	2	Demonstration
	Sugar cookery	2	Demonstration
	Bakery	2	Lecture
UNIT II	Table setting - styles and service of meals and beverages	2	GD
	Napkin folds	2	GD
UNIT III	Preparation and service of a full course meal	2	Demonstration
	Soups	3	Demonstration
	Salads	3	Demonstration
	Main dish	2	Demonstration
	Side dish	1	Demonstration
	Desserts	2	Demonstration
	Sweets and savouries	1	Demonstration
UNIT IV	Preparation of squash, syrup, jam, jelly	2	Demonstration
	Preserves, pickles	2	Demonstration

	Chutneys	2	Demonstration
	Ketchup	2	Demonstration
	Vathal	2	Demonstration
	Vadagam	2	Demonstration
UNIT V	Market survey on latest trends in kitchen equipment	3	IV
	Visit to restaurant to gain knowledge on food service and management	3	IV

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)

Course : Part III: Core

Semester : III

Hours per week: 4

60 hrs. /semester

Sub. Code : N41

Credits: 4

Title of the Paper: FOOD PRESERVATION

Pedagogy	Hours	Lecture	Peer Teaching	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI
		60	38	-	16	6	-
PREAMBLE							
To enable the students to:							
1. Understand the scientific principle underlying food preservation.							
2. Develop skills and techniques in food preservation ensuring safety, conservation of nutrients and palatability							
3. Understand the basic principles underlying food preservation as an income generating activity.							
COURSE OUTCOME						Unit	Hrs. p/s
At the end of the Semester, the Students will be able to							
CO1: Relate the need, principles and method of preserving foods.						I	12
CO2: Differentiate the various physical methods of preservation using temperature variations and irradiation.						II	12
CO3: Identify and describe the chemical methods of food preservation.						III	12
CO4: Associate the use of food additives with food preservation.						IV	12
CO5: Demonstrate skills in the subjective and objective methods of sensory evaluation of foods.						V	12
SYLLABUS							

UNIT I

Methods and principles involved in preserving foods. Preservation using high temperatures – Canning, bottling, methods of drying and dehydrations, different types of driers.

UNIT II

Preservation using low temperatures – types of storage at low temperatures, types of freezing, changes during freezing.

Irradiation – sources of ionizing radiations, units of measurements, Scope and application of irradiation to different foods.

UNIT III

Preservation using salt – pickling – types of pickle. Preservation using sugar - jams, jellies, marmalades and preserves. Methods of determination of pectin, problems in jelly making.

UNIT IV

Food additives, fortification and enrichment – advantages and disadvantages and use of food additives. Bio preservatives.

UNIT V

Evaluation of food quality – subjective and objective methods of measuring quality of food products; merits and demerits. Instruments used for sensory evaluation.

TEXT BOOKS

1. Sivasankar, B. (2002) Food Processing and Preservation, Prentice – Hall of India Pvt. Ltd., New Delhi.
2. Vennila, P. and Kanchana, S. (2003) Principles on Preservation of foods and vegetables, Ratna Publications, Madurai.

REFERENCES

1. SandeepSareen (1999) Food Preservation, Sarup and Sons, New Delhi.
2. Subbulakshmi, G. and Udipi, A.S. (2001) Food Processing and Preservation New Age International Publishers, New Delhi.
3. Tandon,G.L. and Siddappa,G.S.(1998) Preservation of Fruits and Vegetables, ICAR.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Methods, Principles involved in food preserving foods	3	Lecture
	Canning, Bottling, Methods of drying	3	Lecture
	Dehydrations	3	Lecture
	Different types of driers	3	Lecture
UNIT II	Preservation using low temperature, Types of storage at low temperature	3	Lecture
	Types of freezing, Irradiation – sources	3	Lecture
	Ionizing radiations, Units of measurements	3	Lecture
	Scope and application of irradiation to different foods	3	Lecture
UNIT III	Preservation using salt-Pickling, Types of pickle, Preservation using sugar – jams	3	Demonstration
	Jellies, Marmalades, Preserves	4	Demonstration
	Methods of determination of pectin	2	Lecture
	Problems in jelly making	3	Demonstration
UNIT IV	Food additives, Fortification and enrichments	6	Lecture
	Advantages and disadvantages and use of food additives , Bio preservatives	6	Lecture
UNIT V	Evaluation of food quality – subjective Objectives methods of measuring quality of food products	6	Demonstration
	Merits and demerits, Instruments used for sensory evaluation	6	Seminar

COURSE OUTCOME S (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF Cos
	PO 1	PO 2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Core Paper
Semester : V **Hours per week: 5** **75hrs/Semester**
Sub. Code : N51 **Credits: 5**

Title of the Paper: NUTRITION THROUGH LIFE CYCLE

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/ OER/ Tutorial	GD/ Seminar	ICT/ Blended Learning	IV/ DI
	71	44	4	12	-	11	-
PREAMBLE							
To enable the students to :							
1. Learn the principles of meal planning.							
2. Plan meals for the family at different income levels.							
3. Plan meals for special groups – infants, pre – schoolers, pregnant and nursing mother and the aged.							
4. Become aware of the meal patterns of families in the Indian context.							
COURSE OUTCOME						Unit	Hrs P/S
At the end of the Semester, the Students will be able to							
CO1: Interpret the principles of meal planning to suit different income levels						I	12
CO2: Associate nutritional requirements with various stages of pregnancy and lactation						II	11
CO3: Analyze the advantages and disadvantages of breast feeding over bottle feeding; Discuss about supplementary foods for infants and pre-schoolers						III	20

CO4: Identify nutritional requirements for school-going children and adolescents based on growth, development and deficiencies	IV	18
CO5: Predict the special nutritional needs and nutritional deficiencies in geriatrics	V	10

SYLLABUS

UNIT I

Basic principles of meal planning. Basic meal pattern and its modification to suit different income levels, age and physiological states.

Nutrition during Adulthood – Recommended Daily Allowance.

UNIT II

Nutrition during pregnancy – normal growth, nutritional requirements and complications during various stages of pregnancy.

Nutrition during lactation – milk output and factors affecting the nutritional needs for the same.

UNIT III

Nutrition during infancy – growth and development influencing feeding pattern during infancy, advantages of breast feeding over bottle feeding, supplementary foods, nutritional requirements.

Nutrition for preschoolers – growth and development, nutritional requirements food acceptance. PEM and vitamin A deficiency – causes, symptoms and treatment.

UNIT IV

Nutrition for school children – growth and development, nutritional requirements, school lunch programmes

Nutrition for adolescents – growth and development, nutritional requirements, eating disorders; anaemia – causes, symptoms, prevention and treatment.

UNIT V

Geriatric nutrition – special needs and care of the old, nutritional requirement during old age; calcium deficiency disorders – types, causes, prevention and care.

TEXT BOOKS

1. Srilakshmi, B. (2018) Nutrition Science, 6th edition, New Age International (P) Ltd., Chennai.

REFERENCES

1. Antia, F.P. (2015) Clinical Dietetics and Nutrition, 4th edition, Oxford University Press, New Delhi.
2. Brown, J.E. (2008) Nutrition Now, 5th edition, Wordsworth Thomson Learning, Inc., Canada.
3. Srilakshmi, B. (2014) Dietetics, 7th edition, New Age International (P) Ltd., Chennai.
4. Williams, S.R. (2009) Basic Nutrition & Diet Therapy, 12th ed., Mosby, Inc., St. Louis.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Basic principles of meal planning	4	Lecture
	Basic meal pattern and its modification to suit different income levels, age and physiological states	4	Peer Group Learning
	Nutrition during Adulthood – Recommended Daily Allowance	4	Lecture
UNIT II	Nutrition during pregnancy – normal growth, nutritional requirements	5	Lecture
	Complications during various stages of pregnancy	3	OER
	Nutrition during lactation – milk output and factors affecting the nutritional needs for the same	3	ICT

UNIT III	Nutrition during infancy – growth and development influencing feeding pattern during infancy	4	Lecture
	Advantages of breast feeding over bottle feeding	4	ICT
	Supplementary foods, nutritional requirements of infants	4	OER
	Nutrition for preschoolers – growth and development, nutritional requirements food acceptance	4	Lecture
	PEM and vitamin A deficiency – causes, symptoms and treatment	4	ICT
UNIT IV	Nutrition for school children – growth and development, nutritional requirements	4	Lecture
	School lunch programmes	4	Lecture
	Nutrition for adolescents – growth and development, nutritional requirements, eating disorders	5	Lecture
	Anaemia – causes, symptoms, prevention and treatment	5	OER
UNIT V	Geriatric nutrition – special needs and care of the old, nutritional requirement during old age	5	Lecture
	Calcium deficiency disorders – types, causes, prevention and care	5	Lecture

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)

Course : Part III: Core

Semester : V

Hours per week: 5

75hrs/Semester

Sub. Code : N52

Credits: 5

Title of the Paper: THERAPEUTIC NUTRITION

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	DI/IV
	75	41	-	4	9	20	-
PREAMBLE							
To enable the students to:							
1. Gain knowledge and develop skills and techniques in the planning and preparation of therapeutic diets and diets for nutritional deficiencies.							
2. Understand the role of dietitian.							
3. Acquire skills in diet counseling and educating patients.							
COURSE OUTCOMES						Unit	Hrs /Semester
At the end of the Semester, the Students will be able to							
CO1: Summarize the concepts and principles of diet therapy and the role of a dietitian.						I	11

CO2: Apply the principles of dietetics to plan therapeutic diets for febrile conditions and gastrointestinal disorders.	II	13
CO3: Assess the grades of obesity, underweight and food allergies; Recommend customized dietary modifications.	III	14
CO4: Describe the symptoms, diagnostic tests and complications for dietary management of diabetes mellitus, cardiovascular diseases and hypertension using diet planning tools.	IV	19
CO5: Classify the diseases of liver and urinary system based on causes and symptoms and plan diet therapy.	V	15

SYLLABUS

UNIT I

Therapeutic Diets – concepts and principles of diet therapy, modification of diet – routine hospital diet, pre – operative diet, post – operative diet, clear fluid diet, full fluid diet, soft diet, bland diet and restrictive diet. Enteral and Parenteral Feeding, Role of dietitian, diet counselling.

UNIT II

Diet in febrile conditions: acute– typhoid, influenza; recurrent –malaria; chronic – tuberculosis.

Diet in gastrointestinal disorders – indigestion, diarrhoea, dysentery, constipation, peptic ulcer, gastritis, Ceeliac diseases. Role of prebiotics & probiotics in gut health.

UNIT III

Diet in obesity and underweight. Dietary management of Poly Cystic Ovary Disorder.

Diet in allergic conditions – types of allergy, common food allergies, test for allergy, food intolerance – lactose intolerance, gluten intolerance – causes, symptoms and dietary management.

UNIT IV

Diabetes Mellitus – types, causes, symptoms, dietary management, food exchange list, importance of dietary fibre, glycemic index, GTT, hormonal control of blood glucose levels, complications of diabetes. Clinical techniques in diabetes management – Self-Monitoring of blood glucose (SMBG), Insulin pump, Continuous glucose monitoring system (CGMS).

Cardio Vascular Diseases – causes, symptoms, dietary management of hypertension, atherosclerosis. Sodium restricted diet.

UNIT V

Diseases of the liver – jaundice, hepatitis and cirrhosis – causes, symptoms and dietary management.

Diseases of the kidney and urinary tract – nephritis, nephrotic syndrome, kidney stone, gout, urinary calculi – causes, symptoms & dietary management.

Dietary influence on cancer.

TEXT BOOKS

1. Srilakshmi, B.(2014) Dietetics, Seventh Edition, New Age International (P) Ltd., Chennai.

REFERENCES

1. Antia, F.P. (2015) Clinical Dietetics and Nutrition, 4th edition, Oxford University Press, New Delhi.
2. Mahan, K.L. & Escott-Stump, S. (2008) Krause's Food & Nutrition Therapy, 12th ed., Saunders' Pub.
3. Sharma, R.(2011) Diet management, 4th edition, Elsevier Publications.
4. Williams, S.R. (2001) Basic Nutrition & Diet Therapy, 11th ed., Mosby, Inc., St. Louis.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Therapeutic Diets – concepts and principles of diet therapy	1	Lecture

	Modification of diet – routine hospital diet, pre – operative diet, post – operative diet	2	Lecture
	Clear fluid diet, full fluid diet, soft diet, bland diet and restrictive diet	2	Lecture
	Enteral and Parenteral Feeding	4	Blended Learning
	Role of dietitian, diet counselling	2	Group Discussion
UNIT II	Diet in febrile conditions: acute– typhoid, influenza; recurrent –malaria; chronic – tuberculosis	4	Lecture
	Diet in gastrointestinal disorders – indigestion, diarrhoea, dysentery, constipation	2	Group Discussion
	Peptic ulcer, gastritis	3	Blended learning
	Celiac diseases	2	OER
	Role of prebiotics & probiotics in gut health	2	Lecture + ICT
UNIT III	Diet in obesity and underweight	4	Lecture
	Dietary management of Poly Cystic Ovary Disorder	2	Group Discussion
	Diet in allergic conditions – types of allergy	3	Lecture
	Common food allergies, test for allergy	2	Lecture
	Food intolerance – lactose intolerance, gluten intolerance – causes, symptoms and dietary management.	3	Blended Learning
UNIT IV	Diabetes Mellitus – types, causes, symptoms	3	Lecture
	Dietary management, food exchange list	2+2	Lecture cum Demonstration
	Importance of dietary fibre, glycemic index	1	Lecture
	GTT, hormonal control of blood glucose levels, complications of diabetes	2	Blended Learning
	Complications of diabetes	2	Blended Learning
	Clinical techniques in diabetes management – Self-Monitoring of blood glucose (SMBG), Insulin pump, Continuous glucose monitoring system (CGMS).	2	Blended Learning
	Cardio Vascular Diseases – causes, symptoms	2	Lecture
	Dietary management of hypertension, atherosclerosis.	2	Lecture
	Sodium restricted diet.	1	Group Discussion
UNIT V	Diseases of the liver – jaundice, hepatitis	2	Lecture
	Cirrhosis – causes, symptoms	2	Lecture
	Dietary management.	2	Group Discussion
	Diseases of the kidney and urinary tract – nephritis, nephrotic syndrome	2	Blended Learning
	Kidney stone, gout	2	Lecture
	Urinary calculi – causes, symptoms & dietary management.	3	Lecture
	Dietary influence on cancer.	2	Lecture

PREAMBLE

This course will enable the students to:

1. Be familiar with the common nutritional problems of the community, their causes, symptoms, treatment and prevention.
2. Get exposed to the schemes, programmes and policies of Government of India to combat malnutrition.
3. Be aware of the health hazards related to food and water.

COURSE OUTCOME	Unit	Hrs P/S
At the end of the Semester, the Students will be able to		
CO1: Assess the nutritional status of individuals of different age groups.	1	12
CO2: Summarize the nutritional problems of the Indian Community – causes, prevention and treatment.	2	12
CO3: Describe the National schemes and programmes to combat malnutrition.	3	10
CO4: Explain the hazards of food adulteration and water pollution and suggest methods to alleviate the hazards.	4	10
CO5: Discuss the aims of National Policies, Plan of Action and implementation of welfare schemes.	5	10

SYLLABUS**UNIT I**

Assessment of nutritional status of individual and community - Anthropometry, Biochemical & Biophysical methods, Clinical examination, Diet survey,

UNIT II

Nutritional Problems of the Indian Community – Causes (nutritional and non – nutritional). Incidence of nutritional problems, signs and symptoms, treatment – PEM, Micronutrient deficiencies (Vitamin A, Iron, Iodine), Fluorosis. Non-communicable diseases – diabetes mellitus, hypertension, heart attack – preventive diet and lifestyle modification.

UNIT III

Schemes and programmes to combat nutritional problems in India. Prophylaxis programmes. Mid day meal programme, ICDS. Nutrition Program for Adolescent Girls (NPAG), National Program for Prevention & Control of Diabetes, Cardiovascular Diseases & Stroke (NPDCS, 2008), National Program for Prevention & Control of Cancer, Diabetes, Cardiovascular diseases & Stroke (NPCDCS, 2010).

UNIT IV

Nutrition Education – Definition, Importance & process; Phases – conceptualization, formulation, implementation and evaluation, Methods – face to face, mass media, traditional media and criteria for selection.

UNIT V

National Nutrition Policy – aims, nutrition policy instruments and its implementation, Nutrition surveillance system – definition, objectives, uses, infrastructure, key indicators for successful nutrition surveillance programme.

TEXT BOOKS

1. Srilakshmi, B. (2018) Nutrition Science, 6th Edition, New Age International (P) Ltd., Chennai.

REFERENCES

1. Park, J.E. and Park, K. (2013) Text Book of preventive and social medicine, 21st edition, M/s BanarasidasBhanot, Jabalpur.
2. Prevention of Food Adulteration Act (1994) Govt. of India.
3. Thankamma Jacob (1976) Food Adulteration.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Assessment of nutritional status of individual and community	2	Lecture
	Anthropometry	3	Demo
	Biochemical & Biophysical methods	1	Lecture
	Clinical examination	2	Blended Learning
	Diet survey	4	ICT
UNIT II	Nutritional Problems of the Indian Community – Causes (nutritional and non – nutritional)	2	Lecture
	Incidence of nutritional problems, signs and symptoms, treatment – PEM	2	Peer Group Learning
	Micronutrient deficiencies (Vitamin A, Iron, Iodine), Fluorosis	4	Blended Learning
	Non-communicable diseases – diabetes mellitus, hypertension, heart attack – preventive diet and lifestyle modification.	4	Group Discussion
UNIT III	Schemes and programmes to combat nutritional problems in India	2	Lecture
	Prophylaxis programmes	3	Lecture
	Mid day meal programme, ICDS	2	Group Discussion
	Nutrition Program for Adolescent Girls (NPAG), National Program for Prevention & Control of Diabetes, Cardiovascular Diseases & Stroke(NPDCS, 2008)	2	Lecture
	National Program for Prevention & Control of Cancer, Diabetes, Cardiovascular diseases & Stroke (NPCDCS, 2010).	1	Lecture
UNIT IV	Nutrition Education – Definition, Importance & process	2	Lecture
	Phases – conceptualization, formulation, implementation and evaluation	3	Lecture
	Methods – face to face, mass media, traditional media	3	Seminar
	Criteria for selection.	2	Group Discussion
UNIT V	National Nutrition Policy – aims, nutrition policy instruments	2	Lecture
	Nutrition policy implementation	2	Lecture
	Nutrition surveillance system – definition, objectives, uses	2	Lecture
	Infrastructure requirements for successful nutrition surveillance programme.	2	Lecture
	Key indicators for successful nutrition surveillance programme.	2	Group Discussion

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)

Course : Part III: Core

Semester : V & VI

Hours per week: Semester V- 45hrs

Title of the Paper: DIETETICS PRACTICAL and INTERNSHIP

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	DI/IV
PREAMBLE							
To enable the students to :							
1. Plan and prepare meals for the family.							
2. Plan and prepare meals for special nutritional needs.							
3. Develop skills in preparing, serving and evaluation of therapeutic diets.							
4. Gain practical experience in management of a dietary department and diet counseling for a period of one month.							
COURSE OUTCOME						Unit	Hrs P/S
At the end of the Semester, the Students will be able to							
CO1: Apply knowledge to plan and construct menu for balanced meal.						I	15
CO2: Demonstrate skills in preparing, serving and evaluation of therapeutic diets.						II	15
CO3: Exhibit skill in management of a dietary department.						III	15
CO4: Interpret nutritional status for diet counseling.						IV	15
CO5: Plan therapeutic diets for hospital kitchen.						V	15
SYLLABUS							
PRACTICAL EXPERIENCE							
I LABORATORY PRACTICAL							
1. Planning and preparation of adequate meals for families with different per capita income levels (small and large family size). Planning and preparation of adequate meals for individuals through different stages of life.							
2. Planning, preparation and service of diets and computation of nutritive value for							
i. Fever, peptic ulcer, constipation, diarrhoea, obesity and under weight.							
ii. Diabetes mellitus and cardio vascular disorders.							
iii. Liver and kidney disorders.							
iv. Protein energy malnutrition, anaemia, vitamin A deficiency.							
II DIETETIC INTERNSHIP IN HOSPITAL							
3. Observation and study of organisation and management of the dietary department. Understanding the medical history of the patients, study of case sheets, diagnostic tests used, nutritional assessment – anthropometric measurements.							
4. Participation in diet counseling units, Experience in imparting diet counselling and understanding the records maintained in diet counseling units. Patient education through charts, seminars, AV aids; Conduct of awareness programs.							
Measurement of food ingredients – quantifying foods, calorie counting. Layout of dietary department. Food service management in hospital kitchen.							

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
PRACTICAL EXPERIENCE			
I LABORATORY PRACTICAL			
1	Planning and preparation of adequate meals for families with different per capita income levels (small and large family size)	3+3+3	Practical Experience
2	Planning and preparation of adequate meals for individuals through different stages of life.	3+3+3	
	Planning, preparation and service of diets and computation of nutritive value for :		
3	Fever, peptic ulcer, constipation, diarrhoea	3+3+3	Practical Experience
3	Obesity and under weight	C	
4	Diabetes mellitus and cardio vascular disorders	3+3+3	
5	Liver and kidney disorders.	3+3+3	
	Protein energy malnutrition, anaemia, vitamin A deficiency		
II DIETETIC INTERNSHIP IN HOSPITAL			
	Observation and study of organisation and management of the dietary department		
	Understanding the medical history of the patients, study of case sheets		
	Diagnostic tests used		
	Nutritional assessment – anthropometric measurements.		
	Participation in diet counseling units, Experience in imparting diet counselling and understanding the records maintained in diet counseling units		
	Patient education through charts, seminars, AV aids; Conduct of awareness programs		
	Measurement of food ingredients – quantifying foods		
	Calorie counting		
	Layout of dietary department		
	Food service management in hospital kitchen.		

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Core Paper
Semester : VI **Hours per week: 5** **75hrs/Semester**
Sub. Code : N61 **Credits: 5**

Title of the Paper: FOOD SERVICE MANAGEMENT

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	DI/IV
PREAMBLE							
To enable the student to:							
1. Understand the management aspects of food service and 2. Gain knowledge about various types of food service.							
COURSE OUTCOME						Unit	Hrs P/S
At the end of the Semester, the Students will be able to							
CO1: Distinguish the types of catering institutions, food service and comprehend the menu planning techniques.						I	15
CO2: Summarize the types of organizations and leadership techniques for effective food service management.						II	14
CO3: Describe the process and factors involved in personnel management.						III	15
CO4: Identify the order of food procurement, storage and issue; understand the maintenance of food inventory.						IV	15
CO5: Explain the concepts of food cost in pricing of foods.						V	14
SYLLABUS							
UNIT I							
Institutional Food Service							
Commercial, Transport, Welfare, Industrial, Institutional – objectives and scope.							
Types of outlets – restaurants, coffee shop, banquet, cafeteria, canteen							
Types of Service – formal and informal service.							
Types of menu – Table d’hote, Ala carte, buffet, banquet, menu for transport, institutional and industrial catering.							
Menu Planning – Principles functions and factors affecting menu planning.							
UNIT II							
Organisation and Management							
Types of organisation, administrative leadership techniques of effective management; Tools of management-Tangible: organisation chart, job description, job specification, work schedule, job analysis, budget. Intangible: personality, trust, experience, social skills, self-confidence, knowledge, leadership quality, styles of leadership, training and decision making.							
UNIT III							
Personnel Management							
Food service & front office personnel duties and qualities. Selection, training and supervision of personal, labour policies and legislation							
UNIT IV							
Food Purchase, Storage and Issue							
Food Purchase – definition, concepts, steps in control of food purchase, specifications for food purchase. Types of market – primary, Secondary & tertiary, Buying methods and mechanism – formal and informal, advantages and							

disadvantages. Food receiving methods and mechanism. Food storage areas – dry, refrigerated, frozen. Issue of food supplies, Maintenance of Food Inventories – physical, perpetual.

UNIT V

Financial Management

Cost concepts – Components of cost, behaviour of costs; cost control: Food cost, Labour cost, Overhead cost, Hidden cost. Cost calculations, Budgeting – definition and types. Pricing – definition, factors affecting, methods of pricing – informal and formal, advantages and disadvantages.

TEXT BOOKS:

1. Sethi, M. and Malhan, S. (2015) Catering Management An Integrated Approach, 3rd edition, New Age International Pvt. Ltd., New Delhi.

REFERENCES:

1. Khan, M.A. (1980) Food Service Operations, AVI Publishing Company, Inc. USA.
2. West, B.B., Wood-L Hoglet F.&Shukart,G.(1977) Food Service in Institution John Wiley & Sons.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Institutional Food Service Commercial, Transport, Welfare, Industrial, Institutional – objectives and scope	3	Lecture
	Types of outlets – restaurants, coffee shop, banquet, cafeteria, canteen	3	Peer group learning
	Types of Service – formal and informal service.	3	Group Discussion
	Types of menu – Table d’hote, Ala carte, buffet, banquet, menu for transport, institutional and industrial catering.	3	Blended Learning
	Menu Planning – Principles functions and factors affecting menu planning.	3	Lecture
UNIT II	Organisation and Management Types of organization	2	Lecture
	Administrative leadership techniques of effective management	2	Lecture
	Tools of management-Tangible: organisation chart, job description, job specification, work schedule, job analysis, budget	4	Lecture
	Intangible: personality, trust, experience, social skills, self-confidence, knowledge, leadership quality	3	Group Discussion
	Styles of leadership, training and decision making.	3	Lecture
UNIT III	Personnel Management Food service & front office personnel duties and qualities	5	Lecture
	Selection, training and supervision of personel	5	Lecture
	Labour policies and legislation	5	Lecture
UNIT IV	Food Purchase, Storage and Issue Food Purchase – definition, concepts, steps in control of food purchase, specifications for food purchase	3	Lecture
	Types of market – primary, Secondary & tertiary	3	Lecture
	Buying methods and mechanism – formal and informal, advantages and disadvantages	3	Seminar
	Food receiving methods and mechanism. Food storage areas – dry, refrigerated, frozen	3	Peer Group Learning
	Issue of food supplies, Maintenance of Food Inventories – physical, perpetual	3	Lecture
UNIT V	Financial Management Cost concepts – Components of cost, behaviour of costs	3	Lecture
	Cost control: Food cost, Labour cost, Overhead cost, Hidden cost	3	Demo

	Cost calculations	3	Lecture
	Budgeting – definition and types	1	Lecture
	Pricing – definition, factors affecting	2	Blended Learning
	Methods of pricing – informal and formal, advantages and disadvantages	2	Group Discussion

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Core Paper
Semester : VI **Hours per week: 5** **75hrs/Semester**
Sub. Code : N62 **Credits: 5**

Title of the Paper: FOOD PACKAGING

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/ OER/ Tutorial	GD/ Seminar	ICT/ Blended Learning	IV/ DI
	71						
PREAMBLE							
This course will enable the student to							
1) Know different food packaging materials available in the market. 2) Select appropriate packaging materials for varied food products. 3) Promote positive consumer behaviour among students.							
COURSE OUTCOME						Unit	Hrs P/S
At the end of the Semester, the Students will be able to							
CO1: Summarize the functions and properties of food packaging						I	17
CO2: Compare and assess different food packaging materials						II	12
CO3: Distinguish various food packaging methods and performances						III	15
CO4: Identify suitable packaging methods and materials for different foods						IV	12
CO5: Integrate knowledge on food laws and standards with consumer behaviour						V	15
SYLLABUS							
UNIT I							
Introduction of Packaging – Origin of food packaging, prehistoric package materials and methods; functions of packaging, primary elements of package forms, material and decoration. Various package forms – tubes, tetra packs, cans, bottles.							
UNIT II							
Packaging materials – Classification – Flexible and Rigid - properties, advantages and limitations – aluminium, glass, tinned steel plate, carton board, paper, flexible films, bio films, laminates and others							
UNIT III							
Recent packaging technology : Edible packaging, retort packaging, aseptic packaging, vacuum packaging, modified atmosphere packaging, controlled atmosphere packaging, shrink packaging.							
UNIT IV							
Application of packaging technology to dairy products, sea foods, flesh foods, convenience foods , fruit products.							
UNIT V							

Food and nutrition labeling, Food adulteration. Food laws and standards, National: FSSAI, BSI, AGMARK, International: Codex, FAO/WHO, GRAS, ISO. Consumer Protection Acts.

PRACTICAL EXPERIENCE

1. Visit to food packaging industries.
2. Identifying different packaging materials and forms in day – to – day life.

TEXT BOOKS

1. Manay, N.S. and Shadaksharaswamy, M (2001) Foods, Facts and Principles, 2nd edition, New Age International Publishers, Chennai.

REFERENCES

1. Potter, N.N. and Hotchkiss, J.H. (1996) Food Science, 5th ed., CBS Publishers and Distributors, New Delhi.
2. Sacharow, S. and Griffin, R (1970) Food Packaging – A Guide for the supplier, processor and distributor, The AVI Publishing Company, Inc.
3. Subbulakshmi, G. and Udipi, A.S. (2001) Food Processing and Preservation, New Age International Publishers, New Delhi.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Introduction of Packaging – Origin of food packaging, prehistoric package materials and methods	5	Lecture
	Functions of packaging	4	OER
	Primary elements of package forms, material and decoration	4	OER
	Various package forms – tubes, tetra packs, cans, bottles	4	OER
UNIT II	Packaging materials – Classification – Flexible - properties, advantages and limitations –paper, flexible films, bio films, laminates and others	6	OER
	Packaging materials – Classification –Rigid - properties, advantages and limitations – aluminium, glass, tinned steel plate, carton board and others	6	OER
UNIT III	Recent packaging technology : Edible packaging, retort packaging	5	OER
	Recent packaging technology : aseptic packaging, vacuum packaging	5	OER
	Recent packaging technology : modified atmosphere packaging, controlled atmosphere packaging, shrink packaging	5	OER
UNIT IV	Application of packaging technology to dairy products	4	OER
	Application of packaging technology to sea foods, flesh foods	4	Lecture
	Application of packaging technology to convenience foods, fruit products	4	Lecture
UNIT V	Food and nutrition labeling	3	OER
	Food adulteration	4	Lecture
	Food laws and standards: National-FSSAI, BSI, AGMARK	4	ICT
	Food laws and standards: International- Codex, FAO/WHO, GRAS, ISO. Consumer Protection Acts	4	ICT

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Allied
Semester : I **Hours per week: 4** **60 hrs/Semester**
Sub. Code : AE1 **Credits: 3**

Title of the Paper: NUTRITIONAL BIOCHEMISTRY – I

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/ Tutorial	GD/ Seminar	ICT/ Blended Learning	DI/IV
PREAMBLE							
To enable the students to							
<ol style="list-style-type: none"> Develop an understanding on the principles of biochemistry (nutrients in relation of health) Obtain an insight into chemistry of major nutrients and their physiological role. 							
COURSE OUTCOME						Unit	Hrs P/S
At the end of the Semester, the Students will be able to							
CO1: Recall the structure and properties of carbohydrates.						I	12
CO2: Differentiate amino acids and proteins based on structure and properties.						II	12
CO3: Summarize the types and physiological role of lipids.						III	12
CO4: Explain the activity of enzymes and co-enzymes of metabolism.						IV	12
CO5: Discuss the inter relationship between nutrients.						V	12
SYLLABUS							
UNIT I							
Carbohydrates – Definition, Classification – Monosaccharides, Disaccharides, Oligosaccharides, Polysaccharides; structure, Glycosidic linkage, general properties, functions and biological importance.							
UNIT II							
Proteins – Definition, classification, structure, properties and biological functions. Amino acids – Classification, peptide linkage, properties and nutritional classification.							
UNIT III							
Lipids – Definition, classification, properties and biological functions. Fatty acids – types and physiological role. Lipoproteins – Types, composition and role in health and diseases.							
UNIT IV							
Enzymes – Definition, classification, Nomenclature, Properties, Mechanism of enzyme action, factors affecting enzyme activity, enzyme inhibition, specificity of enzymes, Prosthetic groups. Co-enzymes – role of vitamins as co-enzymes and mechanism of co-enzyme action							
UNIT V							

Interrelationship between nutrients: Protein – Energy, Vitamin - Vitamin, Vitamin -Mineral and Mineral - Mineral. Nucleic acids: DNA, RNA - structure & biological function, Types of RNA, Comparison of DNA and RNA.

TEXT BOOKS

1. Fatima et al., (2015) Biochemistry, Saras Publication, Nagercoil.

REFERENCES

1. Agarwal, G.R., Agarwal, K. & Agarwal, O.P. (1995) Text Book of Biochemistry, Goel Publishing House, Meerut.
2. Deb, A.C. (2006) Fundamentals of Biochemistry, New Central Book Agency (P) Ltd., Kolkata.
3. Shanmugam, A. (2012) Fundamentals of Biochemistry for Medical Students; 7th edition, Lippincott Williams & Wilkins.
4. West, E.S., Todd, W.R., e.al. (1974) Text book of Bio Chemistry, 4th edition, Oxford and IBH Publishing Co., New Delhi.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Carbohydrates – Definition, Classification – Monosaccharides, Disaccharides, Oligosaccharides, Polysaccharides	3	Lecture
	Structure, Glycosidic linkage	3	Lecture
	General properties	3	Lecture
	Functions and biological importance	3	Group Discussion
UNIT II	Proteins – Definition, classification	2	Lecture
	Structure	2	ICT
	Properties and biological functions.	2	Lecture
	Amino acids – Classification	2	Blended Learning
	Peptide linkage, properties	2	Lecture
	Nutritional classification	1	Lecture
UNIT III	Lipids – Definition, classification,	2	Lecture
	Properties and biological functions.	2	Lecture
	Fatty acids – types	2	Lecture
	Fatty acids – physiological role.	2	Group Discussion
	Lipoproteins – Types, composition	2	Lecture
	Role in health and diseases.	2	ICT
UNIT IV	Enzymes – Definition, classification, Nomenclature	2	Lecture
	Properties, Mechanism of enzyme action,	3	Lecture
	Factors affecting enzyme activity, enzyme inhibition, specificity of enzymes	2	Lecture
	Prosthetic groups.	1	Lecture
	Co-enzymes – role of vitamins as co-enzymes and mechanism of co-enzyme action	3	ICT
UNIT V	Interrelationship between nutrients: Protein – Energy	1	Lecture
	Vitamin – Vitamin	2	Lecture
	Vitamin -Mineral	2	Lecture
	Mineral - Mineral.	2	Lecture
	Nucleic acids: DNA	2	Blended Learning
	RNA - structure & biological function, Types of RNA	2	Lecture

	Comparison of DNA and RNA.	1	Peer Group Learning
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COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Allied Practical
Semester : I & II **Hours per week: 3+3** **45hrs/Semester**
Sub. Code : NPA **Credits: 3**
Title of the Paper: BIOCHEMICAL ANALYSIS (PRACTICAL)

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	Practical Experience	ICT/ Blended Learning	IV/DI
	60	11	-	9	40	-	-
PREAMBLE							
To enable the students to							
<ol style="list-style-type: none"> 1. Be familiar with qualitative tests and quantitative determination. 2. Develop skills in analysing bio molecules and in basic diagnostic procedures. 							
COURSE OUTCOME						Unit	Hrs(2 Sems)
At the end of the Semester, the Students will be able to							
CO1: Demonstrate the skills in qualitative testing of sugars						I	30
CO2: Exhibit skills in performing qualitative tests of protein, amino acids and minerals						II	6
CO3: Show dexterity in estimating the quantity of reducing sugar						III	6
CO4: Display skill in estimation of vitamin C in different foods using Colorimeter						IV	6
CO5: Estimate the quantity of iron and phosphorus in foods						V	12
SYLLABUS							
UNIT I							
Qualitative tests for sugars: Monosaccharide – Glucose, Galactose and Fructose Disaccharides – Maltose, Lactose and Sucrose							
UNIT II							
Qualitative tests for proteins – Peptide linkage, Tryptophan, Tyrosine, Aromatic amino acids and Alpha group of amino acids; Qualitative tests for minerals: Ferrous and Ferric ion, Calcium, Magnesium, Phosphorus and Sulphur							

UNIT III

Quantitative estimation of reducing sugar

UNIT IV

Quantitative estimation of vitamin C in lime juice and green chillies

UNIT V

Estimation of iron and Phosphorus in drumstick leaves

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Orientation about rules and regulations to be followed while working in Biochemistry Laboratory	3	Lecture
	Introduction on care and cleaning of test tubes, burettes, pipettes and other glassware	2&1	Lecture & Demonstration
	Practice to mount and view a slide in a microscope	1&2	Demonstration & Practical Experience
	Orientation on Observation and record notebooks	3	Lecture
	Qualitative tests for sugars: Monosaccharide – Glucose	1&2	Demonstration & Practical Experience
	Qualitative tests for sugars: Monosaccharide –Galactose	3	Practical Experience
	Qualitative tests for sugars: Monosaccharide –Fructose	3	Practical Experience
	Qualitative tests for sugars: Disaccharides – Maltose	3	Practical Experience
	Qualitative tests for sugars: Disaccharides – Lactose	3	Practical Experience
UNIT II	Qualitative tests for a protein	3	Practical Experience
	Qualitative tests for minerals	3	Practical Experience
UNIT III	Introduction to titration	1&2	Lecture & Demonstration
	Quantitative estimation of reducing sugar	3	Practical Experience
UNIT IV	Quantitative estimation of vitamin C in Lime juice	3	Practical Experience
	Quantitative estimation of vitamin C in Green chillies	3	Practical Experience
UNIT V	Guidelines to use Colorimeter	1&2	Lecture & Demonstration
	Preparation of Blank, standard and unknown solutions and drawing graph	1&2	Lecture & Demonstration
	Estimation of iron in Drumstick Leaves	3	Practical Experience
	Estimation of phosphorus in Drumstick Leaves	3	Practical Experience

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)

Course : Part III: Allied

Semester : II

Hours per week: 4 **60 hrs/Semester**

Sub. Code : AE2

Credits: 4

Title of the Paper: NUTRITIONAL BIOCHEMISTRY – II

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	DI/IV	
PREAMBLE								
To enable the students to								
<ol style="list-style-type: none"> Understand biological processes and systems Apply the knowledge acquired to human health and nutrition. 								
COURSE OUTCOME							Unit	Hrs P/S
At the end of the Semester, the Students will be able to								
CO1: Describe the various metabolic pathways of carbohydrates.							I	16
CO2: Differentiate the types of metabolic reactions of amino acids.							II	8
CO3: Define the metabolic end products of lipids.							III	10
CO4: Explain the biological oxidation process.							IV	9
CO5: Summarize the metabolic pathways of different nutrients.							V	9
SYLLABUS								
UNIT I								
Carbohydrate Metabolism – Types and pathways – glycolysis, pentose phosphate pathway, citric acid cycle, gluconeogenesis, glycogenesis, glycogenolysis. Energetics of glucose metabolism, Enzymes, Co-enzymes and cofactors involved in carbohydrate metabolism								
UNIT II								

Protein Metabolism – oxidative deamination, transamination, decarboxylation; Urea cycle. Amino acid pool, Enzymes and co-enzymes involved in protein metabolism.

UNIT III

Lipid Metabolism - β oxidation of fatty acids. Ketone bodies – significance in health – ketosis, ketonuria, ketonemia. Fatty liver - Fate of end products of fatty acid metabolism. Ketogenesis-formation of ketone bodies.

UNIT IV

Biological Oxidation – definition, Redox potential, free energy, high energy compounds – ATP synthesis, oxidative and substrate level phosphorylation; electron transport chain – process, site, enzymes involved.

UNIT V

Overview of intermediary metabolism – Biological importance, Interconversion of major food stuff – Carbohydrate, protein and lipid metabolism, summary of the major regulators of metabolic pathways.

TEXT BOOKS

1. Shanmugam, A. (2012) Fundamentals of Biochemistry for Medical Students; 7th edition, Lippincott Williams & Wilkins.

REFERENCES

1. Agarwal, G.R., Agarwal, K. & Agarwal, O.P. (1995) Text Book of Biochemistry, Goel Publishing House, Meerut.
2. Ahuja, L. (2008) Quick Review in Biochemistry, CBS Publishers & Distributors, New Delhi.
3. Deb, A.C. (2006) Fundamentals of Biochemistry, New Central Book Agency (P) Ltd., Kolkata.
4. Fatima et al., (2015) Biochemistry, Saras Publication, Nagercoil.
5. Ramakrishnan S. and Rao, S.V. (1995) Nutritional Biochemistry, T.R. Publications, Chennai.
6. Weil, J.H. (1996) General Biochemistry, 6th edition, New Age International Ltd., New Delhi.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Carbohydrate Metabolism – Types and pathways	2	Lecture
	Glycolysis	3	Lecture
	Pentose phosphate pathway	3	Blended Learning
	Citric acid cycle	2	Blended Learning
	Gluconeogenesis, glycogenesis, glycogenolysis.	4	Lecture
	Energetics of glucose metabolism	1	Lecture
	Enzymes, Co-enzymes and cofactors involved in carbohydrate metabolism	1	Lecture
UNIT II	Protein Metabolism – oxidative deamination	2	Lecture
	Transamination, decarboxylation	2	Lecture
	Urea cycle.	2	Blended Learning
	Amino acid pool	1	Lecture
	Enzymes and co-enzymes involved in protein metabolism.	1	Group Discussion
UNIT III	Lipid Metabolism - β oxidation of fatty acids.	3	Lecture
	Ketone bodies – significance in health – ketosis, ketonuria, ketonemia.	2	ICT
	Fatty liver - Fate of end products of fatty acid metabolism.	2	Lecture
	Ketogenesis-formation of ketone bodies.	3	Lecture
UNIT IV	Biological Oxidation – definition, Redox potential, free energy	3	Lecture

	High energy compounds – ATP synthesis, oxidative and substrate level phosphorylation	3	Lecture
	Electron transport chain – process, site, enzymes involved.	3	Lecture
UNIT V	Overview of intermediary metabolism – Biological importance	3	Lecture
	Interconversion of major food stuff – Carbohydrate, protein and lipid metabolism	4	ICT
	Summary of the major regulators of metabolic pathways.	2	ICT

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Core
Semester : V/IV **Hours per week:5** **75 hrs/Semester**
Sub Code : EN51 **Credits: 5**

Title of the Paper: FAMILY RESOURCE MANAGEMENT

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI
	75	55	20	-	-	-	-
PREAMBLE							
To enable students to :							
1. Attain an understanding of the importance, concepts and principles of resource management in family and personal living.							
2. Develop an ability to apply resource management concepts in living situation to improve the quality of family life.							
3. Increase their ability to make wise use of money.							
COURSE OUTCOME						Unit	Hrs. P/S
At the end of the Semester, the Students will be able to							
CO1: Understand the concepts and principles of family resource management.						I	15
CO2: Interpret time and energy management for work simplification.						II	15
CO3: Analyze sources of family income and budgeting.						III	15

CO4: Develop skills in family savings and investments.	IV	15
CO5: Promote positive consumer behaviour among students.	V	15

SYLLABUS

UNIT I

Home Management – Definition and Scope. Process of Management. Resource- Human and Non-Human resources. Goals, Values & Standards Characteristic of resources, Decision making: Types of decisions, steps in decision making.

UNIT II

Energy management- process, Importance of energy management. Fatigue-Types of fatigue.
Time management - Steps in time management; Importance of time management –Guidelines in planning time schedule.

Work simplification – definition, Meaning, Techniques, Purpose, Mundel’s classes of changes.

UNIT III

Income – Money income and real income, sources of income, factors influencing family income - Family income management: Family budget and steps in making budget – Engel’s law of consumption – Financial records of the household.

UNIT IV

Savings and Investments, Saving in the family and its reasons– Saving Institutions – Banks – Different kinds of Bank Accounts and use of cheques, Insurance – Mutual fund – Share market – Family Investment and Building family Capital – Criteria for Judging a family Investment.

UNIT V

Human wants – classification and nature – concept of marginal utility – law of diminishing marginal utility - Principle of equi-marginal utility. Consumerism – Consumer Rights and Protection; Consumer courts and consumer education.

TEXT BOOKS

1. Varghese,M.A., Ogale,N.N. & Srinivasan,K (2011) Home Management, New Age International Pvt. Ltd., New Delhi.

REFERENCES

1. Deacon, R and Firebaugh, F.M.(1975) Home Management context and concepts, Houghton Mifflin Company
2. Gross, I.H.Crandall, E. N. and Knoll(1976) M. Management for Modern Families, Appleton Century Crafts Inc.
3. Gupta,S., Garg,N&Agarwal,A (1998) Textbook of Home Management, Hygiene & Physiology, Kalyani Publishers, New Delhi.
4. Nickell P. and Dorsey, J.M.(1978) Management in Family Living, John Wiley and Sons.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Home Management – Definition and Scope	2	Lecture
	Process of Management	3	Lecture
	Resource Human and Non-Human resources	2	Peer teaching
	Goals, Values & Standards Characteristic of resources	3	Lecture
	Decision making: Types of decisions	2	Lecture
	steps in decision making	3	Lecture
UNIT II	Energy management- process, Importance of energy management	3	Lecture
	Fatigue types of fatigue, Time management - Steps in time management	4	Lecture
	Importance of time management, Guidelines in planning time schedule	3	Lecture

	Work simplification – definition, Meaning, Techniques, Purpose, Mundel’s classes of changes	5	Lecture
UNIT III	Income – Money income, real income, sources of income	5	Lecture
	factors influencing family income, Family income management	3	Lecture
	Family budget and steps in making budget, Engel’s law of consumption	4	Lecture
	Financial records of the household	3	Lecture
UNIT IV	Savings and Investments, Saving in the family and its reasons	4	Peer teaching
	Saving Institutions– Banks, Different kinds of Bank Accounts, Cheques	5	Peer teaching
	Mutual fund, Share market, Family Investment and Building family Capital – Criteria for Judging a family Investment	6	Peer teaching
UNIT V	Human wants – classification& nature	4	Lecture
	concept of marginal utility, law of diminishing marginal utility	4	Lecture
	Principle of equi-marginal utility, Consumerism – Consumer Rights and Protection	4	Lecture
	Consumer courts, consumer education.	3	Peer teaching

COURSE OUTCOME S (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO 1	PO 2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Core Elective Paper
Semester : V/VI **Hours per week: 5** **75hrs/Semester**
Sub. Code : EN52 **Credits: 5**

Title of the Paper: PUBLIC HEALTH AND EPIDEMIOLOGY

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/ Tutorial	GD/ Seminar	ICT/ Blended Learning	DI/IV	
PREAMBLE								
To enable to students to-								
1. Understand the concept of health from the individual and community perspective.								
2. Know the importance of epidemiology and public health.								
COURSE OUTCOME							Unit	Hrs P/S
At the end of the Semester, the Students will be able to								
CO1: Discuss about indicators of health and health situation in India.							I	12
CO2: Summarize the factors affecting community health.							II	14

CO3: Identify the significance of vital statistics in public health and epidemiology.	III	11
CO4: Associate health hazards with life style changes.	IV	14
CO5: Explain the role of an individual, family and community in promoting health.	V	14

SYLLABUS

UNIT I

Health and dimensions of health - Introduction to concept of health indicators of health, health situation in India, Family and Community health.

UNIT II

Community and its organization - Concept of Community, factors affecting health of the community – environmental, social, cultural, dietary, organizational, economic, political. Vulnerable groups/needs of special populations.

UNIT III

Public Health - Vital statistics and their significance. Epidemiological methods Descriptive, analytical, experimental.

UNIT IV

Life Style and community health - Preventive and promotive aspects, public education and action, alcohol, cigarette smoking, drugs, AIDS, STD.

UNIT V

Immunisation - Importance and schedule for children, adults and for foreign travel, problems encountered-importance of cold chain, role of individual, family and community in promoting health.

TEXT BOOKS

1. Park, J.E. and Park, K. (2013) Text Book of preventive and social medicine, 21st edition, M/s BanarasidasBhanot, Jabalpur.

REFERENCES

1. Manelkar, R.K.(2004) A Textbook of Community Health for Nurses, 3rd edition, Vora Medical Publications, Mumbai.
2. Manelkar, R.K. (2009) Communicable Diseases, 2nd edition, Vora Medical Pub., Mumbai.
3. Muruges, N.(2004) Health Education and Community Pharmacy, 4th edition, Sathya Publishers, Madurai.
4. Parmar, N.S. (2009) : Health Education and Community Pharmacy, CBS Publishers and Distributors Pvt. Ltd., New Delhi.
5. Smith, G.W. (1957) Preventive Medicine and Health, 2nd edition, MacMillan Co., New York.
6. Vijay, E. (2007) Community Medicine, 3rd edition, B.I.Publications, Pvt. Ltd., Chennai.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Health and dimensions of health	5	Lecture
	Introduction to concept of health indicators of health, health situation in India	5	Lecture
	Family and Community health.	2	Group Discussion
UNIT II	Community and its organization - Concept of Community	5	Lecture
	Factors affecting health of the community – environmental, social, cultural, dietary, organizational, economic, political.	7	Lecture
	Vulnerable groups/needs of special populations.	2	Group Discussion
	Public Health	2	Lecture

UNIT III

	Vital statistics and their significance.	3	Blended Learning
	Epidemiological methods Descriptive, analytical, experimental.	6	Lecture
UNIT IV	Life Style and community health	3	Lecture
	Preventive and promotive aspects,	3	Lecture
	Public education and action,	3	Group Discussion
	Alcohol, cigarette smoking, drugs, AIDS, STD.	5	Lecture
UNIT V	Immunisation - Importance	4	Lecture
	Schedule for children, adults and for foreign travel,	2	Lecture
	Problems encountered-importance of cold chain,	4	Group Discussion
	Role of individual, family and community in promoting health.	4	Seminar

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)

Course : Part III: Core/ Elective Paper

Semester : V & VI

Hours per week: 3+3

90 hrs/Semester

Sub. Code : EN63

Credits: 5

Title of the Paper: LIFE SPAN DEVELOPMENT

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	DI/IV
PREAMBLE							
To develop in students:							

<ol style="list-style-type: none"> 1. An understanding of the physical, psychological and social development of the individual from infancy to adulthood, so that they can be guided effectively. 2. Develop skills in achieving positive human relationships. 			
COURSE OUTCOME		Unit	Hrs P/S
At the end of the Semester, the Students will be able to			
CO1: Apply the acquired knowledge on pregnancy in real life situation.		I	17
CO2: Explain the intricacies of raising a child.		II	24
CO3: Summarize the turbulent stage of adolescence.		III	17
CO4: Identify the physical and psychological changes in elderly persons.		IV	17
CO5: Discuss the relevance of inclusive education for children with special needs.		V	15
SYLLABUS			
UNIT I			
Definition, growth and development. Principles of Growth and Development.			
Pregnancy, care of the expectant woman, stages of pregnancy, discomforts, complications during pregnancy. Process and Types of birth.			
UNIT II			
Infancy – Physical and motor development, intellectual, language, social development. Infant care – feeding (Supplementary and weaning foods). Bathing, Clothing, Toilet training, Common ailments, Immunization.			
Early Childhood – Physical and motor development, intellectual, language, social and emotional development. Behavioural problems – causes, prevention, - temper tantrum, thumb sucking, bedwetting and masturbation.			
UNIT III			
Late childhood – Physical and motor development, intellectual, language, social and emotional development.			
Adolescence – Physical, intellectual, social and emotional development.			
UNIT IV			
Early and Middle Adulthood – Characteristics, developmental tasks. Old age – Physical and psychological changes during old age, problems of old age, beneficial measures available for the old age group.			
UNIT V			
A brief study on exceptional children, educational provisions for visually challenged, hearing impaired, mentally challenged and Gifted children.			
TEXT BOOKS			
1. Hurlock, E.B. (2000) Development Psychology – a Life span Approach, Tata McGraw Hill Pub. Company Ltd., New Delhi			
REFERENCES			
1. Craig, G. (1999) Human Development, Prentice Hall, New Jersey.			
2. Devadas, R.P. and Jaya, N. (1981) Textbook on child development, Macmillan and Co.,			
3. Hurlock, E.B. (1972) Child development, McGraw Hill, New York.			
4. Santrock, J.W. (1997) Life Span Development, Brown & Bench Mark, New York.			

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Definition, growth and development. Principles of Growth and Development.	4	Lecture

	Pregnancy, care of the expectant woman, stages of pregnancy,	4	Lecture
	Discomforts and complications during pregnancy.	4	Lecture
	Process of child birth	2	Peer group learning
	Types of child birth	3	Blended Learning
UNIT II	Infancy – Physical and motor development,	3	Lecture
	Intellectual, language, social development.	2	Lecture
	Infant care – feeding (Supplementary and weaning foods). Bathing, Clothing, Toilet training,	4	Blended Learning
	Common ailments, Immunization.	3	Lecture
	Early Childhood – Physical and motor development,	3	Lecture
	Intellectual, language, social and emotional development.	4	Lecture
UNIT III	Behavioural problems – causes, prevention, - temper tantrum, thumb sucking, bedwetting and masturbation.	5	Lecture
	Late childhood – Physical and motor development,	5	Lecture
	Intellectual, language, social and emotional development.	4	Lecture
	Adolescence – Physical, intellectual, Social and emotional development.	5	Peer group learning
UNIT IV		3	Lecture
	Early Adulthood – Characteristics, developmental tasks	3	Lecture
	Middle Adulthood – Characteristics, developmental tasks.	4	Lecture
	Old age – Physical and psychological changes during old age, Problems of old age,	4	Group Discussion
	Beneficial measures available for the old age group.	3	Peer group learning
UNIT V		4	Lecture
	A brief study on exceptional children,	4	Group Discussion
	Educational provisions for visually challenged,	3	Blended Learning
	Educational provisions for Hearing impaired,	4	
	Educational provisions for Mentally challenged and Gifted children.	4	

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Core Elective Paper
Semester : V & VI **Hours per week: 3+3** **45hrs/Semester**
Sub. Code : EN64 **Credits: 5**

Title of the Paper: DEVELOPMENT AND WELFARE PROGRAMMES IN INDIA

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	GD/Seminar	ICT/ Blended Learning	IV/DI
	70	26	-	14	-	30	-
PREAMBLE							
To enable the students to							
<ol style="list-style-type: none"> 1. Familiarize with different development programmes 2. Learn about the functioning of development programmes. 							
COURSE OUTCOME						Unit	Hrs(2 Sems)
At the end of the Semester, the Students will be able to							
CO1: Discuss the ongoing rural development programmes						I	15
CO2: Describe the programmes implemented to improve the infrastructure in cities						II	12
CO3: Distinguish the national programmes being implemented to combat various communicable and non-communicable disease						III	19
CO4: Interpret programmes aimed to stabilize population growth and to reduce maternal, infant and child mortality						IV	12
CO5: Examine the implementation procedure of schemes pertaining to women welfare						V	12
SYLLABUS							
UNIT I							
Rural Development Programmes							
Pradhanmantri Gram SadakYojana, Rural housing, Accelerated Rural Water Supply Programme (ARWSP), Swajaldhara, Central Rural Sanitation Programme, SwachhBharath Mission, National Rural Livelihood Mission (NRLM), Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)							
UNIT II							
Urban Development Programmes							
Capacity building scheme for urban local bodies, Jawarharlal Nehru National Urban Renewal Mission, Urban Infrastructure Development Scheme for Small & Medium towns, Integrated Development of small & medium towns, Infrastructure Development in mega cities, accelerated urban water supply programme							
UNIT III							
National Health Programmes							
National Vector Borne Disease Control Programme, National Filaria Control Programme, National Leprosy Eradication Programme, Revised National TB Control Programme, National Mental Health Programme, National AIDS Control Programme, National Cancer Control Programme, Universal Immunisation Programme, National Programme for Prevention and Control of Deafness, Programme on prevention & Control of Diabetes, CVD & stroke, National Tobacco Control Programme, School Health Programme.							
UNIT IV							
Family Welfare Schemes							
National Family Welfare Programme, National Population Policy, National Rural Health Mission, Urban Family Welfare Schemes, Reproductive & Child Health Programme. State Level Welfare Programmes- Maternity, Marriage, Disabled and Social Assistance Programmes							
UNIT V							
Women & Child Welfare Schemes							

Swayamsiddha, Swadhar, Support to Training & Employment Programme for Women (STEP), Integrated Child Protection Scheme (ICPS), Integrated Child Development Service (ICDS), BalikaSamridhiYojana (BSY), Kishori Shakti Yojana, Nutrition Programme for Adolescent Girls.

TEXT BOOKS

REFERENCES

1. All official reports related to the programmes mentioned in the syllabus.
2. Documents from respective ministries implementing various schemes, programmes.
3. Government of India websites of Ministry of Rural Development, Ministry of Urban Development, Ministry of Women and Child Welfare and Ministry of Family Welfare

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Rural Development Programmes- Pradhanmantri GramSadakYojana, Rural housing	3	Lecture
	Accelerated Rural Water Supply Programme (ARWSP), Swajaldhara	3	Lecture
	Central Rural Sanitation Programme, SwachhBharath Mission	3	ICT
	National Rural Livelihood Mission (NRLM)	3	ICT
	Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)	3	ICT
UNIT II	Urban Development Programmes- Capacity building scheme for urban local bodies, Jawarharlal Nehru National Urban Renewal Mission	4	ICT
	Urban Infrastructure Development Scheme for Small & Medium towns, Integrated Development of small & medium towns	4	Lecture
	Infrastructure Development in mega cities, accelerated urban water supply programme	4	Lecture
UNIT III	National Health Programmes-National Vector Borne Disease Control Programme, National Filaria Control Programme	4	OER
	National Leprosy Eradication Programme, Revised National TB Control Programme	3	OER
	National Mental Health Programme, National AIDS Control Programme	3	OER
	National Cancer Control Programme, Universal ImmunisationProgramme	3	ICT
	National Programme for Prevention and Control of Deafness, Programme on prevention & Control of Diabetes, CVD & stroke	3	ICT
	National Tobacco Control Programme, School Health Programme	3	ICT
UNIT IV	Family Welfare Schemes- National Family Welfare Programme, National Population Policy	4	Lecture
	National Rural Health Mission, Urban Family Welfare Schemes, Reproductive and Child Health Programme	4	Lecture
	State Level Welfare Programmes- Maternity, Marriage, Disabled and Social Assistance Programmes	4	Lecture
UNIT V	Women & Child Welfare Schemes- Swayamsiddha, Swadhar, Support to Training & Employment Programme for Women (STEP)	4	ICT
	Integrated Child Protection Scheme (ICPS), Integrated Child Development Service (ICDS)	4	ICT
	BalikaSamridhiYojana (BSY), Kishori Shakti Yojana, Nutrition Programme for Adolescent Girls	4	OER

COURSE OUTCOME S (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Core Elective Paper
Semester : VI **Hours per week: 5** **75hrs/Semester**
Sub. Code : EN65 **Credits: 5**

Title of the Paper: EXTENSION EDUCATION

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	GD/Seminar	ICT/ Blended Learning	IV/DI
	70	24	-	19	-	27	-

PREAMBLE

To enable students to

1. Understand the principles, philosophy and programme of Community Development.
2. Be aware of methods of approaching people and to become partners in development programmes.

COURSE OUTCOME		Unit	Hrs P/S
At the end of the Semester, the Students will be able to			
CO1: Summarize the objectives and principles of Home Science Extension		I	12
CO2: Demonstrate the principles of democratic decentralization in local governance		II	14
CO3: Classify extension teaching methods		III	17
CO4: Analyze the pros and cons of traditional and modern media of communication		IV	15
CO5: Formulate a plan of work for the execution of an extension programme		V	12

SYLLABUS

UNIT I

Concept of Extension

Concept, meaning, principles, philosophy and objectives of extension education. Home Science Extension-Meaning & Characteristics.

UNIT II

Community Development Programme

Community Development Programme: History, Principles, Objectives. Panchayat Raj: meaning, Three tier system - village, block and district level; Principles of democratic decentralization.

UNIT III

Extension Teaching Methods

Teaching and learning, Steps in Extension teaching, Classification of extension teaching methods: according to use –individual, group and mass; according to form – written, spoken and visual; scope, advantages, limitations, factors guiding the selection and use of teaching methods.

UNIT IV

Communication and Audio Visual Aids

Communication – Definition, Means - oral, written, signs; Types- Verbal and non-verbal, Elements of communication; SMCRE Barriers to communication. Traditional and modern media of communication.

Classification of audio visual aids in extension work – Cone of Experience – advantages and limitations. Factors limiting the selection and use of audio visual aids.

UNIT V

Programme Planning

Definition, meaning, principles, steps in programme planning or program development cycle Plan of work – objectives, calendar of activities. Program implementation, role of officials & non-officials; Evaluation – types, uses and tools of evaluation.

PRACTICAL EXPERIENCE

1. Visit to a Block to learn the set up and functions.
2. Visit to the village to see the functioning of Gram Sabha.

TEXT BOOKS

1. Reddy, A.A. (1971) Extension Education, Sri Lakshmi Press, Bapatla.

REFERENCES

1. Chandra A., Shah A. & Joshi U. (1989) Fundamentals of teaching Home Science, South Asia Books.
2. Dhama, O.P. and Bhatnagar, O.P. (1980) Education and communication for Development, Oxford & IBM Publishing Co.
3. Dubey, V.K. & Bishnoi, I. (2008), Extension Education and Communication, New Age International Publishers, Chennai.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Extension-Concept, meaning, principles, philosophy	4	Lecture
	Objectives of extension education	4	Lecture
	Home Science Extension- Meaning and characteristics	4	Lecture
UNIT II	Community Development Programme: History, Principles, Objectives	6	OER
	Panchayat Raj: meaning, Three tier system - village, block and district level	4	OER
	Principles of democratic decentralization	4	OER
UNIT III	Teaching and learning, Steps in Extension teaching	3	Lecture
	Classification of extension teaching methods: according to use –individual, group and mass; advantages, limitations	6	ICT
	Classification of extension teaching methods: according to form – written, spoken and visual; scope, advantages, limitations	6	ICT
	Factors guiding the selection and use of extension teaching methods	2	ICT
UNIT IV	Communication – Definition, Means - oral, written, signs; Types- Verbal and non-verbal	3	ICT
	Elements of communication; SMCRE, Barriers to communication	2	Lecture
	Traditional and modern media of communication	3	Lecture
	Classification of audio visual aids in extension work – advantages and limitations	3	OER
	Cone of Experience	2	OER
	Factors limiting the selection and use of audio visual aids	2	ICT
UNIT V	Definition, meaning, principles, steps in programme planning or program development cycle	4	ICT
	Plan of work – objectives, calendar of activities. Program implementation, role of officials & non-officials	4	ICT
	Evaluation – types, uses and tools of evaluation	4	Lecture

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO 1	PO2	PO 3	PO4	PO5	PSO 1	PSO2	PSO 3	PSO 4	PSO 5	PSO6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	

MEAN OVERALL SCORE	
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Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Core Elective Paper
Semester : VI **Hours per week: 5** **75 hrs/Semester**
Sub. Code : EN66 **Credits: 5**

Title of the Paper: FAMILY DYNAMICS

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/ OER/ Tutorial	GD/ Seminar	ICT/ Blended Learning	IV/ DI
	70	31	5	-	15	19	-
PREAMBLE							
The student will -							
<ol style="list-style-type: none"> 1. Acquire knowledge and insights about the dynamics of contemporary marriage and family systems in India. 2. Become acquainted with the concept, goals and areas of adjustment in marital relationship and within the family. 3. Understand the dynamics of families in distress and crisis 4. Become aware of the family welfare measures. 							
COURSE OUTCOME						Unit	Hrs P/S
At the end of the Semester, the Students will be able to							
CO1: Summarize the types of families and different stages of family life cycle						I	14
CO2: Discuss the challenges faced in marital life						II	14
CO3: Develop positive human relationship						III	14
CO4: Describe the causative factors of marital disharmony						IV	14
CO5: Define the need of premarital and marital counselling						V	14
SYLLABUS							
UNIT I							
Family - Definitions, functions, types (with reference to India) – Family life cycle – Stages and Sub – Stages (beginning, expanding, contracting) – Changing trends in India and factors influencing (social change, family values and ideologies, family structures).							
UNIT II							
Marriage as an institution : goals, rituals, functions, changes and challenges – Mate selection : factors influencing, considerations of exogamy and endogamy, changing trends, arranged and personal choice of mates – Marital adjustment, planned parenthood.							
UNIT III							
Internal relationship within the family, Individual roles, rights and responsibilities within the family – family interaction and communication – Importance, types and methods of improvement – areas of adjustment within the family at different stages of family life cycle.							
UNIT IV							
Families with marital disharmony and disruption, causal factors – Families in distress, violence and abuse, dowry victimization, violence against women.							
UNIT V							

Interventions for families in trouble - scope, needs and assessment –Counseling : premarital and marital – welfare and rehabilitation policies and programmes – public awareness and education programmes.

TEXT BOOKS

1. Devadas R.P. and Jaya (1991) Text Book of Child Development Macmillan India Ltd., Madras

REFERENCES

1. Augustine, J.N. (Ed.) (1982) : The Family in Transition, New Delhi : Vikas Publishing House.
2. Guppy, G.R. (1976) : Family and Social Change in Modern India, New Delhi : Vikas Publishing Co.
3. Gore, M.S. (1968) : Urbanization and Family Change in India, Bombay : Popular Prakashan.
4. Lal, A.K. (1990) : The Urban Family : A Study of Hindu Social System, New Delhi : Vikas Publications.
5. Rao, P. and Rao, V.N. (1982) : Marriage, The Family and Women in India, New Delhi : Vikas Publications.
6. Srinivasan, K. and Mukerji, S. (Eds.) (1987) : Dynamics of Population and Family Welfare, Bombay : Himalaya Publishing House.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Family - Definitions, functions, types (with reference to India)	5	Lecture
	Family life cycle – Stages and Sub – Stages (beginning, expanding, contracting)	4	Lecture
	Changing trends in India and factors influencing (social change, family values and ideologies, family structures)	5	GD
UNIT II	Marriage as an institution : goals, rituals, functions, changes and challenges	5	ICT
	Mate selection : factors influencing, considerations of exogamy and endogamy, changing trends, arranged and personal choice of mates	4	ICT
	Marital adjustment, planned parenthood	5	GD
UNIT III	Internal relationship within the family, Individual roles, rights and responsibilities within the family	5	Lecture
	Family interaction and communication – Importance, types and methods of improvement	4	Lecture
	Areas of adjustment within the family at different stages of family life cycle	5	PGL
UNIT IV	Families with marital disharmony and disruption, causal factors	5	Lecture
	Families in distress, violence and abuse	4	Lecture
	Dowry victimization, violence against women	5	GD
UNIT V	Interventions for families in trouble - scope, needs and assessment	5	ICT
	Counseling : premarital and marital	4	Lecture
	Welfare and rehabilitation policies and programmes – public awareness and education programmes	5	ICT

COURSE OUTCOME S (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	

CO3	4	3		3	5	4				4	4	
CO4	4	3		3	5	4				4	4	
CO5	4	3		3	5	4				4	4	
MEAN OVERALL SCORE												

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Core
Semester : III **Hours per week: 2** **30 hrs. /semester**
Sub. Code : SN31 **Credits: 2**
Title of the paper: FUNDAMENTALS OF TEXTILES AND CLOTHING

Pedagogy	Hours	Lecture	Peer teaching	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI	
	30	12	-	2	2	1	-	
PREAMBLE								
to help the student to								
1. Understand and identify the types of textile fibres, yarns and their properties								
2. Acquaint with some of the weaves and finishes, their characteristics and usage								
3. Familiarize with common dyeing and printing methods; principles of clothing								
COURSE OUTCOME							Unit	Hrs. p/s
At the end of the semester, the students will be able to								
CO1: Identify the types of textile fibres based on their properties.							I	6
CO2: Define and classify weaves.							II	6
CO3: Associate the types of finishes with functional properties of fabric.							III	6
CO4: Identify the common types of dyeing and printing of textiles.							IV	6
CO5: Apply the principles of clothing for various age groups; solve the problem of stains in fabric.							V	6
SYLLABUS								
UNIT I								
Textile fibres and their properties								
Fibre - definition, identification (visual, burning, microscopic, and solubility), classification –natural fibres (cotton, lines, wool, jute and silk) manmade fibre (rayon, polyester). Yarn- definition, types- simple and complex, count and twist (basic concepts only).								
UNIT II								
Weaving								
Definition of weaving, looms; part, function of weaves; classification of weaves - plain, twill, satin and sateen. Fancy weaves - pile, dobby and jacquard, non-woven-knitting and felting (definition).								
UNIT III								
Finishes								
Definition and purpose. Type- basic finishes (bleaching, mercerizing, sizing, calendaring and tendering); functional finishes (water proofing, fire proofing and moth proofing).								
UNIT IV								
Dyeing and printing								
Dye – classification (example of natural and artificial dyes). Printing - hand printing (block, stencil, tie and dye and batik). Machine printing (screen and roller).								
UNIT V								
Family clothing								

Introduction of family clothing; principles of clothing, factors influencing selection of clothing for various age groups, stain removal- washable and non-washable fabrics.

PRACTICAL EXPERIENCE

1. Fibre identification tests-visual, burning microscopic and chemical
2. Thread count and balance

TEXT BOOKS

1. Dantayagi, s. (2015) fundamentals of textiles and their care, orient black swan private limited. New Delhi.

REFERENCES

1. Corbman, p.b. (1985) textiles-fibre to fabric (6thedition), mcgraw hill book co., us.
2. Deulkar., d. (2011) household textiles and laundry work, atma ram & sons,
3. Joseph,m. L.,(1988) essentials of textiles (6thedition),holt rinehart and winstoninc.,florida.
4. Sekhri s. (2016) textbook of fabric science: fundamentals to finishing, phi learning, Delhi.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Textile fibres and their properties Fibre – definition, identification (visual, burning microscopic, and solubility)	1	Lecture
	Classification –natural fibres (cotton, lines, wool, jute and silk), Manmade fibre (rayon, polyester)	2	Demonstration
	Yarn- definition, Types- simple and complex, Count and twist (basic concepts only)	3	Lecture
UNIT II	Weaving: Definition of weaving, looms, Part Function of weaves,	3	Lecture
	Classification of weaves - plain, twill, satin and sateen, Fancy weaves - pile, dobby and jacquard, Non-woven-knitting and felting (definition)	3	Lecture
UNIT III	Finishes: Definition and purpose, Type- basic finishes-bleaching, Mercerizing, Sizing	3	Lecture
	Calendaring and tendering), Functional finishes-water proofing, Fire profit proofing, Moth proofing	3	Lecture
UNIT IV	Dyeing and printing : Dye – classification (example of natural and artificial dyes)	1	Blended leaning
	Printing - hand printing block, Stencil, Tie, dye and batik	3	Lecture
	Machine printing (screen and roller)	2	Group Discussion
UNIT V	Family clothing : Introduction of family clothing; principles of clothing, Factors influencing selection of clothing for various age groups	3	Lecture
	Stain removal- washable , Non-washable fabrics	3	Lecture

COURSE OUTCOME S (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	

CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part IV: Skill Based Elective
Semester : III & IV **Hours per week:1+1** **15hrs/Semester**
Sub. Code : SN42 **Credits: 2**

Title of the Paper: INTERIOR DECORATION

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/ OER/ Tutorial	GD/ Seminar	ICT/ Blended Learning	IV/ DI
	25	6	-	9	1	9	-

PREAMBLE

To enable the students to

1. Understand elements and Principles of art and design
2. Learn to appreciate art
3. Develop an understanding to the application of art principle in interior design

COURSE OUTCOME

At the end of the Semester, the Students will be able to	Unit	Hrs (2 Sems)
CO1: Recognize elements and principles of art and design	I	5
CO2: Appreciate role of design in interior decoration	II	6
CO3: Identify colour concepts in all art forms	III	5
CO4: Apply principles of lighting in interiors	IV	5
CO5: Integrate and apply principles of design in home décor	V	4

SYLLABUS

UNIT I

Design in Everyday life -Importance of good taste, traditional design and modern design. Elements of Design - Line, form, colour, texture, space, value, pattern and light. Types of Design - Structural design, decorative design.

UNIT II

Objectives of interior decoration, Principles of Design – Harmony – elements of art, Balance – Formal and informal, Proportion – Methods to achieve, Emphasis – What, how and how much to emphasis, Rhythm – Types, creation.

UNIT III

Colour - dimensions of colour, classification of colours, sociological, psychological and physical reaction of colours, types of colour scheme, colour for different rooms.

UNIT IV

Lighting in the house-artificial, importance, principles of home lighting, needs for different activities, types of lighting, Glare – Causes, elimination, selection of lamp shades.

UNIT V

Application of design in home, art object, show case, flower arrangement, equipment, floral art; furniture and furnishings.

RELATED PRACTICAL EXPERIENCE

TEXT BOOKS

1. Stella Soundararaj (2008) Text book of household arts, 4th Edition Orient Longman, Madras.

REFERENCES

1. DeshPande, R.S.(1971) Modern Ideal Homes for India, United Book Corporation, Pune.
2. Goldstein, H and Goldstein, V.(1960) Art in Everyday life, Macmillan Co., New York.
3. Rutt Anna (1961) Home Furnishing, Wiley Eastern Pvt. Ltd.
4. BhatPranarGoenkaShanita (1990) The foundation of art and design, Bombay.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Design in Everyday life -Importance of good taste, traditional design and modern design	1	Lecture
	Elements of Design - Line, form, colour, texture	2	ICT
	Elements of Design- space, value, pattern and light	1	ICT
	Types of Design - Structural design, decorative design	1	ICT
UNIT II	Objectives of interior decoration	1	Lecture
	Principles of Design – Harmony – elements of art, Balance – Formal and informal	2	OER
	Proportion – Methods to achieve, Emphasis – What, how and how much to emphasis	2	OER
	Rhythm – Types, creation	1	OER
UNIT III	Colour - dimensions of colour, classification of colours	1	ICT
	Sociological, psychological and physical reaction of colours	1	Lecture
	Types of colour scheme	2	OER
	Colour for different rooms	1	GD
UNIT IV	Lighting in the house-artificial, importance	1	Lecture
	Principles of home lighting, needs for different activities	1	Lecture
	Types of lighting	2	ICT
	Glare – Causes, elimination, selection of lamp shades	1	ICT
UNIT V	Application of design in home, art object, show case	1	ICT
	Flower arrangement, equipment, floral art	2	Demonstration
	Furniture and furnishings	1	Lecture

COURSE OUTCOME S (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part IV: Skill Based Elective
Semester : IV **Hours per week: 2** **30 hrs/Semester**
Sub. Code : SN43 **Credits: 2**

Title of the Paper: BAKERY

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/ OER/ Tutorial	GD/ Seminar	ICT/ Blended Learning	IV/ DI
	26	4	-	6	-	13	3
PREAMBLE							
To enable the students to							
<ol style="list-style-type: none"> 1. Understand basic concepts of baking. 2. Acquaint with the role of various major and minor ingredients in bakery products. 							
COURSE OUTCOME						Unit	Hrs P/S
At the end of the Semester, the Students will be able to							
CO1: List the principles of flour milling and the role of wheat flour in baking						I	4
CO2: Differentiate the types of flour based on their composition and properties						II	5
CO3: Identify the functions of various ingredients in baking						III	8
CO4: Describe the different methods of dough preparation						IV	6
CO5: Explain the principles behind preparation of bread, cake and cookies						V	3
SYLLABUS							
UNIT I							
Introduction to bakery – wheat flour and its role in bakery products – structure of wheat – its composition, principle and process of flour milling.							
UNIT II							
Flour – Constituents , Types – All-purpose flour, baker’s, biscuit, cake, pastry, self-rising flour, Characteristics of good quality flour. Flour test, Functions of flour and its storage.							

UNIT III

Other ingredients and their functions in baking -Yeast, eggs, sugar, fats, milk products, emulsifiers, dried fruits, enzymes, cream and leavening agents.

UNIT IV

Methods of preparation – Bread – (i) straight dough method. (ii) Salt delayed method, (iii) No dough time method; Cake –(i) Sugar batter method, (ii) Blending method, (iii) Sugar water method, Cookies – (i) One stage method, (ii) Creaming method, (iii) Foaming method.

UNIT V

Principles of preparing bread, cake and cookies.

RELATED PRACTICAL EXPERIENCE**TEXT BOOKS**

1. Yogambal, A. (2006), Theory of Bakery and confectionery, Visiga Publications, Singampunari, Tamil Nadu.

REFERENCES

1. Malik, R.K. and Dhingra, K.C (1981) Technology of Bakery Products, Modern Bakery Industries, small Industry Research Institute, New Delhi.
2. Thangam E. Philip (1999) Modern Vols. I & II, Quaint Longman, Mumbai.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Introduction to bakery	1	Lecture
	Wheat flour and its role in bakery products – structure of wheat – its composition	1	Lecture
	Principle and process of flour milling	2	Lecture
UNIT II	Flour – Constituents	1	Lecture
	Types – All-purpose flour, baker's, biscuit, cake, pastry, self-rising flour	1	ICT
	Characteristics of good quality flour	1	ICT
	Flour test	1	ICT
	Functions of flour and its storage	1	ICT
UNIT III	Other ingredients and their functions in baking –Yeast and eggs	2	ICT
	Sugar, fats and milk products	2	ICT
	Emulsifiers, dried fruits and enzymes	2	ICT
	Cream and leavening agents	2	ICT
UNIT IV	Methods of preparation – Bread – (i) straight dough method. (ii) Salt delayed method, (iii) No dough time method	2	Demo
	Methods of preparation -Cake –(i) Sugar batter method, (ii) Blending method, (iii) Sugar water method	2	Demo
	Methods of preparation -Cookies – (i) One stage method, (ii) Creaming method, (iii) Foaming method	2	Demo

UNIT V	Principles of preparing bread	1	IV
	Principles of preparing cake	1	IV
	Principles of preparing cookies	1	IV

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Skill Based Elective
Semester : V & VI **Hours per week:** **30hrs/ 2 Semesters**
Sub. Code : SN65 **Credits:** **2**

Title of the Paper: ENTREPRENEURSHIP DEVELOPMENT

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	DI/IV	
PREAMBLE								
To enable the students to :								
1. Get empowered to face the challenging world.								
2. Gain working knowledge in entrepreneurship and become a successful entrepreneur.								
COURSE OUTCOME							Unit	Hrs P/S
At the end of the Semester, the Students will be able to								
CO1: Summarize the types and qualities of an entrepreneur.							I	5
CO2: Explain the procedure of starting a business.							II	7
CO3: Describe the role of financing institutions involved in entrepreneurship development.							III	6
CO4: Discuss the steps in preparation of project proposal.							IV	4
CO5: Analyze the case histories of successful women entrepreneurs.							V	6

SYLLABUS

UNIT I

Entrepreneurship – Meaning, importance. Types – Role of Entrepreneurs in Economic Development – Qualities of an Entrepreneur – Entrepreneurship as a career.

UNIT II

How to start Business? – Product selection – Form of ownership – Plant location – Land, Building, Water and Power – Raw materials – Machinery – Man power – Other infra-structural facilities – Licensing registration and local bye laws.

UNIT III

Institutions for Entrepreneurship Development – Micro Small and Medium Enterprises, DIC, ITCOT, SIDCO, NSIC, SISI – Institutional Finance to Entrepreneurs – TIIIC, SIDBI, Commercial banks – Incentives to small scale industries - Role of SHGs.

UNIT IV

Project proposal – proposal format and content – steps in project proposal preparation, feasibility testing, SWOT Analysis.

UNIT V

Case histories of successful entrepreneurs – Entrepreneurship Development in India; Women Entrepreneurship in India; Sickness in Small Scale Industries and their remedial measures.

TEXT BOOKS

1. Nandan, H (2007) Fundamentals of Entrepreneurship, Prentice – Hall of India Pvt. Ltd., New Delhi.

REFERENCES

1. Radha, V. (2007) Entrepreneurial Development, Prasanna and Co., Chennai.
2. Sundaram, S.S.M and Muthupandi, M. (2002) Entrepreneurship Development, Iyyappan Print House, Madurai.
3. Sundarapandian, P (2004) Entrepreneurship Development, 2nd edition, M.M. Publishers, Virudhunagar.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Entrepreneurship – Meaning, importance.	1	Lecture
	Types	1	Lecture
	Role of Entrepreneurs in Economic Development	1	Lecture
	Qualities of an Entrepreneur	1	Blended Learning
	Entrepreneurship as a career.	1	Group Discussion
UNIT II	How to start Business?	1	Lecture
	Product selection – Form of ownership – Plant location – Land, Building, Water and Power – Raw materials – Machinery – Man power	3	Lecture
	Other infra-structural facilities	1	Lecture
	Licensing registration and local bye laws.	2	Lecture
UNIT III	Institutions for Entrepreneurship Development – Micro Small and Medium Enterprises	1	Lecture
	DIC, ITCOT, SIDCO, NSIC, SISI	2	Peer group learning
	Institutional Finance to Entrepreneurs – TIIIC, SIDBI, Commercial banks	2	Lecture
	Incentives to small scale industries - Role of SHGs.	1	Lecture
UNIT IV	Project proposal – proposal format and content.	1	Lecture

	Steps in project proposal preparation,	2	Lecture
	Feasibility testing, SWOT Analysis	1	Lecture
UNIT V	Case histories of successful entrepreneurs.	2	Group Discussion
	Entrepreneurship Development in India	1	Lecture
	Women Entrepreneurship in India	2	Lecture
	Sickness in Small Scale Industries and their remedial measures	1	Lecture

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part III: Skill Based Elective
Semester : VI **Hours per week: 2** **30 hrs/ 2 Semesters**
Sub. Code : SN66 **Credits: 2**

Title of the Paper: HOUSE KEEPING

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	DI/IV	
PREAMBLE								
To enable students to :								
1. Become aware of the different areas and functions of Housekeeping department.								
2. Acquire knowledge regarding maintenance of rooms.								
3. Understand the organizational procedures of the front office.								
COURSE OUTCOME							Unit	Hrs P/S
At the end of the Semester, the Students will be able to								
CO1: Discuss the role of housekeeping in hotel industry.							I	6
CO2: Identify types of room layout and bed making procedures.							II	6
CO3: Demonstrate skills in cleaning techniques in housekeeping.							III	6

CO4: Distinguish types of linen, linen maintenance and laundry procedure.	IV	6
CO5: Compare different soft furnishings and window treatment.	V	6

SYLLABUS

UNIT I

Introduction to hotels as a service industry – Organisation of housekeeping department; duties, qualities and responsibilities of housekeeping staff. Coordination of housekeeping department with other departments.

UNIT II

Rooms: Types of hotel rooms, room layout, types of beds, bed making. Routine room cleaning procedures – guest room cleaning, area cleaning.

UNIT III

Cleaning Activity: Cleaning agents & equipments – selection and use; Types of cleaning – daily, weekly, yearly; cleaning techniques. Pest Control.

UNIT IV

Linen and Laundry: Types of linen, selection, control & distribution, record keeping, linen room staff & their duties, storage procedure. Layout & physical features of a laundry, laundry procedure.

UNIT V

Soft Furnishings: Selection, care and maintenance of beds, mattresses, pillows, blankets, covers. Window treatment – draping fabric, hanging of curtains. Carpets – types, selection, care & cleaning

TEXT BOOKS

1. Kaushal, S.K. and Gautam, S.N. (2000) Accommodation Operations Management –

A Textbook on Housekeeping, Frank Bros & Co., New Delhi.

REFERENCES

1. Andrews, S. (1985) Hotel Housekeeping – training manual, Tata McGraw-Hill Publishing Co. Ltd., New Delhi.
2. Branson, J.C. and Lennox, M. (1998) Hotel, Hostel and Hospital Housekeeping, 4th ed., Edward Arnold Pub. Ltd., London.
3. Kaushal, S.K. and Gautam, S.N. (2000) Accommodation Operations Management – A Textbook on House keeping, Frank Bros & Co., New Delhi.
4. Lennox, M., Branson, J. (1995) Hotel, Hostel and Hospital Housekeeping, Pitman Publishing.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Introduction to hotels as a service industry	1	Lecture
	Organisation of housekeeping department	2	Peer group learning
	Duties, qualities and responsibilities of housekeeping staff.	2	Group Discussion
	Coordination of housekeeping department with other departments.	1	Lecture
UNIT II	Rooms: Types of hotel rooms, room layout	1	Lecture/IV
	Types of beds, bed making.	2	Demo/IV
	Routine room cleaning procedures	1	ICT
	Guest room cleaning.	1	Lecture
	Area cleaning.	1	Lecture
UNIT III	Cleaning Activity	1	Lecture
	Cleaning agents	1	Lecture
	Equipments – selection and use;	1	Lecture
	Types of cleaning – daily, weekly, yearly; cleaning techniques.	2	Seminar
	Pest Control.	1	Lecture

UNIT IV	Linen and Laundry: Types of linen, selection, control & distribution, record keeping	2	Lecture
	linen room staff & their duties,	1	Lecture
	Storage procedure.	1	Lecture
	Layout & physical features of a laundry	1	Demo/IV
	Laundry procedure.	1	Demo/IV
UNIT V	Soft Furnishings: Selection,	1	Lecture
	Care and maintenance of beds, mattresses, pillows, blankets, covers.	1	Group Discussion
	Window treatment – draping fabric, hanging of curtains.	2	Demo/IV
	Carpets – types, selection, care & cleaning	2	Lecture

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)
Course : Part: IV Elective
Semester : V **Hours per week:** 2 **30 hrs. /semester**
Sub Code : NMN1 **Credits:** 2

Title of the Paper: FOOD PRESERVATION

Pedagogy	Hours	Lecture	Peer Group Teaching	Demo/OER/Tutorial	GD/Seminar	ICT/Blended Learning	IV/DI
	30	16	-	14	-	-	-
PREAMBLE							
To enable the students to:							
1. Understand basic concepts of food preservation.							
2. Develop skills and techniques in food preservation.							
SCOPE							
1. To facilitate self employment ventures.							
2. Career opportunities in food processing industries.							

COURSE OUTCOME	Unit	Hrs. P/S
At the end of the Semester, the Students will be able to		
CO1: Distinguish various methods of food preservation.	I	6
CO2: Explain the FPO specifications of jams, jellies and marmalades.	II	6
CO3: Demonstrate preparations of squashes and syrups.	III	6
CO4: Apply the acquired knowledge while preparing jams and jellies.	IV	6
CO5: Develop value added food products.	V	6

SYLLABUS

UNIT I

A study of the methods and principles involved in preserving foods:

Drying and dehydration, Low temperature, Canning and bottling, Pickling, Irradiation.

UNIT II

Jams, jellies and marmalades – Definition, methods of determination of pectin in food extract, problems in jelly making.

UNIT III

Methods of Preparation of squashes and syrups

UNIT IV

Methods of Preparation of jams, jellies and preserves

UNIT V

Methods of Preparation of pickles, chutneys, vattal and vadagam.

TEXT BOOKS

- Vennila, P. and Kanchana, S. (2003) Principles on Preservation of foods and vegetables, Ratna Publications, Madurai.

REFERENCES

- Jood, S. and Khetarpaul, N. (2002) Food Preservation, Agrotech Publishing Academy, Udaipur.
- SandeepSareen (1999) Food Preservation, Sarup and Sons, New Delhi.
- Subbulakshmi, G. and Udipi, A.S. (2001) Food Processing and Preservation New Age International Publishers, New Delhi.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	A study of the methods and principles involved in preserving foods, Drying and dehydration	3	Lecture
	Low temperature, Canning	2	Lecture
	Irradiation, bottling, Pickling.	2	Lecture
UNIT II	Jams, jellies and marmalades – Definition	2	Demonstration
	determination of pectin in food extract	2	Demonstration

	Problems in jelly making.	2	Lecture
UNIT III	Squashes	3	Demonstration
	Syrups	3	Demonstration
UNIT IV	Methods of Preparation of jams	2	Demonstration
	Jellies	2	Demonstration
	Preserves	3	Lecture
UNIT V	Pickles	2	Lecture
	Chutneys	2	Lecture
	Vattal and vadagam	2	Lecture

COURSE OUTCOME S (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO 3	PO 4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													

Programme : B.Sc. HOME SCIENCE (Nutrition, Food Service Management & Dietetics)

Course : Part IV: Non Major Elective

Semester : VI

Hours per week: 2

30 hrs/Semester

Sub. Code : NMN2

Credits: 2

Title of the Paper: HEALTH AND HYGIENE

Pedagogy	Hours	Lecture	Peer Group Learning	Demo/ OER/ Tutorial	GD/ Seminar	ICT/ Blended Learning	IV/ DI
	26	6	8	2	-	10	-

PREAMBLE

This course will enable the student to

1. Gain basic knowledge on health and nutrition.
2. Equip herself on health care and education of the community.
3. Develop correct habits of personal and environmental hygiene

SCOPE

1. Behave a socially responsible citizen.
2. To act as messengers of nutrition, hygiene and public health.
3. To find placement in health care sector.

COURSE OUTCOME	Unit	Hrs P/S
At the end of the Semester, the Students will be able to		
CO1: Discuss about the role of international organizations working towards public health	I	4
CO2: Apply healthy eating habits in day to day life	II	4
CO3: Describe the functions, requirements and sources of macro and micro nutrients	III	8
CO4: Define the objectives of health education	IV	6
CO5: Explain safe handling of food and water	V	4

SYLLABUS**UNIT I**

Introduction to concept of health, health situation in India, Role of WHO, FAO and UNICEF in International health.

UNIT II

Nutrition and health: Food in relation to health. Classification of foods. Healthy habits for healthy living – balanced diet, exercise, physical activity and rest.

UNIT III

Nutrients – sources, functions, requirements & deficiency conditions.

UNIT IV

Health care and education of the community – concept of health care, primary health care; Health care systems & services. Health education – objectives and approaches. Community hygiene – control and eradication of rodents and pests, waste disposal.

UNIT V

Safe handling of food and water - Care in storage, preparation and service of foods, hygiene of food handlers. Water – household purification methods.

TEXT BOOKS

1. Park, J.E. and Park, K. (2013) Text Book of preventive and social medicine, 21st edition, M/s BanarasidasBhanot, Jabalpur.

REFERENCES

1. Frazier, W.C. & Westhoff D.C., (2013) Food Microbiology, 5th edition, Tata McGraw Hill Book Company, New Delhi.
2. Roday, S (1999) Hygiene and Sanitation in Food Industry, Tata MC Graw Hill Publishing Co. Ltd., New Delhi.
3. Swaminathan, M. (1990) Food and Nutrition, Vols. I & II, BAPPCO, Bangalore.

LESSON PLAN

UNITS	TOPIC	LECTURE HOURS	MODE OF TEACHING
UNIT I	Introduction to concept of health, health situation in India	2	Lecture
	Role of WHO, FAO and UNICEF in International health	2	ICT
UNIT II	Nutrition and health: Food in relation to health. Classification of foods	2	OER
	Healthy habits for healthy living – balanced diet, exercise, physical activity and rest	2	ICT
UNIT III	Nutrients – sources	2	Peer Group Learning
	Nutrients- functions	2	Peer Group Learning
	Nutrients-requirements	2	Peer Group Learning
	Nutrition- deficiency conditions	2	Peer Group Learning
UNIT IV	Health care and education of the community – concept of health care, primary health care; Health care systems & services	2	Lecture
	Health education – objectives and approaches	2	ICT
	Community hygiene – control and eradication of rodents and pests, waste disposal	2	Lecture
UNIT V	Safe handling of food - Care in storage, preparation and service of foods, hygiene of food handlers	2	ICT
	Safe handling of water- household purification methods	2	ICT

COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)					PROGRAMME SPECIFIC OUTCOMES (PSOs)							MEAN SCORE OF COs
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	
CO1	4	3		3	5	4					4	4	
CO2	4	3		3	5	4					4	4	
CO3	4	3		3	5	4					4	4	
CO4	4	3		3	5	4					4	4	
CO5	4	3		3	5	4					4	4	
MEAN OVERALL SCORE													