B.Sc. HOME SCIENCE

COURSE OUTLINE

PART	COURSES	CREDITS	TOTAL
I	Tamil/Hindi/ Malayalam /French	9	10
II	English	9	18
	Allied courses	16	
	Core Courses	52	
	Major Elective Courses	6	
	Non Major Elective Courses	6	
ш	Skill Based Elective	2	90
111	Modular Courses	4	70
	D.:	4	
	Project	4	
	Compulsory Non-Credit Course (CNCC)*		
	Extension and Field Visit Core Hindi / Core Tamil/ Core Malayalam	4	
	Core rimar, core ramin, core ividiayaram		
	NSS / Fine arts / Sports	1	
IV	Yoga	1	12
	Soft Skills	2	
	Computer Skills	4	
	Environmental studies	4	
V	Gandhian Thought	2	10
•	Extension Education	2	10
	VPP	2	
	Total	130	130

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Course Code	Title of the course	Credits	Conta	ct Hours	CFA	ESE	Total
			Theory	Practical	1		
I Semester			· · · · · ·	1			I.
18TAMU0101	Part – I Tamil						
18HIDU0101	Hindi		2		40	60	100
18MALU0101	Malayalam	3	3	_	40	60	100
18FREU0101	French						
18ENGU01X1	Part – II English	3	3	_	40	60	100
18NSSU0101	Part – IV NSS						
18FATU0001	Fine Arts	1	1		50	_	50
18SPOU0001	Sports	1		_			
18YOGU0101	Yoga	1	1		50	_	50
18EVSU0001	Part – V Environmental	3+1	3	2	40	60	100
102 / 50 0001	Studies	311			10		100
18HSCU01A1	Part III Family Dynamics	4	4	-	40	60	100
18HSCU0101	Communication and	3	3	_	40	60	100
	Media Skills						
18HSCU0102	Food Science	3	3	-	40	60	100
	Food Science and		-	2	-	-	-
	Nutrition Practical*						
	Total	22	21	4			
II Semester		•					•
18TAMU0202	Part – I Tamil						
18HIDU0202	Hindi	1 ,	2		40	(0	100
18MALU0202	Malayalam	3	3	_	40	60	100
18FREU0202	French						
18ENGU02X2	Part – II English	3	3	_	40	60	100
18CHIU0001/	Part – III Core Hindi/	2	2	_	20	30	50
18CTSU0001/	Core Tamil /						
18CMLU0001	Core Malayalam						
18GTPU0001	Part – V Gandhian Thought	2	2	_	20	30	50
18EXNU0201	Part – V Extension	2	2	_	20	30	50
	Education						
18ENGU00C1	Part – IV Communication/		2	_	-	-	-
	Soft Skills	2					<u></u>
18HSCU02A2	Part III Food Chemistry	4	4	-	40	60	100
18HSCU0203	Principles of Nutrition	3	3	-	40	60	100
18HSCU0204	Food Science and Nutrition	2	-	2	60	40	100
	Practical*						
	Total	23	21	2			

III Semester							
18TAMU0303	Part – I Tamil						
18HIDU0303	Hindi				4.0		100
18MALU0303	Malayalam	3	3	_	40	60	100
18FREU0303	French						
18ENGU03X3	Part – II English	3	3	_	40	60	100
18CHIU0002/	Part – IV Core Hindi / Core	2	2	_	40	60	100
18CTSU0002	Tamil						
	Part – V Shanti Sena	1	1		50		
18CSAU03A1	Part – IV Computer Skill	3+1	3	2	24+24	34+16	100
18EXNU03V1	Part - V VPP	2	-	-	50	-	50
18HSCU03A3	Part - III Food Microbiology	4	4	-	40	60	100
18HSCU0305	Family Resource Management-I	3	3	-	40	60	100
	Family Resource Management Practical*		-	2	-	-	-
18HSCU03F1	Extension/Field Visit	-	-	2	50	-	50
	TOTAL	22	19	6			
IV SEMESTER			•	•	•	•	•
Part III							
18HSCU04A4	Physiology	4	4	1	40	60	100
	Non Major Elective	3	3	1	40	60	100
18HSCU04EX	Major Elective	3	3	1	40	60	100
18HSCU0406	Human Development-I	3	3	-	40	60	100
	Human Development - Practical		-	2	-	-	-
18HSCU0407	Family Resource Management-II	3	3		40	60	100
18HSCU0408	Family Resource Management Practical*	2	-	2	60	40	100
18HSCU0409	Textiles	3	3	-	40	60	100
18HSCU0410	Textiles Practical	1	-	2	60	40	100
18EXNU04F2	Extension / Field Visit	-	-	2	50	-	50
	TOTAL	22	19	8			
V SEMESTER							
18HSCU05DX	Skill Based Elective	2	2	-	-	-	-
	Non Major Elective	3	3		40	60	100
18HSCU05EX	Major Elective	3	3		40	60	100
18HSCU0511	Human Development –II	3	3	-	40	60	100
18HSCU0512	Human Development Practical	2	-	2	60	40	100
18HSCU0513	Normal and Therapeutic Nutrition	3	3	-	40	60	100
18HSCU0514	Normal and Therapeutic Nutrition	1	-	2	60	40	100
	Practical						
18HSCU0515	Community Nutrition	3	3	-	40	60	100
18HSCU0516	Apparel Designing and Care	3	3	-	40	60	100
18HSCU0517	Apparel Designing and Care Practical	1	-	2	60	40	100
18EXNU05F3	Extension/Field Visit	_		2	50	-	50
TOTAL		24	20	8			

VI SEMESTER							
18HSCU06MX	Modular Course	2	-		50	-	50
18HSCU06MY	Modular Course	2	-		50	-	50
18HSCU0618	Early Childhood Care and	3	3		40	60	100
	Education						
18HSCU0619	Early Childhood Care and	1	-	2	60	40	100
	Education Practicals						
18HSCU0620	Gender and Development	3	3	-	40	60	100
18HSCU0621	Programmes for Rural Families	1+	1	4	60	40	100
	Practical	2					
18HSCU0622	Project	4	-	8	40	40+	100
	-					20	
TOTAL		18	7	14			

SEMESTER-WISE DISTRIBUTION OF COURSE OUTLINE

Category			Sem	mester Tot		Total	Tota	l Hours	
	I	II	III	IV	V	VI	Credits	Theory	Practical
Language	6	8	8	_	_	_	22	22	_
Foundation Course	6	4	1	-	_	_	10	9	2
Computer Skill	_	_	4	-	_	_	4	3	2
Soft Skill	_	2	_	_	_	_	2	2	_
Modular Course (Any 2 Modular)	_	_	_	-	_	4	4	4	_
Skill Based Elective	_	_	_	-	2	_	2	2	-
Non Major Elective	_	_	_	3	3	_	6	6	-
Major Elective	_	_	_	3	3	_	6	6	_
Allied Course	4	4	4	4	-	-	16	16	-
Core Course	6	5	3	12	16	10	52	40	24
VPP	_	_	2	_	_	_	2	_	-
Project	_	_	_	_	_	4	4	_	8
Total	22	23	22	22	24	18	132		

B.Sc. HOME SCIENCE

Major Elective Courses

Course Code	Title of the course	Credits	Contact Hours	CFA	ESE	Total
IV Semester					ı	I.
18HSCU04E1	Children with Disabilities	3	3	40	60	100
18HSCU04E2	Food Safety and Quality Control	3	3	40	60	100
18HSCU04E3	House Keeping	3	4	40	60	100
18HSCU04E4	Food Service Management	3	4	40	60	100
V Semester						
18HSCU05E1	Entrepreneurship Development	3	4	40	60	100
18HSCU05E2	Basics of Research Techniques	3	3	40	60	100
18HSCU05E3	Preparatory Course for Competitive	3	3	40	60	100
	Examinations *					
18HSCU05E4	Food Preservation	3	4	40	60	100

^{*}For ESE question paper pattern is 100 multiple choice questions

Non – Major Elective Courses

Course Code	Title of the course	Credits	Contact	CFA	ESE	Total
			Hours			
18HSCU00N1	Basics of Nutrition	3	3	40	60	100
18HSCU00N2	Adolescence and Life Skills Education	3	3	40	60	100
18HSCU00N3	Textile Crafts	3	3	40	60	100
18HSCU00N4	Community Nutrition	3	3	40	60	100
18HSCU00N5	Programmes for Rural Families	3	3	40	60	100
18HSCU00N6	Children with Disabilities	3	3	40	60	100

Skill – Based Elective Courses

Course Code	Title of the course	Credits	Contact Hours	CFA	ESE	Total
18HSCU05D1	Textile Crafts	2	2			
18HSCU05D2	Bakery and Confectionery	2	2			
18HSCU05D3	Production of Value Added indigenous foods	2	2			
18HSCU05D4	Waste to Wealth	2	2			

Modular Courses

Course Code	Title of the course	Credits	Contact Hours	CFA	ESE	Total
18HSCU06M1	Geriatric Care	2		50	-	50
18HSCU06M2	Infant Stimulation Programme	2		50	-	50
18HSCU06M3	Assessment of Nutritional Status	2		50		50
18HSCU06M4	Participatory Learning and Action	2		50	-	50

FAMILY DYNAMICS (Allied)

Objectives:

To enable the students to

- 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 relationships and within the family
- **3.** become aware of the child and family welfare measures.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- relate the factors associated with successful marital life
- get an insight into the roles and functions of the family
- identify the means to strengthen the intra-family relationships
- trace the programmes for family welfare.

UNITS

1. Marriage

- 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.
- Preparation for marriage Pre-marital guidance, Factors associated with success in Marriage

2. The 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)
- Alternate forms of family Single parent, female headed, migrant, dual earner, reconstituted, surrogate

3. Interpersonal relationships within the family

- Individual roles, rights and responsibilities within the family
- Family Interaction and communication importance and methods of improvement
- Areas of adjustment within the family at different stages of family life cycle

4. Families with Problems

- Families with marital disharmony and disruption
- Families in distress, violence and abuse, dowry victimization, violence against women

5. Interventions for Families in Trouble

- Scope, needs and assessment
- Counselling: Premarital and marital
- Welfare and rehabilitation policies and programmes
- Legal aid and family court

REFERENCES:

- 1. Augustine, J.N (Ed). (1982). The Family in Transition, New Delhi. Vika publishing house
- 2. Burgess.W. (1982)The Family. Newyork: American book Company.
- 4. Ratra Amiteshwar et al. (2006). Marriage and Family: In Diverse changing Scenario, Deep and Deep Publications Pvt. Ltd. New Delhi.
- 5. Rao, N. (1997). Counselling and Guidance. NewDelhi: TataMcgraw Hill publishing company ltd.
- 6. TISS (1991). Research on Families with Problems in India; Issues and Implications. Vol I & II. Bombay: TISS.

TEXT BOOKS:

- 1. Bushan, V (2003). An Introduction to Sociology, Kitab Mahal, New Delhi.
- 2. Dev,I.The Basic Essentials of Counselling NewDelhi: Sterling Publishers Private Limited.

COMMUNICATION AND MEDIA SKILLS

Code: 18 HSCU0101 Credits T3+P0 Pd/wk:3 Marks:100

Objectives

To enable the students to

- State the basics of communication
- acquire skill in producing visual aids and
- select, use and prepare visual aids for non-formal education.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- Understanding of communication, models of communication
- Acquire skills in the Preparation of visual aids
- Able to organize exhibitions at village level
- Collect first hand information in visiting media centers

UNITS

- Communication Meaning, objectives, elements, communication models –
 Aristotle, Shanon Weaver, Berlo and Leagns. and barriers of communication How to overcome barriers.
- Methods of teaching According to use Individual, Group and Mass. According
 to form Written, Spoken and Visual. Objectives, advantages and limitations of all
 forms methods of teaching
- Audio Visual aids Meaning, classification Audio aids, visual aids, Audio visual aids.
 preparation and use of audio, visual and audio visual aids. Factors influencing
 effectiveness of audio visual aids, Cone of Experience and its importance in extension
 teaching.
- 4. Mass media Meaning, Characteristics, types Radio, Television, Print media, Outdoor Media. Print Media Vs Broadcast Media. New communication technologies computers, e -mail, video conferencing, internet, cyber safes, (elementary understanding).
- 5. Traditional Media Folk songs, puppets, Street play, drama and villupattu. Comparison between traditional media and modern media.

Related experience

- 1. Evaluation of readily available visual aids/poster
- 2. Planning, Preparation and evaluation of charts/posters.
- 3. Conduct an educational programme using folk media.
- 4. Demonstration of a scientific technique/technology.
- 5. Organization of an exhibition.
- 6. Visit to a media centre for understanding the video preparation process.
- 7. Preparation of flash cards, flannel graph.

TEXT BOOK

1. Ray, G.L. (1994). Extension Communication and Management. Calcutta: Maya Prakash.

- 1. AdiviReddy (2009). Extension Education .Baptla: Sree Lakshmi Press.
- 2. Chandra, A. and Anupama Joshi. (1989). Fundamentals of Teaching Home Science.
- 3. Saundeers, J. Denys. (1979). Visual Communication Hand Book. Surrey: Lutter Worth Educational Guide Ford.

FOOD SCIENCE

Code: 18HSCU0102 Credits: T3 + P0 Hours/Week: 3 Marks: 100

Objectives:

To enable the students to

- 4. Describe the importance of various foods and their nutritive value and place in daily diet
- 5. study the effects of processing conditions on nutritive value of the foods

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- explain the basic concepts of cooking and processing- methods applied to various types of food
- describe the science behind the processing and preparation of food products
- find out the importance and role of each ingredients in food products

UNITS

- 1. Introduction to Food Science: Food Science definition, scope of studying food science; Basic five food groups; Food Pyramid and Balanced diet; Meaning of cooking and the objectives of cooking; Cooking methods such as moist, dry and both; Advantages and limitations of moist heat methods boiling, steaming, poaching, stewing, simmering and pressure cooking; Advantages and limitations of dry heat methods baking, roasting, grilling and parching. Frying-Deep fat, shallow fat; Microwave cooking merits and limitations; do's and don'ts in microwave cooking; Solar cooker function and its benefits.
- **2. Cereals and Millets Processing:** Structure, composition and nutritive value of cereals; Cereal processing: Parboiling, milling and polishing; Processed cereal products; Millets: Nutritive value and processing methods; Effect of cooking and processing conditions on nutritive value of cereals; Byproducts of cereals and its utilization; Role cereals in cookery.

Pulses and Oilseeds: Structure, composition and nutritive value of pulses, Factors affecting nutritive value of pulses; Pulses processing methods; Pulse products; Effect of cooking and processing conditions on nutritive value of pulses; Nuts and Oilseeds: Composition and nutritive value of pulses; Nuts and oilseed processing methods; Processed nuts and oilseed products; Byproducts from pulses and oilseeds processing and its utilization; Role of pulses and oilseeds in cookery.

3. Vegetables Processing: Structure, composition and nutritive value of vegetables; Pigments: Classification, effects on processing of vegetables; post harvest changes in vegetables and storage; Preliminary processing of vegetables; Vegetable products: Fermented and non fermented and its shelf life; Vegetable waste utilization; Effect of cooking and processing conditions on nutritive value of vegetables; Role of vegetables in cookery.

Fruits Processing: Structure, composition and nutritive value of fruits; post harvest changes in vegetables; Concept of maturity, ripening and senescence; Fruit products: fermented and non fermented; Effect of cooking and processing conditions on nutritive value of fruits; Role of fruits in cookery.

4. Milk and Egg Processing: Milk types, composition, physiochemical properties; Milk processing and its storage; Milk products: Fermented and non-fermented; Effects of cooking and processing conditions on nutritive value of milk; Role of milk in cookery; Egg: Structure, composition and nutritive value of eggs; Egg quality evaluation methods; Egg processing and storage; Processed egg products; Effect of cooking and processing conditions on nutritive value of eggs; Role of egg in cookery.

Meat Processing: Structure, composition and nutritive value of meat, poultry and fish; Post mortem changes in meat and its quality; Meat processing and its storage; Tenderization of meat; Processed meat, poultry and fish products: Fermented and non fermented; Effect of cooking and processing conditions on nutritive value of meat and meat products; Role of meat in cookery.

5. Miscellaneous foods: Composition and nutritive value of fats and oils; Methods of oil extraction and refining process; Fat/oil quality and spoilage; Role of oil/fat in cookery; Sugars: Types of sugars and its source; Sugar cookery and its application in foods; Role of sugars in cookery; Spices and Condiments: Composition of spices and condiments and their health benefits; Role of spices and condiments in cookery; Beverages: Classification; Nutritive value; Role in diet; Preparation methods.

TEXT BOOK

- 3. Srilakshmi, B. (1997). Food Science. New Delhi: Chennai: New Age International Private Limited. Publishers.
- 4. Swaminathan, M. (1988). Food Science and Experimental Foods. Madras: Ganesh and Company.

- 1. Mudambi, R.S. and Rajagopal, M.Y. (1991). Fundamentals of Food and Nutrition. New Delhi: Wiley Eastern Limited.
- 2. Mudambi, R.S. and Rao. S (1987). Food Science. New Delhi: Wiley Eastern Limited.
- 3. Potter, N.M. and Birch, G.G. (1986). Food Science, AVI, West Port, Conn.
- 4. Bennion, et.al. (1985). Introductory Foods. New York: Macmillan.

FOOD SCIENCE AND NUTRITION - PRACTICAL

Hours/Week: 2

- 1. Display of basic five food groups.
- 2. Cooking of foods by using air as medium Roasting & baking
- 3. Cooking of foods by using water or steam as medium Boiling & pressure cooking
- 4. Cooking of foods by using microwave
- 5. Effect of cooking on cereal starches and proteins
- 6. Preparation of sprouted legumes and malt powder
- 7. Effect of cooking, acid & alkali on pigments
- 8. Effect of cooking, acid, alkali and enzymes on milk
- 9. Evaluation of egg quality
- 10. Sugar cookery

FOOD CHEMISTRY

Code: 18HSCU02A2 Cr: T4+P0 Pd/wk:4 Marks:100

Objectives:

To enable the students to

- Gain knowledge regarding the physical and chemical properties of the food constituents
- Understand the chemical and physical changes that occur food during processing

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- name and describe the general chemical structure of major components of foods (water, carbohydrates, protein and lipids)
- explain how changes in overall composition are likely to change the reactivity of food components.
- predict how processing conditions are likely to change the reactivity of food components.

UNITS

- **1. Physico chemical properties of food** Methods of sampling, moisture in foods, hydrogen bonding, bound water, water activity in foods, and determination of moisture. Solid and amorphous foods, liquids and role in food products, true solutions, dispersion, sols, gels, foams and emulsion.
- **2. Carbohydrates**: Classification, structure and properties. Changes of carbohydrate on cooking solubility, hydrolysis, caramelisation, retrogradation, Maillard reaction and gelatinization of starch.
- **3. Lipids:** Classification and Chemistry of lipids, properties and fat constant, edible fats and oils hydrogenation, rancidity and emulsification.
- **4. Protein:** Amino acids classification, structure, composition, physio-chemical properties of amino acids and proteins; effect of heat acid, alkali on animal and vegetable protein.
- **5. Gums, pectins and pigments:** Pectins, vegetable gums, fat and water soluble pigments; action of acid and alkali on vegetable pigments.

TEXT BOOK

1. Potter, N.N. and Hotchkiss, J.H.(1996). Food Science, edition 5, CBS Publishers and Distributors, New Delhi.

- 1. Seema Yadav, (1997). Food Chemistry, Anmol Publications Pvt.Ltd., New Delhi.
- 2. Meyer, (1991). Food Chemistry, AVI Publications, New York.
- 3. Ronsivalli, L.J. and Vieira, E.R. (1992). Elementary Food Science, 3rdEdition, Chapman and Hall, New York.
- 4. H.D.Belitz, W.Grosch and P.Schieberie (2009). Food Chemistry 4th editio ,springer publications
- 5. Srinivasan Damodaran,Kirk L.Parkin and Owen R.Fennema(2007).Food chemistry (4th edition) CRC Press.
- 6. John M.DeMan (1999) Principles of Food Chemistry, Springer publications.

PRINCIPLES OF NUTRITION

Code: 18 HSCU0203 Credits: T3 Hours/Week: 3 Marks: 100

Objectives:

To enable the students to

- understand the role of nutrients in human health
- know the health problems associated with imbalance of nutrient intake
- know the simple tests used for detection of nutrients

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- the relationship between diet and health
- the signs and symptoms of nutrient deficiency and toxicity
- the importance of diet in treatment and management of diseases

UNITS

1. Carbohydrate: Classification and functions; Digestion, absorption and utilization process; dietary fibre meaning and the types; Physiological role and health benefits of dietary fibre, Requirements and food sources; Glycemic index of foods; Nutritional and health problems due to deficiency or excess carbohydrate in the diet.

Proteins: Classification and functions; Digestion, absorption and utilization; Requirements and food sources; Factors affecting protein quality; Protein quality evaluation methods; Quality difference between vegetable and animal protein sources; Nutritional and health problems due to deficiency or excess of protein in the diet.

- **2. Lipids**: Classification and functions; Digestion, absorption and utilization process; Requirements and food sources; Nutritional and health problems due to deficiency or excess of lipid in the diet; Fatty acids: Types such as saturated and unsaturated; Essential Fatty Acids (EFA): Definition and functions; PUFA; Role of n-3, n-6 fatty acids in health and disease; Trans fatty acids and its association to cardiovascular diseases.
- **3. Energy Metabolism:** Energy definition; Unit of measurements Calorie & Joule; Measurement of energy value of foods by Bomb Calorimeter; Concept of energy balance; Energy expenditure components: basal and resting metabolic rate, thermic effect of food and physical activity; Factors influencing energy expenditure; Methods for determination of energy expenditure direct and indirect calorimetry; Estimation of energy requirements of individuals and groups: RDA, principles and the methods used for RDA measurement.

- **4. Vitamins:** Classification fat and water soluble; Fat soluble vitamins (A,D,E and K): Functions, Requirements and food sources; Nutritional and health problems due to deficiency or excess of fat soluble vitamins in the diet; Water soluble vitamins: Thiamine, riboflavin, niacin, biotin, pyridoxine, folic acid, pantothenic acid ascorbic acid, cyano-cobalamin, choline, inositol functions, requirements, food sources; Nutritional and health problems due to deficiency or excess of water soluble vitamins in the diet.
- 5. Minerals and Water: Macro minerals: Calcium, phosphorus, Magnesium, sodium, potassium and chloride functions, requirements, food sources, deficiency and toxicity; Micro minerals: Iron, copper, zinc, manganese, iodine, fluoride. Trace Minerals: Selenium, cobalt, chromium, vanadium, silicon, boron, nickel functions, requirements, food sources, deficiency and toxicity; Interrelationship between vitamins and minerals in metabolism. Water: Body composition extra- and intra- cellular fluid; Physiological functions; water balance and its regulation; Requirement and the sources; Nutritional and health problems due to imbalance of water intake.

TEXT BOOK

- 1. Swaminathan, M. Essentials of Food and Nutrition. Vol. I and II, Ganesh and Company, Madras.
- 2. Srilakshmi (2008). Nutrition Science. New Age International Publishers, New Delhi.

- 5. Mudambi, R.S. and Rajagopal, M.Y. (1991). Fundamentals of Food and Nutrition. Wiley Eastern Limited, New Delhi.
- 6. Davidson, S.R. and Pasmore (1986). Human Nutrition and Dietetics. Church Hill Livingstone, London.
- 7. Mahan, L.K. and Ecott-Stump, S. (2000). Krause's Food, Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.
- 8. Whitney, E.N. and Rolfes, S.R. (2003). Understanding Nutrition, 8th Edition, West Wadsworth, An International Thomson Publishing Co.

FOOD SCIENCE AND NUTRITION PRACTICAL

Code: 18 HSCU0204 Credits: 2 Hours/Week: 2 Marks:100

- 1. Demonstration of Bomb Calorimeter
- 2. Determination of nutritive value of selected Indian recipes by using food composition table.
- 3. Estimation of moisture and dry matter content of the foods
- 4. Estimation of starch content of food by anthone method
- 5. Estimation of crude fibre content of the foods
- 6. Estimation of protein content of food by kjeldhal method
- 7. Determination of fat content of food by soxhlet method
- 8. Estimation of Vitamin C content of food
- 9. Determination of ash content of foods
- 10. Qualitative tests for minerals Calcium, phosphorus & iron

FOOD MICROBIOLOGY

(Allied)

Code: 18HSCU0 3A3 Credits: T4+P0 Pd/Wk: 4 Marks: 100

Objectives

To enable the students to

- Understand the role of microbes in food, health and disease.
- Study the Microbes in relation to food spoilage, food borne diseases and food preservation.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- the factors influencing the growth of microorganisms in food
- the signs and symptoms of food spoilage and mode of prevention
- the importance of food safety

UNITS

- 1. **Microbiology of Foods**: Concept and its history. Role of microbiology in biotechnology, Role of microorganisms in fermented foods soyabean products, vegetable and dairy foods, baked items, other preparations, uses of microbes in industry.
- **2. Incidence and growth of microorganisms in food** Microbes in Air, water and soil, food contamination and its sources fruits, vegetables, milk and meat. Factors affecting the growth of microbes in food, control and its destruction Physical and chemical methods
- **3. Food spoilage** its causes, spoilage and its chemical changes. Spoilage in cereal, milk and its products. Meat, poultry, fish and other sea foods, fruits and vegetables, fruit juices and preserves by yeasts, moulds and bacteria. Prevention of spoilage.
- **4. Hazards of food microbes**: Food borne diseases and its types intoxications, infections, mycotoxins.
- **5. Examination of food borne diseases:** Receiving report and assessment, investigation, identifying causative factors, association between food items an illness, sample collection and reporting.

TEXT BOOK

1. Frazier W.C and Westhoff D.C.(1992), Food Microbiology, Tata McGraw Hill Hill Publishing Co., Ltd. New Delhi.

- 1. Annak. Joshua, (2001). Microbiology, Popular Book Depot. Chennai-18.
- 2. Ray, B. (2001) Fundamental Food Microbiology, 2nd Ed, CRC press, Boca raton FL

FAMILY RESOURCE MANAGEMENT -I

Objectives

To enable the students to

- Understand the importance of management in family and personal living
- Improve their ability in management of family Resources
- Understand and apply the basic principles of art in Interior decoration.
- Understand the elementary principles of planning a house and its interior arrangement.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- To define home management, time management and energy management.
- To identify goals, values and standards
- To identify the available resources
- To use the principles of design in day to day life.
- To evaluate the house plans.

UNITS

1. Home Management

Meaning and Process; Concept of Home Management; Planning, organizing, controlling and evaluation. Managerial inputs – values, goals and standards – their inter relationship. Resources – classification and characteristics; optimizing the use of family resources; Decision making – Meaning, types – steps in decision making – ways of resolving conflicts; Characteristics of good home manager.

2. Time and energy management

Time: importance of time management – guidelines in planning time schedule. Energy management: Its importance –fatigue-types of fatigue and ways of overcoming fatigue. Work simplification – Mundel's Classes of changes. Work measurement (Basic idea).

3. Applied Art

Design: Meaning, types, characteristics, elements of design, principles of design – harmony, proportion, balance, emphasis and rhythm. **Colour**: Qualities of colour – Prang colour system – colour haromonies; Application of the principles in simple designs. **Flower arrangement**: Principles, types; Accessories in the home – Classification and selection.

4. House Plan and Arrangement

Site selection – factors to be considered; House Plans – types – reading of floor plans – drafting floor plans for middle and low income group families; Features of a house contributing to livability – orientation, grouping – roominess, lighting and ventilation, circulation, storage facilities, privacy, flexibility, sanitation and economy.

5. Room Arrangement

Furniture – Selection, arrangement and care. Furnishings – Type, Selection and care; Application of art principles in room arrangement; Kitchen – different types – planning of kitchen. Work triangle.

TEXT BOOK

- 1. Nickell,P and Dorsey,J.M (1978). Management in Family Living. New Delhi: John Wiley and Sons.
- 2. Soundararaj, (1996). A Textbook of Household Arts, Fourth Edition, Orient Longman Limited.

- 1. Education Planning group. (2001) Home Management. Newdelhi: Arya Publishing House.
- 2. Goldstein, H and Goldstein, V (1958). Art in Everyday Life. Macmillan company.
- 3. Varghesese, M.A.et al (1994). Home Management. New Delhi: Viley Eastern. Ltd.
- 4. Deshpande, R.S. (1982). Cheap and Health Homes for Middle Classes. Poona: United Book Corporation.
- 5. Deshpande, R.S. (1982) Modern Ideal Homes for India. Poona: United Book Corporation.

FAMILY RESOURCE MANAGEMENT

PRACTICAL

Pd/Wk:2

- Analysis of values and goals. Experiences in individual and group decision making process.
- Analysis of the time-use pattern of students
- Evaluation of art objects.
- Exposure to flower holding containers and accessories
- Practicing flower arrangement in different style
- Preparation of hand bouquets.
- Preparations of flower arrangement, greeting cards and floor decorations
- Demonstration of path-way chart for a task
- Drawing floor plans for low and middle income group families –
- House visit to observe the different types of kitchen
- Visit to modular kitchen shop
- Visit to furniture shops to study the types and styles of furniture
- Evaluation of room arrangement.

PHYSIOLOGY (Allied)

Code: 18 HSCU04A4 Cr: T4+P0 Pd/Wk: 4 Marks:100

Objectives:

To enable the students to

6. understand the structure and functions of various organs in the body.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- the functioning of the organ systems
- bring out the influence of improper functioning of the organ system and disease

UNITS

- **1. Introduction to Physiology**: Review of cells and tissues types. Digestive System Structure of digestive tract and the Process of digestion and absorption; Role of hormones in digestion, movements of GI tract; Liver and its functions.
- 2. **Circulatory System**: Blood-Composition and functions RBC, WBC and Platelets. Blood groups, coagulation, blood volume; Structure and functions of heart and blood vessels, junction tissues, ECG, cardiac cycle. Blood pressure-factors influencing blood pressure.
- 3. Respiratory and Excretory System: Respiratory Structure & mechanism of respiration. Exchange of Gases-, respiratory volumes. Excretory system: Kidney and Nephron – structure and functions, formation and composition of urine. Skin – structure and functions – regulation of body temperature.
- 4. **Endocrine and Reproductive System:** Endocrine system: Structure and functions of pituitary, thyroid, para thyroid, adrenals, Islets of langerhans and sex glands. Reproductive System: General anatomy of female and male reproductive organs; Physiology of menstruation and fertilization. Physiology of lactation.
- 5. **Nervous System and Special Senses**: Nervous systems. Structure and functions of brain and spinal cord . Special Senses: Structure of eye, physiology of vision. Ear-Structure, physiology of hearing organs of taste and smell.

Related Experiences

- 1. Identification of blood cells- estimation of Hb, demonstration of blood grouping and coagulation. RBC and WBC count.
- 2. Recording of BP.
- 3. Recording of pulse rate.
- 4. Interpretation of a blood report.

TEXT BOOK

1. Subramaniyam and Kutty.S.M. (2001). Text Book of Human Physiology. New Delhi: S.Chand & Company Ltd.

- 1. Chatterjee, C.C. (1998). Human Physiology. Calcutta: Medical Allied Agency.
- 2. Evelync. Pearce, (1997). Anatomy and Physiology for Nurses, 16th Edition, New Delhi: Jaypee Brothers.
- 3. Joshi, D.V. (1995). Prep Manual for Under Graduate Physiology, New Delhi: B.I Churchill Livingstone.
- 4. Winwood,R.S. and Smith,J.L. (1994). Sears's Anatomy and Physiology for Nurses London: EL BS with Edward Arnold.
- Yadav.J. (1995). Text Book of Physiology for Dental Students. New Delhi: Jaypee Brothers, Medical Publishers Private Limited.

HUMAN DEVELOPMENT – I

Objectives

To enable the students to

- 7. become knowledgeable about the basic concepts in Human Development
- **8.** understand the growth processes taking place from conception till early childhood childhood period and
- develop skill in different methods of child study and handling problem behaviour

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- To recognize the importance of needs and holistic development of children
- To identify the facilities for pre-natal care in their locality
- To prepare the immunization chart of infants
- To trace the domains of development during babyhood years
- To plan developmentally appropriate activities for pre-school children

UNITS

1. Fundamental concepts:

Introduction to Human Development – Significance – Stages of Life Span Growth and Development - Meaning, principles, Factors influencing. Nature – Nurture Controversy. Methods of child study--projective technique, observation, experimentation, case study (elementary treatment). Needs of Children.

2. Pre-natal Development and Child Birth

Conception, Stages of prenatal development. Signs and symptoms of Pregnancy. Common discomforts and complications of Pregnancy. Factors influencing prenatal development. Maternal mortality – Causes and prevention. Child Birth – stages and types. Post-natal care of the mother.

3. Infant Development

Period of Infancy – Appearance of the new born- size – physical proportion and physiological functions; sensory abilities of the new born. Low birth weight, premature babies. Appar test, care of the new born, Immunization. Infant feeding – Breast feeding and its advantages, bottle feeding and supplementary feeding.

4. Development during Babyhood years:

Physical, motor, cognitive, language, social, and emotional development during the first two years. Infant mortality – Causes and prevention.

5. Early childhood

Importance of the period-physical, motor, social, emotional, cognitive and language development during early childhood years. Developmental tasks. Behaviour problems and handling the problems.

TEXT BOOK

- 1. Suriakanthi. A (2009). Child Development An Introduction. Gandhigram: Kavitha Publications.
- 2. Hurlock, E.B. (2007). Developmental Psychology A Life-Span Approach. New Delhi: Tata Mcgraw Hill Publishing Company Limited.

- 1. Chauba, B.P. (1986). Child Psychology. Agra: Lakshmi Narain Agarwal.
- 2. Devadas, R.P. and Jaya, N. (1996). A Text Book on Child Development. New Delhi: Macmillan India Limited.
- 3. Laura . E . Berk . (1996) Child Development New Delhi : Prentice Hall of India , Pvt . Ltd.
- 4. Pankajam, G. (2005). Know Your Child. New Delhi: Concept Publishing Company.
- 5.Santrock, J.W. (2010) Child Development: An Introduction. (12th Edition) Newyork: McGraw hill.

HUMAN DEVELOPMENT Practical

Pd/Wk:2

- 1. Preparation of an album on developmental mile stones of children.
- 2. Visit to Maternity Ward and Ante-natal clinics.
- 3. Visit to Anganwadi
- 4. Plotting Growth Monitoring Chart and Interpretation.
- 5. Preparation of Immunization Card
- 6. Demonstration on preparation of weaning foods
- 7. Observation of Motor activities of a toddler.
- 8. Compilation of songs for finger play and lullabies suitable for infants and toddlers.
- 9. Preparation of a low cost toy for a pre-school child.
- 10. Doing a case study of a toddler.

FAMILY RESOURCE MANAGEMENT II

Objectives:

To help the students to

- visualise the economic situation of the nation as related to families economic behaviour
- understand the commonly used economic concepts and their significance to home management
- gain training in family finance management
- instill an attitude towards good consumption habit and
- analyse and suggest remedial measures for the managerial problems of rural familes.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- To summarize the law related to household consumption.
- To analyse the causes for low living standards in India.
- To prepare budget for a family
- To identify the savings institutions and their schemes.
- To differentiate credit and cash purchase.
- To outline the consumer problems in India

UNITS

- 1. Household Consumption: Family as an economic unit. Human wants and their characteristic, necessaries, comforts and luxuries, concept of marginal utility and law of diminishing marginal utility and law of substitution law of demand and supply, their application. Standard of living, causes for low living standards in India, Means of raising standards of living.
- **2. Money Management**: Family income Types, Sources, methods of augmenting family income. Family Expenditure: Budget meaning, types of budget, planning a family budget steps in planning, advantages of budgeting. Factors affecting family budget. Engel's law of consumption. Methods of handling money family financial records purpose and types.
- **3. Savings**: Meaning need, saving institutions Bank, Post Office, Insurance, Chit funds, Unit Trust of India. Investment types and principles.
- **4. Household Purchase**: Price Factors influencing normal price price fluctuations and its effect on various income groups. When, where and how to purchase, cash purchase Vs Credit purchase Advantages and disadvantages.

5. The Home Maker as a wise consumer – Rights and responsibilities of a consumer education – consumer aids – advertisements, standards, labels, price tag. Consumer problems in India – adulteration, common adulterants, faulty weights and measures, othermal practice's. Consumer Protection – Meaning, need and consumer Protection act.

TEXT BOOK

1. Ganapathy, V.(1984). Principles of Economics. Madras: Emerald Publishers.

- 1. Arockiasamy (1989). Modern Economic Analysis. Palayamkotti: Annai Publishers.
- 2. Educational Planning Group (2001). Home Management. Newdelhi: Arya publishing House.
- 3. Gross, I.H and Crandall, E.M (1980). Management for Modern Families. London: Prentice Hall, Inc.
- 4. Mann, M. (1976). Home Management for Indian Families. New delhi: Kalyan Publishers.
- 5. Varghese, M.A.et al (1994). Home Management. Newdelhi: Wiley Eastern Ltd

FAMILY RESOURCE MANAGEMENT PRACTICAL

Code: 18HSCU0408 Cr: T0+P2 Pd/Wk:2 Marks:100

- Preparation of personal expenditure record for one month using note book method.
- Visit to a bank and a post office to study the types of saving schemes
- opening and closing of accounts
- crediting money and transaction techniques.
- Comparison of the wholesale and retail prices of ten articles of regular use.
- Market survey to study the brand and content analysis of different labels and standardized marks
 of food products.
- Exercises on detection of adulterants by physical methods
- Examination of labels for quality and standards studying advertisements
- Identifying the adulterants by using simple techniques for any five food samples

TEXTILES

Objectives

To enable the students to

- Under the textile fibers, their properties and uses.
- Impart knowledge on spinning, fabric production

Specific Learning out comes

- 1. After learning this paper the students will gain knowledge in different tpes of textile fiber, man made fiber, basic units of fibers.
- 2. They will gain knowledge on fabric structure like simple and fancy weaves.
- 3. They will gain more knowledge on textile processing like dyeing, printing and finishing techniques.

Unit I

Fiber – Definition, Meaning, Classification of Textiles Fibers- Natural fiber-cotton, Flax, silk, wool- origin, manufacturing process, properties and end uses. Minor Textile fibers-, properties and uses. Regenerated fibers-Rayon and acetate-origin, manufacturing process, properties and end uses.

Unit II

Synthetic fibers-Nylon, Dacron, Orlon and Acrylic- origin, manufacturing process, properties and end uses. Spinning –Definition, meaning, types of spinning. Yarn and Twist – Definition, counts of yarns. Meaning and Classification natural manmade of yarns and Novelty yarns. Blends and Mixtures (understanding concepts only)

Unit III

Fabric Structure- Weaving- Definition, Meaning, parts and functions of simple loom. Types of weaves- Basic weaves and fancy weaves-Mock leno, honeycomb, Huck-a-back, backed cloth, dobby, jacquard. Non-woven, knitting- Definition, Meaning, classification of knitting, Knotting, Lacing, Braiding, Bonding and Felting. (Understanding of the concepts only).

Unit IV

Textile Finishing -Basic finishes-Singeing, Desizing, Scouring bleaches, Mercerizing, Napping, Sanforizing, Special finishes –Antimicrobial, Water-repellent and Waterproof finishes, Flame Resistant, Stain Resistant, finishes suitable to Natural and manmade fibers.

Unit V

Dyeing- Definition of Dyes, Meaning and concept of Dyes, Classification of dyes, Dyes suitability to various fibers. Methods of Dyeing- Stock dyeing, yarn dyeing, piece dyeing, cross and union dyeing. Printing – Definition, Styles of printing-Direct, Discharge, Resist. Colour Fastness

TEXT BOOKS:

- 1. Dantyagi, S. (1996). Fundamentals of Textiles and Their Care. New delhi. Orient longman limited.
- 2. Hollen.n and Saddler.J. **Textiles** macmillan \$co., New York.
- 3. Joseph.M.L. (1976) Essentials of Textiles Holt Ripenhart of Winston, New York.
- 4. Tortora, P.G. (1978) Understanding Textiles New York Macmillan publishing.Inc.
- 5. Wingate, B.I.(1976). **Textiles Fabrics and their selection.** USA: Prentice Hall. Inc.
- 6. Joseph M, **Introductory Textile science-** 6th Ed., Fort worth Harcourt, Brace Jovanioch college publishers, 1993.

- 1. Clarke **Introduction to printing.**
- 2. E.P.G. Gohl, L.D. Velensky, "Textile Science" CBS Publishers and Distributors, 2003
- 3. AJ. Hall. "The standard hand book of Textiles", Wood head Publishing 8th edition 2004.
- 4. P.V. Vidyasagar, "Hand Book of Textiles", A. Mittal Publications, 2005
- 5.Sara J. Kadolph, "Textiles", Prentice Hall, 10th edition 2007

TEXTILES PRACTICAL

Objectives

To enable the students to

- Under the textile fibers, their properties and uses.
- Impart knowledge on spinning, fabric production

Specific Learning outcomes:

- 1. After learning this practical paper students will know to stitch the basic stitches and finishes in construction.
- 2. Learning different types of embroidery stitches and implementing in different necklines, sleeves and garments.

Unit-I

- Identification of fiber & Yarn- Burning test, solubility test & Microscopic analysis. (Laboratory Tests).
- Identification of Weaves Fabric swatches- plain, Twill, Satin, Sateen, Huck-a-back-dobby, jacquard.(Pick Glass Analysis)

Unit-II

- Preparation of samples using- basic hand stitches- Running, Basting, Tacking, Overcast, Buttonhole, Hemstitches, Slip stitch.
- Preparation of samples- Seams&seam finishes- plain, flat fell, French, turned& stitched, lapped, double top, overcast & stitched.

Unit-III

- Preparation of samples for Fullness- darts, gathers, pleats, tucks.
- Preparation of samples for finishes Bias, Facing, shaped facing, piping, binding. Placket opening.

Unit-IV

- Preparation of Embroidery samples- chain, stem, satin, fly, feather, cross.
- Special techniques- bead, sequence, smocking and stone.

Unit-V

- Preparation of samples for sleeves, collar, yokes.
- Preparation of samples for fasteners- Zip, Button and Button hole, Press button, Hook and eye.

TEXT BOOKS:

- 1. Clarke **Introduction to printing.**
- 2. E.P.G. Gohl, L.D. Velensky, "Textile Science" CBS Publishers and Distributors, 2003
- 3. AJ. Hall. "The standard hand book of Textiles", Wood head Publishing 8th edition 2004.
- 4. P.V. Vidyasagar, "Hand Book of Textiles", A. Mittal Publications, 2005

REFERENCES:

- 1.ZARAPKAR SYSTEM OF CUTTING- CBS Publishers and Distributors,
- 2. Tortora, P.G. (1978) Understanding Textiles New York Macmillan publishing.Inc.
- 3. Wingate, B.I.(1976). Textiles Fabrics and their selection. USA: Prentice Hall. Inc.
- 4. Joseph M, **Introductory Textile science-** 6th Ed., Fort worth Harcourt, Brace Jovanioch college publishers, 1993.

HUMAN DEVELOPMENT-II

Objectives

To enable students to

- know the growth process during the period of Adolescence,
- develop proper attitude towards child rearing and
- understand the adjustments to be made in adulthood

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- To recall the development during school years.
- To adapt to the physical and psychological changes during adolescence
- To spell out the developmental tasks of early adulthood years.
- To empathize the issues of middle adulthood years.
- To acquaint with the problems during late adulthood years.

UNITS

1. Late childhood

Physical, motor, social, emotional, cognitive and moral development during late childhood. Developmental tasks. Habit formation.

2. Adolescence

Physical development - Prepubertal growth- changes in primary and secondary sexual characteristics in boys and girls. Mental, Social and emotional development during adolescent years. Developmental tasks.

3. Early adulthood

Characteristics of early adulthood; developmental tasks; Marital adjustments; vocational adjustments. Parenthood - Preparation and Adjustment.

4. Middle adulthood

Characteristics; developmental tasks; adjustment to physical changes, social adjustments and health problems.

5. Late adulthood

Characteristics; developmental tasks; adjustment to physical changes, adjustments to retirement, adjustment to changes in Family life; living arrangements. health problems.

TEXT BOOK

- 1. Suriakanthi. A (2009). Child Development An Introduction. Gandhigram: Kavitha Publications
- **2.** Hurlock , E . B . (2007) Development Psychology a Life Span Approach. New Delhi Tata Mc Graw Hill Publishing Company Ltd.

- 1. Devadass . R . P , Jeya , N . , (1996) . A Textbook on Child Development . New Delhi Macmillan India ltd.
- 2. Hurlock, E. B. (1973). Adolescent Development. Tjokyo: Mc graw Hill Rogakush Limited.
- 3. Papalia. E.Diane et al (2005). Human Development (9th Edn). New Delhi: Tata Mcgraw Hill.
- 4. Jerry.J.Bigmer (1983) Human Development a Life Span Approach. NewYork: Macmillan Publishing Co., inc.
- 5. Santrock, W.J (2007). Adolescence. Boston: Tata McGraw Hill.

HUMAN DEVELOPMENT PRACTICAL

- 1. Development of riddles for languages and concepts for school children.
- 2. Compilation of outdoor games and games for cognitive development.
- 3. Self assessment of pubertal changes.
- 4. Study of adolescent problems through interview.
- 5. Documentation of Parenting styles.
- 6.. Interaction with middle aged women on their problems.
- 7. Visit to old age homes.
- 8. Study of problems of the aged in a village.

NORMAL AND THERAPEUTIC NUTRITION

Objectives:

To enable the students to

- Understanding the principles involved in therapeutic diet modification, Requirements, nutrient composition of human milk, artificial feeding.
- Acquire knowledge on the clinical, biochemical changes and dietary management of various disease.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- Able to understand and critically modify the normal diet to suit various therapeutic conditions
- Develop the knowledge ,skills and attributes required to meet entry level competency required for a dietician
- Apply the knowledge of nutrition and dietetics to manage the health of the population.

UNITS

- Meal Planning: Basic principles of menu planning, factors influencing meal planning. Basic
 meal pattern and its modification to suit different income levels, age and physiological Stress.
 Balanced Diet, Food exchange list, RDA of different age groups. Nutrition during
 pregnancy physiological changes, dietary problems and Nutrient Requirements. Nutrition
 during lactation.
- **2. Nutrition during infancy and pre school:** Nutrient requirements, Advantages of Breast Feeding. Weaning and type of supplementary foods, low cost supplementary foods. Nutrition during Preschool age, Nutrient requirements and inculcation of good food habits. Nutrition during school going period
- **3. Nutrition during Adolescence** Growth and development, nutritional requirements. Special needs and nutritional requirements during old age.
 - **Basic concepts of diet therapy**: Therapeutic adaptations of normal diet, principles of therapeutic diets. Routine Hospital Diets: clear fluid, full fluid, soft and normal diet Special feeding techniques parenteral and enteral feeding. Role of dietitian in Nutritional care.
- **4. Obesity** Aetiology, assessment, complications and principles of diet management Underweight- Aetiology, limitations and diet modification, Febrile conditions Typhoid, Tuberculosis and Malaria -Causes, symptoms, metabolic changes in fever and dietary management.

- **Anemia, PEM and Vit A deficiency** etiology, types, dietary management, Causes, symptoms and diet management, **GI tract diseases** peptic ulcer, GERD, Liver diseases Jaundice, Cirrhosis
- **5. Diseases of the cardiovascular system**: Atherosclerosis- etiology, symptoms, complications and principles of diet management. Hypertension etiology, types, symptoms and dietary management

Diabetes mellitus – Aetiology, types, symptoms, diagnosis, complications and management, use of Food exchange list, glycemic index

Renal diseases – glomerular nephritis, nephrosis, acute renal failure, chronic renal failure, dialysis, Kidney stones – types.

TEXT BOOK

1. B. Srilakshmi, (2010) Dietetics, New Age International Private Ltd

- 1. Antia .P.(1989) Clinical Nutrition and Dietetics, Oxford University, Mumbai.
- 2. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy,10th, Edition, W.B. Saunders Ltd.
- 3. Mayrice. E. Shills, James, A.Olsen, Moshe Shihe, (1980) Modern Nutrition on Health and Disease, Vol.1 & 2, VIII edition, Lea and Pediger, Philadelphia.
- 4. Davidson. S.S. Passmore, , Martin A. Eastwood. F. (1989) Human Nutrition and Dietetics, 9th Edition F & S Lingstons Edinburgh and London.
- 5. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, churchil Livingstone.
- 6. Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing

NORMAL AND THERAPEUTIC NUTRITION PRACTICAL

Objectives:

• To enable students to apply the principles of planning therapeutic diets for various disease conditions

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- Able to understand and plan balanced diet for different age groups
- Develop the skills required to meet entry level competency required for a dietician
- Apply the skills acquired in planning and preparation of diets for maintenance of the population

PRACTICALS

- 1. Measurements and Standardisation of common food preparation
- 2. Planning and preparation of diet for preganant women,
- 3. Planning and preparation of diet for lactating mother,
- 4. Planning and preparation of diet for preschoolers,
- 5. Planning and preparation of diet for adolescents
- 6. Planning and preparation of diet for adult
- 7. Planning and preparation of diet for elderly
- 8. Planning and preparation of Routine hospital diets
- 9. Planning and preparation of low calorie diet for Obesityand Underweight
- 10. Planning and preparation of diet for Fever
- 11. Planning and preparation of diet for Anaemia, PEM
- 12. Planning and preparation of bland diet for peptic ulcer
- 13. Planning and preparation of diet for Diarhoea and Constipation
- 14. Planning of diet for Jaundice
- 15. Planning and preparation of diet for Type II Diabetes mellitus
- 16. Planning and preparation of diet for Acute glomerular nephritis

- Gopalan C., RN. Ramasastri and S.C. Balasubra-manian, (1977) "Nutritive Value of Indian Foods", National Institute of Nutrition, Hyderabad.
- Bennion M., and D.Hughes, (1975) "Introductory Foods", Macmillan Publishing Co., Inc, New York.
- Swaminathan, M (1979) "Food Science and Experimental Foods", Ganesh & Co., Madras.
- Manay, Shakuntala N. and Shadaksharaswamy M., (1987) "Food Facts and Principles",
 Wiley Eastern Ltd, New Delhi, Bangalore.
- Mudambi S.R. and S.M. Rao (1986) "Food Science", Wiley Eastern Ltd, New Delhi, Bangalore, Bombay, Calcutta, Madras, Hyderabad.

COMMUNITY NUTRITION

Objectives

To enable the students to

- understand the nutritional problems of a community
- learn the methods used for assessing the diet and nutritional status of a community
- know the on going intervention programmes for overcoming malnutrition in the community.
- acquire skill in conducting nutrition education

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- The students will be able to assess the nutritional status of the community
- Will know the various means of imparting nutrition education to the community

UNITS

- 1. **Nutritional status in India Importance of good nutrition** .Nexus between poverty and malnutrition PEM, micro nutrient deficiencies (Vitamin A, Nutritional Anemia IDD) prevalence of diet related non communicable chronic diseases.
- National Nutritional Policy Action areas, National Nutritional goals, implementation strategy – Nutrition intervention for vulnerable groups, fortification of essential goods. Intervention programmes to combat malnutrition, ICDS programmes, Balwadi Nutrition programmes, noon meal programme. Role of International Organizations – UNICEF, FAO, WHO.
- 3. Assessment of Nutritional status of the community objective methods direct assessment (a) Anthropometric measurements (b) Bo-physical method (c) Biochemical method (d) Clinical survey (e) Diet survey, Indirect methods. Food balance sheet, Agricultural data, ecological parameters and vital statistics use of growth chart.
- 4. **Nutrition education**: Meaning, need, principles, methods. Factors influencing nutrition related behavior, behavioral changes related to nutrition education.

5. Food adulteration – definition, adulterants in different foods, their ill effects and detection(house hold level techniques) contamination of food with toxic chemicals, pesticides and insecticides and; harmful micro – organisms – bacterial, fungal, parasitic; insect and rodent contamination of stored foods. Food standards – ISI. Agmark and food laws.

Related Experiences:

- 1. Diet and Nutritional Assessment of a population using different techniques
- 2. Case study of children with micro nutrient deficiencies
- 3. Study of two ongoing nutritional programme programme content its strength and weakness.
- 4. Detection of adulterants in common food items.

TEXT BOOK

- 1. Srilakshmi (2006). Food Science. Newdelhi. New Age International Pvt.Ltd.
- 2. Srilakshmi (2008). Nutrition Science. Newdelhi. New Age International Pvt.Ltd.

- 1. National Nutrition Policy (1993). Govt. of India
- 2. Sree Devi.V. (1997). Nutrition Education. New Delhi: Discovery Publishing House
- 3. Swaminathan. M. (1985). Essentials of Food and Nutrition. Vol I and Vol. II Madras. Ganesh and company. Hyderabad

APPAREL DESIGNING AND CARE

Objectives

To enable the students to

- Get a basic idea of clothing selection and care.
- Development skills in apparel designing and construction.

Specific Learning Outcomes:

After learning this paper students will gain knowledge on measurements, preparation of patterns etc.

Students will gain knowledge on wardrobe planning according to age, sex and fashion interests.

Unit-I

Apparel Construction - Body measurements, Importance of taking body measurements in garment construction. Preparation of Fabrics. Preparation of pattern - Drafting, principles of Drafting, Draping and commercial patterns, Layout planning - types of lay out. Merits and Demerits of layout, marking, assembling.

Unit-II

Selections of clothing-Factors influencing the choice of clothing materials for General and textile factors- Price, Serviceability, Size and fit, Attractiveness, Suitability, Age, Climate, Occupation, Occasion, Design and Fashion, Sociological, Psychological factors. Home Textiles- types, selection, care.

Unit-III

Wardrobe planning - Principles and steps involved in wardrobe planning, Points to be considered while planning wardrobe for different age groups. Criteria for evaluation of garments and checking quality control aspects of raw material used for garment construction

Unit-IV

Laundry-Definition-Principles of laundering, Water-Types of water-soft water-hard water methods of softening water. Soap, Detergents and soap less detergents, method of soap manufacture. Review of laundry materials, Methods of washing.

Unit-V

Laundering and finishing of different fabrics with special refer to cotton, silk, wool and synthetic fabrics. Bleaching agents, stiffening agents, blueing agents. Stain removal-Types of stains, Principles and Techniques of removal. Care labeling.

TEXT BOOKS:

- 1. Anna Jacob. (1993) Art of Sewing. UBS P.D.New Delhi.
- 2. Bane.A (1974). Tailoring Mc Graw Hill Publications, New York.
- 3. Brown Rice, **Ready to Wear Apparel Analysis**, 2nd edition, Prentices hall,1998.
- 4. Carson: How You Look To dress, StLouis, Mc Graw Hill, 1969.
- 5. Dantyagi, S. (1996). **Fundamentals of Textiles and Their Care.** New delhi. Orient longman limited.
- 6. Duelkar, D. (1983) Household Textile and Laundry Work New Delhi: Atma Ram and Sons.
- 7. Edward Miller: **Textiles: Properties and Behaviour in clothing Use**, London, B.T Bradsford 1992.
- 8. Gin Stiphens Frings, **Fashion from Concept to consumer** 7th Ed New Jeray.
- 9. Mary Mathews.(1984). **Practical clothing Construction Part-1**. Madras Parrinpack. Prentice Hall Inc.
- 10. Wingate, B.I.(1976). Textiles Fabrics and their selection. USA: Prentice Hall. Inc.

- 1. S.P. Mishra, "A text Book of Fibre Science &. Technology," New Age International Ltd.
- **2.** Carpets: Back to Front, Textile progress, Vol.19, No.3 by L Cegielka MA, The Textile Inst. Publication
- **3. Textile Floor coverings by** G.H. Crawshaw, Textile Progress, Vol.9, No.2, The Textile Inst. Publisher.
- **4. Interior Furnishings, Textile Progress**, Vol.11, No.1, By Mortimer O. Shea, The Textile Inst. Publication
- **5. Interior Furnishing by Mortimer O.Shea, Textile Progress**, Vol.11, No.1, The Textile Institute, Publication.
- 6. Textiles fabric & Their Selection, Wingate, I.B. Allied Publications Pvt. Ltd., Chennai.
- **7. Fundamentals of Textiels and Their care**. Dantyagi.S. Orient Longman Ltd., New Delhi 1980.
- **8. Family clothing** taste of Glession John wiley & Sons Inc., Illionois latest Edition.
- 9. Household textiles and laundry work durga Deulkar, Alma Ram & Sons, Delhi

APPAREL DESIGNING AND CARE - PRACTICAL

Objectives

To enable the students to

- Get a basic idea of clothing selection and care.
- Development skills in apparel designing and construction.

Specific learning outcome:

- 1. After learning this paper students will able to construct the children's garments
- 2. They will gain moren umber of design variations and stitches.

Unit-I

• Designing, Drafting & Constructing Garments- Bib, Jabla

Unit-II

• Designing, Drafting & Constructing Garments- Apron, "A" line frock

Unit-III

• Designing, Drafting & Constructing Garments- Half pant (Boys), Saree petticoat- 6 core, 7-core

Unit-IV

• Designing, Drafting & Constructing Garments- Night Garments- Top Slip.

Unit-V

• Colour fastness test, Stain removal- Iron, Coffee, Tea, and Blood.

TEXT BOOKS:

- **1.Textile Floor coverings by** G.H. Crawshaw, Textile Progress, Vol.9, No.2, The Textile Inst. Publisher.
- **2. Interior Furnishings, Textile Progress**, Vol.11, No.1, By Mortimer O. Shea, The Textile Inst. Publication
- **3. Interior Furnishing by Mortimer O.Shea, Textile Progress**, Vol.11, No.1, The Textile Institute, Publication.
- 4. Textiles fabric & Their Selection, Wingate, I.B. Allied Publications Pvt. Ltd., Chennai

- **1. Fundamentals of Textiels and Their care**. Dantyagi.S. Orient Longman Ltd., New Delhi 1980.
- **2. Family clothing** taste of Glession John wiley & Sons Inc., Illionois latest Edition.
- 3. Household textiles and laundry work durga Deulkar, Alma Ram & Sons, Delhi

EARLY CHILDHOOD CARE AND EDUCATION

Objectives

To develop in learners

- 1. to understand the importance of ECCE
- 2. to develop the ability and skill needed to organize ECCE centres.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- To get an insight into early childhood care and education
- To understand educational thoughts of various western and Indian Educationists.
- To trace the minimum facilities needed to start a child care centre.
- To plan activities for children in various age groups.
- To gain skills in organizing parent education programme.
- To acquire competency in evaluating pre-school children.

UNITS:

- **1. Concept and Significance of ECCE** Understanding terminologies, "Child", "Childhood", and "Early Childhood Care and Education" · Importance and significance of ECCE . Contributions of Thinkers and Educationists in ECCE educational thoughts of Frobel, John Dewey, Montessori, Gandhi, Tagore and Aurobindo on understanding of childhood and programmes and for young children
- **2. Policies and Programmes in ECCE in India** ECCE Policy Framework: National Policy on Education (1986), Article 45 in Indian Constitution and 86th Amendment, National Curriculum Framework (2005), ECCE in Right to Education (2010) and commitment to International Convention, such as; Education for All (EFA), Millennium Development Goals (MDG); National Policy on ECCE (2013) · Programmes and provisions in ECCE in Indian: Public Sector: ICDS; Rajiv Gandhi Crèche Scheme; ECCE in SSA; Private sector provisions in ECCE; Voluntary Sector initiatives in ECCE
- **3. Physical arrangements needed for an ideal ECCE centre** Building, site, safety, space; Furniture types, shapes, safety. Other equipment play equipment selection, use and storage. Setting up the learning environment indoor area, outdoor area, learning activity corners. Quality Standards as per ECCE policy.
- **4. Programme Planning**: child-centered preschool programme and its significance. Principles of programme planning: Long term and short term objectives; Balance between Indoor and outdoor activities individual, small group and large group activities; free and guided activities, active and quiet activities; inclusive approach for all children; balanced approach to all developmental domains for holistic development of the child

5. Organizational Management and Community Involvement Evaluation of ECCE programmes- infrastructure, safety,¬ ECCE professionals- competence, skill and methodology. Maintenance of records. Working with parents and community for continuity of home¬school interactions. Evaluation of pre school participation.

Text Book:

1. Pankajam, G. (1992) 'Palli Mun Paruvakkalvi' Gandhigram Lakshmi Seva Sangam

- 2. Aggarwal, J. C. (2007). Early Childhood Care and Education: Principles and Practices. Shipra: New Delhi.
- 3. Arni, K. and Wolf G. (1999). Child Art with Everyday Materials. TARA Publishing.
- 4. Mohanty, J. Mohanty, B. (1996). Early childhood care and Education. Deep And Deep Publication, New Delhi.
- 5. Muralidharan, R. and Banerji.V. (1989) A Guide Booklet of nNursery Teachers, New Delhi: NCERT.
- 6. Morrison, G. S. (2003). Fundamentals of early childhood education. Merrill/Prentice Hall:
- 7. Virginia Singh, A. (1995). Playing to Learn: A training manual for Early Childhood Education. M. S. Swaminathan Research Foundation. Swaminathan, M. (1998). The First five Years. Sage Publications

EARLY CHILDHOOD CARE AND EDUCATION - PRACTICAL

Objectives

To develop in learners

- 1. The ability and skill needed to organize creche and preschools.
- 2. the competency to plan developmentally appropriate programme for children in earlychildhood years

PRACTICALS

- 1. Visit to Anganwadi and assess physical infrastructure, facilities and resources available in the centre
- 2. Conduct Interview with AWW in order to understand the challenges faced by them and Interviews with 2-3 families regarding the access and satisfaction of ECD services
- 3. Visit to a Nursery school and assess physical infrastructure, facilities and resources available in the centre
- 4. Identify appropriate features of physical social environments that will promote all round development in young children
- 5. Identify, plan and record activities and methods of playful interactions to foster development in children birth –two years
- 6. Identify, plan and record activities and methods of playful interactions to foster development in children two -six years
- 7. Organise Workshops in any two of the following
 - Understanding childhood nutrition and health
 - Developing work sheets to teach concepts
 - Enhancing social and language skills
 - Music, movement and drama for children
- 8. Curriculum planning and space design
- 9. Methods and tools to assess progress of children and programme
- 10. Setting up a crèche /preschool

GENDER AND DEVELOPMENT

Objectives

To enable the students to

- 1. develop concern for women's issues and problems and
- 2. have a basic idea of the efforts in India for women's uplift.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- To trace the significance of gender development in national development
- To report the violence against women at family and work place.
- To get familiarize with legislations and policies for women

UNITS

1. Gender and Development :

Concept of gender, gender roles, gender budgeting, gender auditing, gender mainstreaming, gender analysis matrix, shift from welfare to development and empowerment, gender in development, gender and development, National and International efforts for gender empowerment.

2. Status of Women in India

Status – Meaning, Status of Women as per latest census report – Gender gaps and their implications, Sex ratio, Life expectation at birth, Health, Nutrition and Mortality, age at marriage, fertility, literacy, employment –

3. Violence against women:

Dowry, divorce, female foeticide and infanticide, sexual discrimination, sexual exploitation, obscene advertisements and projects in the mass media. Efforts for elimination of all forms of discrimination.

4. Dimensions of Women Empowerment

Empowerment – meaning, dimensions, gender perspective.

National Policy for Women's empowerment,

Economic, Social, Legal, technological, educational and political empowerment of Women.

5. Women and Law:

Marriage, dowry, divorce, property, employment and adoption, political participation, Legal literacy for Women, Family Counselling centre: Role and its functions.

Related Experiences

- 1. Study of women's status in a village.
- 2. Identification of women's problems in a village.
- 3. Preparation of clipping from print media on women's issues.

TEXT BOOK

1. Women and Development. Centre for Women's Studies. Sri Avinashilingam Institute for Home Science and Higher education for Women, Coimbatore.

- 1. Country Report. (1995). Department of Women and Child Development. Government of India.
- 2. National Perspective Plan for Women. (1988). New Delhi: Department of Women and Child Development. Government of India.
- 3. Rehman, M.M. and Biswal, K.K. (1993). Education, Work and Women. New Delhi: Common Wealth Publishers.
- 4. Sharma, O.C. (1994). Crime Against Women. New Delhi: Sterling Publishers Private Limited.
- 5. Subbamma, M. (1985). Women, Tradition, Culture. New Delhi: Ashish Puhlishing House.

PROGRAMMES FOR RURAL FAMILIES PRACTICAL

Objectives

To enable the students to

- get acquainted with the ongoing programme for rural development and their implementation and
- be resourceful in guiding the rural women/communities to avail themselves of help under the programmes

UNITS:

- 1. Economic Programmes: SGSY, PMRY, Mahalir Thittam, MGNREGS- Objectives, beneficiary selection, financial assistance, implementation and evaluation
- 2. Special Programmes: State Department of Social Welfare and District Disabled Rehabilitation Centre
- 3. Special Programmes
 - 1. Employment, Education, Health and Sanitation
 - 2. Energy and Environment
- 4. Social Assistance Schemes at central and State level.
- 5. ICDS, Noon meal programme.

Text Book:

- K.S.Pushpa, Hand book on Schemes for Women. Gandhigram Rural Insitute, Gandhigram
- K.S.Pushpa. Hand book on schemes for differently abled. Gandhigram Rural Insitute, Gandhigram

References:

- 1. Annual Report, Department of Rural Development, Ministry of Rural Development and Local Administration
- 2. Annual Report, Programme evaluation Organisation. Planning Commission, Government of India New Delhi.
- 3. Current Five Year Plan, Planning Commission. Government of India, New Delhi.
- 4. Manuals on SGSY, PMRY, Mahalir Thittam published by the Department of Rural Development.
- 5. State Five Year Plan and Annual Plans. Government of Tamil Nadu, Chennai.

MAJOR ELECTIVE COURSES

CHILDREN WITH DISABILITIES

Objectives:

To enable the students to

- acquire knowledge about identification and needs of children with disabilities
- acquire skills in guiding the parents of children with disabilities

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- To empathize the needs of children with diabilities
- To familiarize with the programmes and policies for children with disabilities
- To gain skills in providing referral services for children with disabilities

UNITS:

- **1. Introduction to Childhood Disabilities -** Defining disabilities, Models of disability Classifying disabilities, Social construction of disability, Demography, Rights of Children with Disabilities
- 2. Common Childhood Disabilities Identification, Assessment and etiology with reference to Locomotor disability, Visual disability, Auditory and speech disability, Intellectual disability, Autism and Learning Disability
- 3. Children with Disabilities and Society Families of children with disability, Prevention and management of different disabilities, Educational practices- Special education and inclusion, Policy and Programmes and Policies for children with disabilities
- 4. **Programmes and Policies for children with disabilities** -The Indian Constitution, National Policy for Persons with Disabilities 2006, The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act 1995, The Rehabilitation Council of India Act 1992, The National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities Act 1999. Legal Rights Of The Disabled In India, Role Of Important Institutions laws

5. Assistive technologies for children with disabilities

Assistive technology - meaning, need, types benefits - the barriers to assistive technology. Scheme of Assistance to Disabled Persons For Purchase/ Fitting Of Aids & Appliances (ADIP

RELATED EXPERIENCES:

- 1. Visit to any two special schools
- 2. Preparation of Case study of a child with special need.
- 3. Preparation of an album on various assistive devices and technologies available for children with special needs.
- 4. Compilation of websites of organizations working for children with special needs at national and international level.
- 5. Interaction with the special educators/ parents of children with special needs.

Text Book:

1. Mangal, S. K. (2007). Exceptional children: An introduction to special education. New Delhi: Prentice Hall of India

- 2. Chopra,G., (2012). Early Detection of Disabilities and persons with disabilities in the community. New Delhi: Engage publications
- 3. Chopra,G., (2012). Stimulating Development of Young Children with Disabilities at Anganwadi and at Home: A Practical Guide. New Delhi: Engage publications.
- 4. Sharma, N. (Ed)(2010). The Socail Ecology of Disability-Technical Series -3Lady IrwinCollege. Delhi:Academic Excellence
- 5. Jangira, N.K.(1997) "Special Educational Needs of Children and Young Adults: An Unfinished Agenda," Education and Children with Special Needs: From Segregation toInclusion,Ed. Seamus Hegarty, Mithu Alur, Thousand Oaks: Sage Publications Inc.
- 6. Karna, G. N. (1999). United Nations and rights of disabled persons: A study in Indian perspective. New Delhi: A.P.H. Publishing Corporation.
- 7. Mani, R. (1988). Physically handicapped in India. Delhi: Ashish Publishing House.
- 8. Mastropieri, M. A., & Scruggs, T. E. (2004). The inclusive classroom: Strategies for effective instruction. NY: Pearson.

FOOD SAFETY AND QUALITY CONTROL (Major Elective)

Objectives:

To enable the students to

- learn the various aspects of food safety and processing
- understand about food laws and labeling

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- the importance and functions of quality control unit in food industries
- the methods used for evaluation of food quality

UNITS:

- 1. **Introduction to Food Safety** Definition, factors affecting food safety and importance of food safety
- 2 Food additives and contaminants: Food colours, flavoring agents, Artificial sweeteners, Preservatives, Antioxidants, protease inhibitors, goitrogens, Phytates, pesticide and insecticide residues, adulterants and metallic contaminants.
- 3 **Food laws and Regulations**: National food legislation Essential commodities Act, Standard of weight and measures Act, Export act, ISI, mark of BIS Agmark and PFA, FPO. International Organization and Agreements FAO, WHO, Codex Alimentarius, Codex Indian, WTO, JECFA, SPS and TBT and APEDA. HACCP Principles and Importance.
- 4 **Quality Control**: Introduction sampling and analysis of food chemical, microbiological, food packaging functions, types and trends in packaging.
- 5. Food labeling: Definition, principles, requirements, nutrition labeling, nutrition claims.

TEXT BOOK:

- 1. Manay, S. and Shadaksharamasamy (2008). Food: Facts and Principles. New Age International Publisher
- 2. Srilakshmi, B. (1997). Food Science. New Delhi: Chennai: New Age International Private Limited. Publishers

REFERENCE:

- 1. David. A. Shapton, Naroh. F. Shapton (1991)Principles and Practises for the Safe Processing of Foods. Butterworth-Heineman, Ltd, Oxford. OX 28 Dp
- 2. Sara mora more Carol wallaPPce (1997) HACCP.A Practical Approach.Chapman and Hall.
- 3. Potter, N. 1996. Food Science. CBS Publishes & Distributes. New Delhi.
- 4. Rekha.S. Singhtal, Pushpa, R. Gulgarni, Hand book of indices of food quality and authenticity.

HOUSE KEEPING

Major Elective

Objectives

To enable the students to

- 1. To understand the basic principles of housekeeping in Food Service Institutions
- 2. To gain experience in the selection, use and care of house keeing tools and equipments.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- Able to describe the role of housekeeping department in any food service institutions
- Ability to manage the resources of the house keeping department effectively
- Ability to explain the safety and security needs of hospitality operations.

UNITS:

- 1. Concept of House keeping, layout and organisation structure of housekeeping departments, role and responsibilities of the housekeeping personnel, qualities of housekeeping staff.
- 2. Cleaning equipments mechanical and electrical equipments used for cleaning. Laundry procedures- dry cleaning, valet service & stain removal.
- 3. Fire prevention and control. Accident prevention, security measures. First –aid and pest control Linen room –Linen types, storing, stocktaking and distribution of linen. Inventory control, condemnation, Procedure & costing consideration.
- 4. Furniture selection and its types, flower arrangement principles, preservation of flower and plant materials, window treatment, bed making, carpets.
- 5. Special service Telephone answering, guestroom inspection, guest loan items, lost and found, deep cleaning ,turn down service. Cost control in Housekeeping.

Related experience

- Understand the skills and duties of the house keeping
- Market survey to understand the availability, cost of laundry and other cleaning equipments
- Acquire skill in flower arrangement and linen maintenance
- Stain removal, bed making, designing of valance

TEXT BOOK

1. Sudhir Andrews, (1999) Food and Beverage Service Training Manual, Tata McGraw Hill Publishing Company Ltd New Delhi .

- 1. Lilli Crap, D R and Cousins J A (1994) Food and Beverage Service,4th Edition, Hodder and Stoughton.
- 2. Vijay Dhawan, (2009) Food and Beverage Service, 1st Edition, Frank Bros & Co., 2000 Braun, Verlagshans.of Spa Design.

FOOD SERVICE MANAGEMENT Major Elective

Objectives:

To enable students to

- 1. Understand the principles and functions of catering institutions
- 2. Know the cost accounting procedures adopted in food service institutions
- **3.** Gain knowledge about laws governing food service establishment.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- Manage the human resources within a food service institution
- Apply the knowledge and skill acquired will be able to plan and produce nutritious menus
- Provide the highest customer satisfaction to the clients

UNITS:

- Principles and functions of food service institutions: Principles of management and Functions:
 Planning, organizing, directing, controlling, co-ordinating and evaluating. Management
 Tools-The Organization Chart, Job Description and specification, Time schedule, Work
 schedule, Job Analysis, Production service and staff analysis, Budget leadership style and
 training, decision making and communication.
- Commercial and Non Commercial Institutions. Commercial-Hotel, Motel, Restaurant, Bar, Pub, Fast Food Restaurant, Popular Catering. Non Commercial-Transport Catering, Industrial Catering, Leisure linked Catering, Departmental Store Catering, Miscellaneous-Contract and Outdoor.
- 3. Equipments used in Food service industries-Classification of equipments electrical and non electrical equipments for food storage, Preparation, serving, dishwashing and laundering. Food plant -Types of Kitchen, Layout of different food service establishments, drainage, Water lines, lighting and ventilation adopted in different units such as Kitchen, storage and dining area, working heights in relation to equipment.

- 4. Personnel management -recruitment, selection and induction procedures Employee facilities and benefits, welfare schemes and laws governing food service institutions.
- 5. Buying and accounting procedures in food service institution, budget and its types, inventory control, methods of cost control, Cost accounting/analysis-Cost concepts- types of cost-fixed cost, semi fixed cost, variable cost. Food cost control methods of controlling food cost, break even analysis. Records to be maintained- Book Keeping, system of book keeping, book of accounts- cash book, purchase book, sales book, purchase returns book, sales returns book and journals.

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TEXT BOOKS

- 1. Sethi, M., Malhan, S. (2007): Catering Management: An integrated approach, New Age International
- 2. Sudhir Andrews,(1999) Food and Beverage Service Training Manual, Tata McGraw Hill Publishing Company Ltd New Delhi .

REFERENCES

- 1. Lilli Crap, D R and Cousins J A (1994) Food and Beverage Service, $\mathbf{4}^{th}$ Edition, Hodder and Stoughton .
- 2. Dr. Aggarwal D.K (2006) Housekeeping Management, AMAN Publications, NewDelhi
- 3. Dr. Singh.R.K (2006) Modern Trends in Hospitality industry, AMAN Publications, New Delhi
- 4. John Wiley (2005), Book Of Yield: Accuracy in Food Costing and Purchasing, 6th Edition

WEBSITES

- 1. www.cfsan.fda.gov/~dms/fc01-6.html 38k
- 2.http://infotree.library.ohiou.edu/bysubject/health-and-life-sciences/food/food-servicemanagement/
- 3. http://www.outsourcing.org/Directory/Facilities_Management/Food_Service_Management

ENTREPRENEURSHIP DEVELOPMENT

Major Elective

Code: 18HSCU05E1 Credits:T3+P0 Pd/wk:3 Marks: 100

Objectives

To enable the students to

- Understand the process and procedures for taking up entrepreneurial programmes.
- Develop an aptitude for Entrepreneurship development.
- Prepare a draft proposal for funding

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- To define entrepreneur and entrepreneurship.
- To analyse the problems of entrepreneur
- To identify the avenues for entrepreneurship
- To select trade for
- preparation of proposal

UNITS:

- 1 Entrepreneurship Entrepreneur and Entrepreneurship meaning, need, transition from income generation to self employment and Entrepreneurship. Qualities of a good entrepreneur. Problems of entrepreneurs.
- 2 Factors influencing entrepreneurial development Economic, legal, social and psychological factors.
- 3 Agencies supporting Entrepreneurial Development Programme SIDCO, DIC, TIIC NSIC,MSME-Objectives, Programmes, Financial Assistance,
- 4 Schemes for assistance State and Central level current schemes and programmes for individual and group support.
- 5 Project proposal Proposal format and content-steps in its preparation, Feasibility testing, SWOT analysis.

Related Experiences

- Visit to SIDCO, DIC and TIIC
- Case study of two entrepreneurs
- Preparation of a project proposal for funding.

TEXT BOOK:

Course Manual on Entrepreneurship Management.Centre for Entrepreneurship Development. Madurai Kamarai University, Madurai.

- 1. Chunawalla S.A. Sales Management, Himalayan publishing House New Delhi, 1999.
- 2. Dr.N.Rajan Nair, Sajith R. Nair Marketing, Sutanchand and Sons, New Delhi, 2002
- 3. Vasant Desai, Project Management and entrepreneurship, Himalaya Publishing House, New Delhi, 2000.
- 4. David H. Moll, Entrepreneurship, prentice Hall of India, New Delhi 1999.
- 5. Frank Jerkins, Advertising, prentice Hall of India, New Delhi, 2000

BASICS OF RESEARCH TECHNIQUES

(Major Elective)

Code: 18HSCU05E2 Credits:T3+P0 Pd/wk:3 Marks: 100

Objectives:

- 1. To understand the meaning and importance of research.
- 2. To develop awareness regarding the basic elements of research
- 3. To develop understanding regarding the characteristics of a good tool of research.

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- Understand the principles of constructing simple tools for survey research.
- Acquire skills in working out simple statistics
- Understand the techniques of report writing and documentation.

UNIT I: Introduction To Research

Definition of research, Need for research, Types of research –Pure, applied, Exploratory,

Descriptive ,Action and evaluative.

Identification of a research topic

Formulation of research questions,

UNIT II: Basic Elements of Research and their Importance

Review of literature, Objectives, Assumptions and hypothesis

Limitations, Sampling and sampling methods, Tool construction

Analysis and Interpretation

UNIT - III: Survey Research

Meaning, Importance, Advantages, Limitations

Tools for research – Interview schedule, questionnaire,

Check list, Rating scale

Characteristics of a good tool - Validity, reliability, objectivity, Practicability

UNIT IV: Simple Statistical Methods

Classification and organisation of Data

Coding, Tabulation, Graphic presentation

Simple statistical measures

Percentages, Mean, Mode, Median

Standard deviation

UNIT V: Techniques of Writing Reports and Documentation

Research report- Meaning, purpose, Characteristics, Steps in planning report writing,

Research report format – Prefactory items, body of the report – Introduction, design of the study, results: Findings, discussion, Summary, conclusion, and recommendations.

Terminal Items – Bibliography – writing format.

Related Experiences:

- 1. Exercise in referring the list of research topics in the library
- 2. Suggesting simple research topics
- 3. Referring abstracts
- 4. Framing objectives for research topics
- 5. Referring survey research tools
- 6. Constructing a simple tool for a preliminary survey on a selected topic.
- 7. Applying simple statistics to the given data/scores.

TEXT BOOKS

- 1. Krishnaswami, O.R. (2011). Methodology of research in social sciences. New Delhi: Himalaya Publishing House.
- 2. Gupta,S.P.(2014) Statistical Methods. Publication Manual . 6th edition. American Psychological Association.

PREPARATORY COURSE FOR COMPETITIVE EXAMINATIONS MAJOR ELECTIVE

Code: 18HSCU05E3 Credit: T3 + P0 Hours: 3 Marks: 100

Objectives

i)To familiarize the students with different mental ability testing techniques.

ii)To equip them for competitive examination.

Specific Learning Outcomes:

On Successful Completion of this course, the students will be able to

- To gain skills in computing reasoning problems.
- To work out the speed and power tests.
- To inculcate the debit of newspaper reading.

UNITS:

1. Test of Reasoning (Verbal)

Series, Coding-Decoding, Repeating series, Finding the odd one out, Test of logical reasoning-Syllogism, Analogy, Miscellaneous.

2. Test Of Reasoning (Non –Verbal Reasoning)

Series, Analogy, Classification, Building designs, Logical diagrams.

3. Numerical Ability:-

- a. Basic Arithmetic with Bodmas.
- b. Ratio and Proportion.
- c. L.C.M and H.C.F.
- d. Time distance.
- e. Equations with
- f. Fractions.

4. Quantitative Ability:-

- A. a. Interest Simple and compound.
- b.Profit or loss- sales price/cost price.
- c. Mixtures.
- d. Average.
- e. Partnership Distribution of Profit / Loss.
- f. Work Load.
- g. Menstruation Area and Volume.
- B. Data Interpretation

Table – Graph and Bar Diagram.

5. General Knowledge

Basic facts about India, Indian History. Indian constitution, Geography of India. Abbreviations, Books and Authors, Inventions and Discoveries. Personalities, Science and Technology. Sports, Awards, Prizes, Current Affairs.

Text Book:

1.R.S.Aggrawal. Test of Reasoning. And Numerical ability.

- 1. Year Book Manorama, Anantha Vikatan, Limca, Competition Success Review
- 2. Test of Reasoning
- 3. Test of Numerical ability
- 4. Magazine Competition Success Review
- 5. Magazine Competition Maste

FOOD PRESERVATION

(Major Elective)

Code: 18HSCU05E4 Cr: T1+P2 Pd/Wk:5 Marks:100

Objectives:

To enable students to

- understand the types of spoilage occurring in foods
- gain knowledge on various methods of food preservation.
- acquire skill in preservation of various food items.

Specific Learning Outcomes:

On Successful Completion of this course, the students will be able to

- the concepts and principles of food preservation
- the preservation of food products from plant and animal sources and the production method

UNITS:

- 1. Food Spoilage and its Preservation: Review
- 2. Food Preservation: Meaning, objectives and basic principles
- 3. Methods of Food Preservation: Use of low temperature, high temperature, preservatives, high osmotic pressure, dehydration, radiation.
- 4. Spoilage: Spoilage of preserved foods and its causative factors and control measures
- 5. Food Preservation as a Gainful Economic Activity: Requirement of a unit. Machinery and infrastructure. Financial requirement, legislative control.

Related Experiences:

- 1. Preparation of squashes and juices orange, mango and pineapple FPO specification.
- 2. Preparation of jams/jellies/marmalades.
- 3. Pickles selection of fruits and vegetables preparation of different types of pickles and tomato ketch up.
- 4. Visit to small enterprises to study their organization and operation.
- 5. Preparation of dehydrated products and evaluation of the product dried by different drying methods.

TEXT BOOK

1. Srilakshmi B (2008). Food Science, New Age Publisher Pvt Limited, New Delhi.

- 1. Desoresier, W.N. and James, N. (1987). The Technology of Food Preservation. New Delhi: CBS Publishers and Distributors.
- 2. Girdharilal,G.S. et.al.. (1986). Preservation of Fruits and Vegetables. New Delhi: Publications and Information Division, ICAR.
- 3. Sumati, R et.al. (1991). Fundamentals of Food and Nutrition. Madras: Wiley eastern Limited.

SKILLED BASED ELECTIVE COURSES TEXTILE CRAFTS

Code: 18HSCU05D1 Credits: 2 Pd/ Wk: 5

Objectives

To enable the students to develop

- Skills in hand work in textiles
- Aptitude for taking up productive textiles based work

UNITS

- 1. Embroidery stitches Types and their suitability. Types of threads and needles used on different fabrics.
- 2. Embroidery work Preparation of samples for hand embroidery, cut work, drawn thread work, appliqué work, beads work, quilt work and patch work.
- 3. Textile painting Types, fabric suitability, colours and techniques.
- 4. Household Linen Hand, Kitchen and Dish towels. Constructions of pillow cover and Cushion cover.
- 5. Preparation of samples for Window Treatment.

TEXT BOOKS:

- 1. Dantyagi, S. (1996). Fundamentals of Textiles and their Care New Delhi: Orient Longman.
- 2. Duelkar, D. (1983). Household Textile and Laundry Work New Delhi: Atma Ram and Sons.
- 3. Wingate, B.I. (1976). Textile Fabrics and their Selection. U.S.A: Prentice Hall, Inc.
- 4. Anna Jacob. (1993). Art of Sewing. UBS P.D. New Delhi.
- 5. Bane. A. (1974). **Tailoring** McGraw Hill Publications, New York.

- 1. Anna Jacob. (1993) Art of Sewing. UBS P.D. New Delhi.
- 2. Readers Digest (1982) Complete Guide To Sewing Association of Inc. New York.
- 3. Textiles of the Arts and Crafts Movement By Maire Loughran
- 4. Selection & Personal Appearance a guide for the consumer, Upper Saddle River, Prentice Hall Inc., 2000.
- 5. Mabel D.E. & A.K.: Clothing for Moderns, 3rd edition, New York: Mac Million, publications.

BAKERY AND CONFECTIONERY

Code: 18HSCU05D2 Credits: 2 Pd/Wk: 2

Objectives

To enable the students to develop

- Skills in bakery
- Aptitude for producing bakery products
- 1. Demonstration Bread, Pizza base, Pav Bun.,
- 2. Preparation of cakes and their evaluation plain cake, sponge cake and cup cake
- 3. Cake recipe balancing -faults and remedies
- 4. Preparation of special variety of cakes wedding cake, Birthday cake, Plum cake, fruitcake, chocolate cake, icings, creams.
- 5. Preparation of biscuits and cookies any four varieties
- 6. Preparation of pan cake and fritters
- 7. Preparation of pastries and puffs
- 8. Preparation of custard, puddings and doughnuts
- 9. Preparation of a Project report for starting a bakery unit

TEXT BOOK

1. Yogambal Ashokkumar, (2012). Textbook of Bakery and Confectionery. PHI Learning Pvt Ltd.

- 1.Arora, S.M. (1994). Hand Book Of Bakery Products. New Delhi: Small Industry Research Institute.
- 2. Hamlyn. (1984). The Best of Baking, London.
- 3.Indira Kakati. (1984). Egg Less Baking, Sahibabad: Vikas Publishing House

PRODUCTION OF VALUE ADDED INDIGENOUS FOODS

Code: 18HSCU05D3 Credits: 2 Pd/Wk: 2

Objectives:

- Skills in production of value added products
- Aptitude for producing value added food products

UNITS:

- 1. Familiarization with indigenous foods available in the market and houseold; Development of questionnaire, collection of information on health foods, tabulation and interpretation
- 2. Product formulation, sensory evaluation, food safety, sanitation (environmental and personal)
- 3. Exposure to the preparation of indigenous value added foods. Preparation value added Supplementary foods for infants and geriatrics
- 4. Preparation of value added Nutri-dense foods; Protein, energy, iron, calcium and b-carotene and value added Health beverages from different foods
- 5. Quality evaluation, nutrient computation, packaging materials and unit size, nutrition labeling, costing.

References

- 1. Srilakshmi, B. 2005. Food Science, New Age International (P) Ltd., Publishers, New Delhi.
- 2. Potter, N. and Hotch Kiss, J.H. (1996): Food Science, Fifth edition, CBS Publishers and Distributors, New Delhi
- 3. Fuller G W (1994) New Food Product Development : From Concept to Market place CRC Press, New York
- 4. Man C M D and Jomes A A (1994) Shelf life Evaluation of Foods. Blackie Academic and Professional, London
- 5. Olickle, J K (1990) New Product Development and value added. Food Development Division, Agriculture, Canada

WASTE TO WEALTH

Code: 18HSCU05D4 Credits: 2 Pd/Wk: 2

PRACTICAL

- 1. Classification of waste and explore kind of waste available/generated by people.
- 2. Explore ideas for reusing and recycling the waste generated by residents.
- 3. Case profile of success stories of waste to wealth.
- 4. Develop prototype/ project for reuse and recycling of waste.
- 5. Ideas for reusing plastic bottles, disposable glass, spoon and paper plates and lids.
- 6. Ideas for reusing newspaper, notebooks, book cover, foil paper craft and envelop puppets.
- 7. Ideas for developing old curtains, table covers, foot mates out of cloth waste.
- 8. Ideas for reusing straws, disposable glass, pens and refills, Explore old CDs and DVDs reusing.
- 9. Ideas for reusing dry stem of plants, trees and wall decorations.

Text Book

- 1 .Lal, Banwari & Sarma, Priyangshu M. (2011) Wealth from Waste: Trends and Technologies, 3nd ed. New Delhi: The Energy and Resources Institute.
- 2. McDonough, William and Braungart, Michael. (2002). Cradle to Cradle: Remaking the Way We Make Things, United States: North Point Press.

MODULAR COURSES GERIATRIC CARE

Objectives:

To enable the students to

- To provide in-depth knowledge on normal aging
- To understand the care required during acute and chronic disease conditions
- To provide insight on the issues and problems related to geriatrics

Specific Learning Outcomes:

On Successful Completion of this course, the students will be able to

- Student will be in a position to assess the health status and QOL of the elderly
- Confident in Providing care and support to the elderly
- Trained care givers will be available in home, community and institutions to care the elderly.

UNITS:

- **1. Geriatrics :** definition, age group, theories of aging process-biological, physiological and psychological changes during aging .
- 2. Problems related to aging, quality of life and care for elderly: universal precautions, Maintaining personal hygiene, Environmental hygiene, Bed making Prevention of bed sores, Bed bath(sponge bath), mouth care, taking & Recording of temperature, pulse, respiration, blood pressure etc. Simple sterilization methods and prevention of cross infection, Positioning & transferring skills.
- **3. Nutrition management in aging:** Nutrition requirements, changes in total body mass and body composition, nutritional assessment, nutrition deficiency in old age, osteoporosis and vitamin D, simple diets for elderly and nasal feeding skills. Management of neurological diseases in elderly: Parkinson's disease and Alzheimer's.

TEXT BOOK:

1. Cathy Jo Cress(2011). Hand book of Geriatric care Management, Jones & Bartlett learning publisher

- 1. Joy Loverde (2009). The Complete Eldercare Planner, Hormony publishers
- 2. Davidson, S.R. and Pasmore (1986). Human Nutrition and Dietetics. Church Hill Livingstone, London.
- 3. Srilakshmi (2008). Nutrition Science. Newage International Publishers. Newdelhi.
 - **4.** Swaran Pasricha and Thimmayamma, B.V. (1992). Dietary Tips for the Elderly. Hyderabad:

INFANT STIMULATION PROGRAMME

Objectives

To enable the students to

- 9. become knowledgeable about the stimulation and its importance during early years
- 10. understand various techniques of stimulating infants
- develop skill in planning and implementing infant stimulation programme

Specific objectives of learning

- Explain how infants learn through the development of senses.
- Identify the indigenous infant stimulation techniques
- Develop an appropriate infant stimulation kit for the villagers.

UNITS

- 1 Infancy Definition, Characteristics, development and abilities
- 2 Infant Stimulation meaning, importance, techniques. Multisensory stimulation programme.
- 3. Identification of traditional methods, games, songs of infant care and stimulation through field visit, interview with mothers/ elderly women and group discussions.
- **4.** Preparation of stimulation programmes for various senses
- 5. Development of stimulation kit for infants.

TEXT BOOK:

1. Pankajam, G. (2005). Know Your Child. New Delhi: Concept Publishing Company

- 1. Chauba, B.P. (1986). Child Psychology. Agra: Lakshmi Narain Agarwal.
- Devadas, R.P. and Jaya, N. (1996). A Text Book on Child Development. New Delhi: Macmillan India Limited.
- 3. Hurlock, E.B. (2000). Developmental Psychology A Life-Span Approach. New Delhi: Tata Mcgraw Hill Publishing Company Limited.
- 4. Laura . E . Berk . (1996) Child Development New Delhi : Prentice Hall of India , Pvt . Ltd

ASSESSMENT OF NUTRITIONAL STATUS

Code: 18HSCU06M3 Credits: 2

Objectives:

The course is designed to:

• Orient the students with all the Important state-of-the –art methodologies applied in nutritional assessment and surveillance of human group

• Develop specific skills to apply the most widely used methods

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- To gain hands on experience on nutritional assessment
- To understand the methods to assess hospitalized patients
- To gain on knowledge to interpret the results using the assessment data

Units

- 1. Nutritional assessment and Counseling as a tool improving the quality of life of various segments of the individual, family and community including hospitalized patients.
- 2. Current methodologies of assessment of nutritional status their interpretation and comparative applications of the following.
 - Anthropometric measurement
 - Biochemical analysis
 - Clinical analysis
 - Diet survey
- 3. Assesment of Hospitalised and bed ridden patients.
- 4. Nutritional surveillance- Basic concepts used and setting up of surveillance system.
- 5. Medical nutrition therapy- role of nutritional assessment and intervention in medical care.

Practicals

- 1. Training in all assessment techniques applicable for individuals and community including ones used for hospital based patients validity and reliability of these techniques
- 2. Community based project for assessment of nutritional status of any vulnerable group.

References

- 1. Jelliffe, D.B. and Jelliffe, E.F.P (1989): Community Nutritional Assessment. Oxford University Press.
- 2. Beghin, I., Cap, M and Dujardan, B. (1988): A Guide to Nutritional Status Assessment, WHO, Geneva.
- 3. Gopaldas., T. and Seshadri., S. (1987): Nutritional Monitoring and Assessment. Oxford University Press.
- 4. Mason, J.B. Habich, J.P., Tabatabai, H. and Valverde, V. (1984): Nutritional Survieillance, WHO
- 5. Lee, R.D. and Nieman, D.C. (1993): Nutritional Assessment, Brown and Benchmark Publishers.
- 6. Sauberlich, H.E. (Ed) (1999): Laboratory Tests for the Assessment of Nutrition Status, CRC Press.

- 7. Cameron, N. (1984): Measures of Human Growth. Sheridan House Inc. New York
- 8. Scrimshw, N. and Gleason G (Ed) (1991): Rapid Assessment Methodologies for Planning and Evaluation of Health Related Programs. Published by (INFDC) Internationa; Nutrition Foundation for Developing Countries.
- 9. FAO Nutritional Studies No. 4 (1953): Dietary Surveys: Their Technique and Interpretation, FAO.
- 10. Bingham, Sa.A. (1987): The Dietary Assessment of Individuals, Methods. Accuracy, New Techniques and Recommendations Nutrition Abstracts and Reviews. 57: 705-743.
- 11. Fidanza.
- 12. Collins, K.J. (Ed) (1990) Handbook of Methods for the Measurement of Work Performance, Physical Fitness and Energy Expenditure in Tropical Populations International Union of Biological Sciences.
- 13. Ulijaszek, S.J. and Mascie-Taylor, C.G.N. (Ed) Anthropometry: the Individual and the Population, Cambridge University Press, Cambridge.
- 14. Shetty, P.S. and James, W.P.T. (1994): Body Mass Index. A Measure of Chronic Energy deficiency in Adults. FAO Food and Agriculture Organization of the United Natins, Rome.
- 15. Davies, P.S.W. and Cole, T.J. (Ed): Body Composition Techniques in Health and Dieseas. Cambridge University Cambridge.
- 16. Himes, J.H.(1991): Anthropometric Assessment of Nutritional Status. Wiley-Liss New York.
- 17. Lohman, T. GL Roche, A.F.; and Martorell, R.(Ed). Anthropometric Standardization Reference Manual. Human Kinetics Books, Illinois.

PARTICIPATORY LEARNING AND ACTION (MODULAR COURSE)

Objectives

To enable the students to

- understand the participatory research methods
- equip skills in applying PLA techniques in the field

Specific Learning Outcomes

On Successful Completion of this course, the students will be able to

- getting familiarized with participatory research methods
- acquiring skills in employing participatory research methods in the field.

Units

1 Participatory Research Methods

Meaning, need, concepts, Approaches – Rapid Rural Appraisal (RRA), Participatory Rural Appraisal (PRA), Participatory Learning and Action (PLA)

2 Participatory Learning and Action

Principles, Tools – Participatory Mapping, Facility Assessment, Ranking, Venn Diagram, Semi-structured Interview

3 Application of PLA methods in rural problem identification, problem analysis and project formulation.

TEXT BOOK:

1. Narayanasamy.N, (2009). Participatory Rural Appraisal: Principles, Methods and Application, SAGE Publications Ltd.

- 1. Neela Mukherjee (1997). Participatory Rural Appraisal Volume 1 of Studies in rural participation, Concept Publishing Company, New Delhi
- 2. . Stringer, E. T. (2007) Action research (3rd ed.). Thous and Oaks, CA: Sage.