PGDR (Home Science)

Semester XI

Paper No	Subject	COURSE TYPE	CREDIT	CIE	UE	TOTAL
C 1	Thrust areas of Home Science	Major	6	25	75	100
C 2	Essentials of Entrepreneurship	Major	6	25	75	100
C 3	Research Methodology	Major	4	25	75	100
	Research Project (Qualifying)					
			16	75	225	300

Abbreviation:

CIE: Continuous Internal Evaluation
UE: University Exam

M.Sc. (Home Science)

SEMESTER IX

PAPER NO.	SUBJECT	COURSE TYPE	CREDIT	CIE	UE	TOTAL
XIV	Methods of Studying Human Development	Theory Major	4	25	75	100
XV	Women Studies	Theory Major	4	25	75	100
XVI	Gerontology	Theory Major	4	25	75	100
XVII	Persons with Disabilities	Theory Major	4	25	75	100
XVIII	Computer Application in Designing	Practical Major	4	25	75	100
XIX	Research Project	Project	4	25	75	100
	Total		24	150	450	600

SEMESTER X

PAPER NO.	SUBJECT	COURSE TYPE	CREDIT	CIE	UE	TOTAL
XX	Advanced Physiology	Theory Major	4	25	75	100
XXI	Principles and Curriculum for Preschool Care and Education	Theory Major	4	25	75	100
XXII	Journalism and Media	Theory Major	4	25	75	100
XXIII	Study of Family and Society	Theory Major	4	25	75	100
XXIV	Principles and Curriculum for Preschool Care and Education Practical	Practical Major	4	25	75	100
XXV	Research Project	Project	4	25	75	100
	Total		24	150	450	600

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FACULTY: HOME SCIENCE
DEPARTMENT-HUMAN DEVELOPMENT AND FAMILY STUDIES
Bachelor (Research) in Faculty

SEMESTER VII

PAPER NO.	SUBJECT	COURSE TYPE	CREDIT	CIE	UE	TOTAL
I	Research Methodology	Theory Major	4	25	75	100
II	Infant Development and Stimulation	Theory Major	4	25	75	100
III	Maternal and Child Nutrition	Theory Major	4	25	75	100
IV	Guidance and Counseling Across the Lifespan	Theory Major	4	25	75	100
V	Infant Development and Stimulation Practical	Practical Major	4	25	75	100
VI	Other Faculty*	Minor	4	25	75	100
VII	Research Project	Project	4	25	75	100
	Total		28	175	525	700

SEMESTER VIII

PAPER NO.	SUBJECT	COURSE TYPE	CREDIT	CIE	UE	TOTAL
VIII	Fundamentals of Statistics	Theory Major	4	25	75	100
IX	Current Trends and Issues in Human Development	Theory Major	4	25	75	100
X	Theories of Human Development	Theory Major	4	25	75	100
XI	Literature, Media and Children	Theory Major	4	25	75	100
XII	Literature, Media and Children-Practical	Practical Major	4	25	75	100
XIII	Research Project	Project	4	25	75	100
	Total		24	150	450	600

*Faculty of Linguistic, Faculty of Computer, Faculty of Management, Faculty of Basic Science

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POST GRADUATE DIPLOMA IN RESEARCH (P.G.D.R)

MASTER IN FACULTY

Paper – XXV

Research Project

M. Sc. (Home Science)

(General, Grp. 'A', Grp. 'B' and Grp. 'E')

Semester X

CIE - 25 Marks
UE - 75 Marks

Credit : 4

Course Content:

Report writing and finalization of Research project

Paper-XXIV

Food Preservation Techniques

MSc. Food and Nutrition Spl. Group 'B' / ~~Group 'A'~~ / ~~Group 'E'~~

M.Sc General

Semester-X

Course Type: Practical /Major

UE – 75 Marks
CIE – 25 Marks

Credits: 4

Objectives :

- Enabling students to understand the principles and processes involved in food processing
- Familiarizing the students with the technological innovations for various food stuffs.
- Making students aware of the role packaging plays in the delivery of food stuffs.

	PRACTICALS
1.	Dehydration of fruits and vegetables and shelf life studies: is effect on colour, texture and flavour.
2	Preservation of fruits and vegetables using low temperature
3.	Preservation of fruits and vegetables using heat, salt and sugar
4.	Processing of tomato products
5.	Processing of Jams, jellies and marmalades
6.	Processing of pickles and brines.
7.	Prepare simple extruded foods

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1. Singh, Kartar (1999), Rural Development Principles, Policies and Management, Sage Publications India Pvt. Ltd., New Delhi.
2. Desai Vasant (1988) Rural development, Himalaya Publishing House, New Delhi.
3. Heggade, O.D. (1998) Urban development in India, MohitPublicaitons, New Delhi.
4. Prasad, B.K. (2003) Rural development : Concept, Approach and strategy, sarupand sons, New Delhi.
5. Bhose, S.G.R. Joel (2003) NGO's and Rural Development, Concept Publishing Company, New Delhi.
6. Dubey M.K. (2000) Rural and Urban development in india, Commonwealth publishers, New Delhi.
7. SatyaSundaram, I (1999) Rural Development, Himalaya Publishing House, Mumbai.
8. Reddy K. Venkata (1998) Rural Development, Himalaya Publishing House, Mumbai.
9. Desai Vasant (1983) A study of rural economy, Himalaya Publishing House, Mumbai.
10. Jain GopalLal (1997) Rural Development, Mangal Deep Publications, Jaipur.
11. Nagpal, Hans (1996) Social Work in Urban India, Rawat Publications, New Delhi.

	causes of poverty, population explosion and its impact, programmes to alleviate poverty. 4. Tribal welfare – historical overview, Tribal development strategies and policies	3
2.	Employment: **1.** Occupational structure in India **2.** primary and subsidiary occupations **3.** problems of unemployment, measures taken by the government to solve the problem of unemployment. Women and employment in India.	3 3 4
3.	Agriculture– 1. Problems of agriculture in India 2. causes for low agricultural productivity 3. Agriculture price and credit policy	3 3 3
4.	Industry and development index 1.Impact of industrialization on urban life; socio-economic aspects of metropolitan life 2.Role of cottage and small scale industries in economic development 3.Development index - PQLI, HDI, CPI.. 4.corporate social responsibility	4 4 4 3

~~Practical:~~ SESSIONAL WORK :

1. Seminar on the selected topics.
2. Preparing ICT material for community.
3. Survey to assess employment and poverty in the selected area.
4. Plan and implementation of demonstration.

References:

Paper: ~~XVII~~ XXIII

Indian Socio-Economic Environment: Development Perspectives

M.Sc (Home Science) Sem. X

Spl (Grp.E) and General

Theory

Course type: Major

CIE : 25 Marks
UE : 75 Marks

Credits- ~~5~~ 4

Teaching Periods - ~~5~~ 4 / wk

~~L:T:P :: 4:0:1~~

Objectives -

The course will enable the students to -

- become aware of the socio-economic structure, organization of problems of rural, urban and tribal communities.
- Understand the implications of the socio-economic environment in the process of development.

Unit	Topics and Details	No of Lectures
1.	Social Aspects- 1. structure and characteristics of rural urban and tribal areas. 2. Caste, Class and institutions. 3. Poverty-National income and per capita income, poverty line,	3 4 4

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	PRACTICALS
1.	Dehydration of fruits and vegetables and shelf life studies: is effect on colour, texture and flavour.
2	Preservation of fruits and vegetables using low temperature
3.	Preservation of fruits and vegetables using heat, salt and sugar
4.	Processing of tomato products
5.	Processing of Jams, jellies and marmalades
6.	Processing of pickles and brines.
7.	Prepare simple extruded foods

	2. Use of chemical additives, ionizing radiations, pickling and curing in preservation.	4
UNIT -II	**PROCESSING TECHNOLOGY OF FOODS**	
	1. Cereals: Wheat milling process, baking technology, production of bread, barley malting. Rice processing, fractionation, parboiled rice.	4
	2. Fruits and Vegetables: Changes during ripening	2
	3. Canning process of fruits and vegetables	2
	4. Milk and Milk products: Milk processing, separation, standardization, pasteurization, homogenization, ultrahigh sterile milk.	4
	5. Meat and Fish processing : Rigor mortis, ageing, tenderizing, curing, salting, pickling.	2
UNIT-III	**FORTIFICATION AND EXTRUSION TECHNOLOGY**	
	1. Fortification Technology - Objectives - Nutritional significance -Selection of Vehicle -Fortification of salt, cereal products and dairy products	2
	2. Extruded Food: An introduction to extrusion technology	2
UNIT-IV	**PACKAGING TECHNOLOGY, FOOD LABELLING and FOOD LAWS**	
	1. An Introduction to packaging technology - Objectives - Basic packaging materials and their protective qualities - Effect of packaging on the nutritive value of foods	2
	2. FPO and other food laws governing Indian Food Industry	2

References:

- Dey S: Outlines of Dairy Technology, Oxford University Press, Delhi.
- Desrosier NW: Elements of Food Technology, Connecticut, USA: AVI publishing co.
- Mat : Cereal Technology, Connecticut, USA: AVI publishing co.
- Siddapa, GS (1986), Preservation of Fruits and Vegetables, ICAR Publication.
- National Dairy development board, Amul, Milk and Milk products processing
- Gould GW. New Methods of Food Preservation. Blacklie. Academic and Professional, London.

PAPER- ~~XVI~~ XXII

Food Processing and Preservation

M.Sc. (Home Science) Sem. X

M.Sc. (Gen.)

~~Spl (Grp. 'A') (C.D.)~~

Spl. (Grp. 'B') (F.N.)

~~Spl. (Grp. 'E') (E.E.)~~

Theory

Course Type : Major

Credits – ~~5~~ 4

Teaching Periods – ~~5~~ 4/ wk

~~L:T:P :: 3:1:1~~

CIE- ~~40~~ 25 Marks

ESE- ~~60~~ 75 Marks

Objectives :

- Enabling students to understand the principles and processes involved in food processing
- Familiarizing the students with the technological innovations for various food stuffs.
- Making students aware of the role packaging plays in the delivery of food stuffs.

CONTENTS

UNIT- I	FOOD PRESERVATION	PERIODS
	1. Principles underlying food preservation operations :-	
	i) Thermal	2
	ii) Refrigeration and freezing	2
	iii) Dehydration	1
	iv) Radiation	1

	- Nephritic syndrome - Acute and chronic renal failure - Dialysis - Burns

INTERNSHIP

Duration : 3 Months

Training : Hospital Setting

Norms :

For MSc. Food and Nutrition specialization students 3 months internship in any of the following 3 hospitals :-

a) All India Institute of Medical Sciences, New Delhi.
b) Christian Medical College, Ludhiana
c) PGI, Chandigarh

For MSc. General Students, 3 month Internship in NABH Accredited hospital with Dietetics Department.

Evaluation:

1. The students will have to prepare a report and submit.
2. A presentation has to be made in seminar on their work experience.

	Surgery, Burns, sepsis and trauma 2. Cancer- Role of diet in aetiology and management , effect of cancer therapy on MNT	5 4

References:

1. Lee RD and Neiman DC (2009). Nutritional Assessment. 5th Edition. Brown and Benchmark.
2. Mahan , L.K. and Escott Stump. S(2008). Krause's Food and Nutrition Therapy.12th Edition. Saunders- Elsevier.
3. Shils, M.E.., Shike ,M, Ross, A.C., Caballero B and Cousins RJ (2005). Modern Nutrition in Health and Disease. 10th .Lipincott, William and Wilkins.
4. Gibney MJ, Elia M, LjungquistandDowsett J. (2005).Clinical Nutrition. The Nutrition society textbook series. Blackwell publishing company.
5. ~~Marian M. Russel M, Shikora SA. (2008). Clinical Nutrition for surgical patients. Jones and Bartlett publishers.~~
6. World Cancer Research fund and American Institute for Cancer Research (2007). Food, Nutrition, Physical activity and the prevention of cancer – A global perspective. Washington E.D.WCRF.

	~~PRACTICALS~~ SESSIONAL WORK
1.	Assessment of patient needs- Nutritional assessment and screening
2.	Market survey of commercial nutritional supplements - Collection of information on commercial food formula available in the market - Intravenous nutrition supplement – TPN, Cost , Composition, dosage , indications.
3.	Planning and preparation of diets using exchange lists for - Overweight and underweight - Diabetes mellitus - Peptic ulcer - Diarrhoea - Ulcerative colitis - Cirrhosis - Cholelithiasis - Hypertension - Hyperlipidaemia - Glomerulonephritis

	4. Nutrition support : EnteralandParenteral Nutrition	2
Unit-II	**WEIGHT MANAGEMENT, DIABETES and HEART DISEASE**	
	Pathophysiology, metabolic and clinical aberrations, diagnosis , complications, treatment, MNT, dietary counselling and recent advances in – 1. Weight imbalance disorders- Overweight and Underweight 2. Diabetes Mellitus – Type 1, Type 2 and Gestational Diabetes 3. Cardiovascular disease- Hypertension, hyperlipidaemia, metabolic syndrome, myocardial infarction, congestive heart failure, coronary bypass surgery.	3 4 5
UNIT-III	**GASTROINTESTINAL TRACT, LIVER and KIDNEY DISORDERS**	
	Pathophysiology , metabolic and clinical aberrations, diagnosis, complications, treatment, MNT, Dietary counselling and recent advances in: 1. Gastrointestinal tract disorders – GERD, Peptic ulcer, diarrhoea, lactose intolerance, celiac disease, diverticular disease, Crohn's disease and ulcerative colitis 2. Liver, Gallbladder and Pancreatic disorders- Cirrhosis, Encephalopathy, liver transplant, cholecystitis, cholecystectomy, Pancreatitis. 3. Kidney Disorders – Nephrotic syndrome, glomerulonephritis, acute renal failure, chronic kidney disease, dialysis, transplant, renal stones.	5 5 5
UNIT-IV	**METABOLIC STRESS AND CANCER**	
	Metabolic and Clinical aberrations, diagnosis, complications, treatment, MNT and dietary counselling in : 1. Metabolic stress –	

PAPER - ~~XX~~ XXI

Clinical Nutrition with Compulsory Internship

MSc. (Home Science) Sem. X

Spl Group 'B'(F.N.) and General

Theory

Course Type – Major

Credits- ~~5~~ 4

Teaching Periods – ~~5~~ 4 / wk

~~L:T:P :: 4:0:1~~

25

CCE- ~~40~~ Marks

ESE – ~~60~~ 75 Marks

Objectives:

- To understand causative factors and metabolic changes in various diseases/ disorders.
- To gain knowledge of the principles of diet therapy.
- To learn principles of dietary counselling
- To understand the rationale of prevention of various diseased / disorders

CONTENTS

UNIT-I	NUTRITIONAL ASSESSMENT and CARE OF PATIENTS	PERIODS
	1. Nutrition care process - Nutritional screening and assessment of patients- outpatient andhospitalised - Nutritional interpretation of routine medical and laboratory data - Nutrition care plan and implementation - Monitoring and follow up	2 2 2 1
	2. Diet counselling	1
	3. Diet, Nutrition and drug interaction	2

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	2. Endocrine glands, mode of action of hormones	5
UNIT- IV	**REPRODUCTIVE AND NERVOUS SYSTEM**	
	- Reproductive system: structure and functions of male and female reproductive organs.	5
	- Nervous system: anatomy and functions.	5

Reference Books:

1. Best CH and Taylor NB. 1989. The Human Body. ASI Publ. House. (Source: National Book Depot, Bombay).
2. Chatterjee CC. 1992. Human Physiology. Vols. I, II. Medical Allied Agency.
3. Guyton AC. 1991. Text Book of Medical Physiology. WB Saunders.
4. Mukherjee KL. 1994. Medical Laboratory Technology. Vol I. Tata McGraw Hill.
5. Wilson KJW and Ross JS.1987. Ross and Wilson Anatomy and Physiology in Health and Illness. 6th Ed. Churchill Livingstone.

	~~PRACTICALS~~ SESSIONAL WORK	Periods
1.	Microscopic examination of prepared slides of different human organs	2
2.	Estimation of haemoglobin	2
3.	Identification of blood groups	2
4.	Preparation of blood smear.	1
5.	Measurement of blood pressure.	2
6.	Estimation of blood glucose	2
7.	Preparation of TEC and TLC	2
8.	Preparation of blood Haem-crystals	1
9.	Demonstration and study of models of human body system.	2

PAPER - ~~IV~~ XX

Advanced Physiology

MSc (Home Science) Sem. X

Spl. (Grp. A)(C.D.), (Grp. B)(F.N.) and General

Theory

Course Type – Major

Credits – ~~3~~ 4

Teaching Periods – ~~3~~ 4/wk

~~L:T:P :: 4:0:1~~

ESE- ~~60~~ 75 Marks

CIE- ~~40~~ 25 Marks

CONTENTS

UNIT -I	**INTRODUCTION TO LYMPHATIC and CIRCULATORY SYSTEM**	**PERIODS**
	1. Lymphatic system and its and functions.	2
	2. Circulatory System: blood – composition, blood cells - development and function of blood cells, blood clotting, blood grouping and haemoglobin	5
	3. Heart and its anatomy. Circulation of blood, cardiac cycle, blood pressure and factors affecting blood pressure.	4
UNIT-II	**RESPIRATORY AND DIGESTIVE SYSTEM**	
	1. Respiratory system: anatomy, physiology and mechanism of respiration, regulation of respiration.	5
	2. Digestive system: anatomy of gastrointestinal tract and accessory organs. Digestion and absorption of food.	6
UNIT-III	**EXCRETORY AND ENDOCRINE SYSTEM**	
	1. Excretory system: anatomy and functions of kidney, formation, composition and excretion of urine.	5

only

SEMESTER

X

Paper – XIX

Research Project

M. Sc. (Home Science)

(General, Grp. 'A', Grp. 'B' and Grp. 'E')

Semester IX

Credit: 4

CIE - 25 marks
UE - 75 marks

Course Content:

1. Data collection for the Study
2. Interpretation of the data.

S.No.	Topics	No. of Classes
1.	Use of computer peripherals Scanner Printer Storage device	 2 2 2
2.	Use of designing softwares Power point Coral draw Photo Shop Page Maker	 3 7 4 4
3.	Planning and preparationo of communication material for rural women related to agriculture/ home science Slides Leaflet/Folder Booklet/flip Book Cover page of different publications	 4 4 6 2
4.	Field testing of developed communication material	2
5.	Evaluation of the developed material	2
	Total	**44**

Reference:

List of books related Computer Designing, Coral draw, photo shop and Page maker

1. Computer Graphics and Virtual Reality 2ed Willey Publication by R. K Mourya
2. Photoshop CS6 in Simple Steps by Congent Learning Solution Incorporation
3. Graphic Design Exercise Book - Revised Edition **Author:** Jessica Glaser
4. PageMaker 7 from A to Z**Author:** Marc Campbell Publisher Laxmi Publications
5. CorelDRAW X6 The Official Guide Paperback – by Gary David Bouton

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Paper- XVIII
Computer Application in Designing
MSc. Food and Nutrition Spl. Group 'B' / Group A/ Group E
M.Sc. General
Semester- IX

Course Type: Practical/Major

UE – 75 Marks
CIE – 25 Marks

Credits: 4

Objectives:-

1. To enable students to learn /acquaint the CAD based application.
2. To understand the work of computers while designing.
3. To develop creativity in designing A.V.Aids.

S.No.	Topic	No. of classes
1.	Use of computer in communication of agriculture/H.Sc. information	1
2.	Introduction to computer peripherals-Printer and scanner, storage devices- compact disk (CD), DVD, pendrive	2
3.	Introduction to software for designing communication material- Power point Coral Draw Photoshop Page maker	 1 1 1 1
4.	Principles of designing communication material	1
5.	Designing layout of information material- • Slides • Leaflet/ Folder • Booklet • Flip Book	 1 1 1 1
6.	Cover page of different publications	1
7.	Field Testing- concept importance and procedure of field testing	3

Practical:

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	2. Physical and chemical means used in destruction of microbes: Definition of sterilisation and disinfection. Role of heat, filtration and radiation in sterilization, use of chemical agents- alchohol halogens and detergents.	6
UNIT-III	**CONTAMINATION- INTOXICATION & INFECTION**	
	1. Sources of food contamination, food poisoning Symptoms &control . - Food Borne Intoxication: Botulism and Staphylococcal intoxication - Food borne infections- Salmonellosis, Clostridium perfrigens, bacillus cereus gastroenteritis	4 4
UNIT- IV	**MICRORGANISMS IN FOOD**	
	1. Microorganisms in food enzyme and technology: - Food Fermentation - Enzymes and food production - Microorganisms as food - Probiotics and Single cell proteins	2 2 2 2
	2. HACCP system and food safety used in controlling microbiological hazards	2

References:

1. Text Book of Zoology P.S Dhami, Pardeep Publication.
2. Food Microbiology Frazier, willian C and West off Dannis C, Tata McGraw Will Publish Company Ltd.
3. Pelczar, M.L. and Reid, R.D. Microbiology. Mc Graw Hill Book Company, New York.
4. Jay, J.M: Food Microbiology; 6th Edition, Aspen publishers, Inc.,Maryland.
5. Adams, M.R. and Moss M.G: Food Microbiology, 1ST Edition, New age International (P) Ltd.

	~~PRACTICALS~~ SESSIONAL WORK
1.	Identification of microbes
2.	Preparation of chart and models (same as theory)
3.	Identification of slides of microbes.
4.	Sterilization
5.	Techniques of culturing from liquid and solid media
6.	Staining of bacteria: Gram staining and spore staining
7.	Determination of plate count
8.	Bacteriological analysis of water and milk

IX SEMESTER

PAPER NO. ~~XII~~ XVII

Food Microbiology and Food Safety

MSc. Food and Nutrition SPL. GROUP 'B'

Theory

Course Type – Major
Credits – 4
Teaching Periods – 4/wk
~~L:T:P :: 3:0:1~~

25
CIE- ~~40~~ Marks
ESE- ~~60~~ Marks
75

Objectives :

- Making the students understand the basis of microbial growth in various foodstuffs and its beneficial and harmful effects.
- Making the students learn the ways and means to prevent microbial contamination during and after food processing to contain spoilage and poisoning.
- Helping the students understand the role of microorganisms in food product development.

CONTENTS

UNIT -I	INTRODUCTION TO MICROBIOLGY	PERIODS
	1. Definition, scope of Food Microbiology	2
	2. An Introduction to microbial world: Bacteria, Fungi , Yeast, Viruses. - Bacterial groups based on their morphology: Gram positive , gram negative, motile/ non-motile bacteria, sporulating/ non sporulating bacteria. - Bacterial groups based on their physiological growth factors: Temperature, pH, water activity, availability of oxygen. Intrinsic and extrinsic parameters that affect microbial growth and their relevance to food spoilage and preservation.	5
	3. Fungi and Yeast : General features and their importance in food microbiology	3
	4. Viruses and Bacteriophages: Definition, their general characteristics and multiplication	2
UNIT-II	FOOD SPOILAGE AND DESTRUCTION OF MICROBES	
	1. Food Spoilage :Definition, microorganisms involved in spoilage of various foods: Milk, bread, canned food, vegetables and fruits, fruit juices, meat, eggs and fish.	6

~~Practical~~ SESSIONAL WORK

S. N.	~~Practical~~ Sessional	Periods
1.	Drafting of personal Blouse pattern and plain sleeve block and construction of simple sari blouse.	8
2.	1. (a)Manipulation of personal block – (i) Relocation of darts by slash and spread method (ii)Converting darts into tucks, (iii) gathers (iv) yokes (v) lines. (b) Construction of three sari blouses using any of the above.	8
3.	Development of basic skirt block and its adaptation into style variations (Half scale) Construction of any one skirt for self. (i) Its adaptation to various skirt styles on half scale (ii) Construction of any one of these / Indo-western outfit.	8
4.	Designing of two adaptive clothing for each of the following and construction of any one for any group - (i) Maternity wear (ii) Feeding mothers (iii) Physically challenged (iv) Old age.	8

References

1. Leanard G. Rubin (1976): The world of fashion, Publication canfield Press, San Fransisco.
2. Patrick John Ireland: Fashion Design Illustration, B. T. Batsford Ltd. London.
3. Prakash, K. (1989): Impressions, Ethnic Textile Designs, Deluxe Packaging.
4. Prakash, K. (1989): Impressions, Deluxe Packaging.
5. Carr, H. and Pomery, J. (1992): Fashion Design and Product Development, Blackwell scientific Publication, London, Edinburgh, Boston.

UNIT III: TECHNIQUES OF MASS PRODUCTION	(a) Planning of Garment Business, procurement of raw material, organization in an apparel firm. (b) Sampling Department-Importance, objective, types of samples (size set, fit sample, prototype sample, production sample.), Design development and Developing a sample garment (c) Cutting Department-Cutting procedure - fabric laying, marker preparations, sorting, numbering and bundling. (d) Machinery and equipment require for garment production for industrial level cutting, sewing, finishing and embellishment	3 3
UNITIV:PRODUCTION AND QUALITY CONTROL	(a) Production Department-Selection of production system (progressive bundle system, unit production system), modular manufacturing, piece work, production planning. (b) Finishing and pressing Department- Trimming, packing. (c) Applying Quality control, quality assurance in production processes - fabric cutting, sewing, finishing and packing.	2 2 2

PAPER – ~~VI~~ XVI

Advanced Apparel Designing and Production

M.Sc. (Home Science) Sem. IX General

Course type: Major Theory

Credits: 4

Teaching Periods: 4/week

~~L T P: 2:0:2~~

ESE-~~60~~ Marks 75

CCE-~~40~~ Marks 25

OBJECTIVES:

1. To impart an in depth knowledge of style reading pattern making and garment construction techniques.
2. To develop and understand the principles of pattern making through flat pattern.
3. To impart creative and technical and kills for designing product with special emphasis on structural design.

Contents

Units	Topic	Periods
UNIT I: INTRODUCTION	(a) Target market, Merchandising. (b.) Line and its development.	1 1
UNIT II:APPAREL PRODUCTION	(a) Costing a garment (b) Purchasing of piece goods (c) Production schedule. (d) Garment Assembly (e) Preparation for dispatch	1 1 1 1

2.	Planning Menus (for any 3) - Institutions that cater to children - Food service units in hostels - Canteen - Conferences
3.	Standardising recipes for 6,25 and 50 portions Any two of the following: - Snacks - Cakes - Cereal preparation - Curry preparation
4.	Canteen project
5.	Product development: - Healthy food - Party food
6.	Regional/ International cuisine Preparation of recipes from Regional,Chinese, Continental and American cuisines
7.	Cost Analysis of Menus
8.	Visit to different types of Food service Institutions to study the following: - Organization - Physical plan and layout - Food service equipment - Sanitation and hygiene

	8. Sanitation measures for food, personnel and unit hygiene, training techniques for food service personnel in sanitation.	1
	9. Safety- Causes of accidents, types, safety techniques, 3Es of safety	1
	10. Food laws/ Food bill - FPO, ISI, Agmark, PFA, New Food Bill 2006.	2
	11. Quality Standards- HACCP, ISO	1
UNIT- IV	**FINANCIAL MANAGEMENT**	
	1. Importance of Financial management in food based enterprise	1
	2. Budgets and Budgeting process	1
	3. Records: Menu, purchase, store, production, sales, personnel utilities	1
	4. Basic concepts n Business transactions: Cash memo, receipt, pay-in slip, cheques, vouchers	1
	5. Books of Account: Journal, sales, return book, purchase return book, sales book, purchase book, cash book, ledger	2
	6. Pricing and its methods, costing, concepts and controlling techniques, cost effective procedures, concept of break even point (BEP)	4
	7. Reports : Cost analysis: concept of trial balance, profit and loss account.	2

References:

1. West B.Bessieand Wood Levelle (1988). Food service in Institutions. 6Th Edition. Revised by Hargar FV, Shuggart SG andPalgne Palacio June, Macmillian Publishing Company, New York.
2. SethiMohini (2005). Institutional Food Management. New Age International Publishers.
3. Kotler Philip . Marketing Management (2001). Millennium edition. Prentice Hall of India.
4. Kinght JB andKotschevar LH (2000). Quantity Food Production, planning and Management. 3rd Edition, John Wiley and sons.
5. Koontz Hand Dennel, C.Keiser J and Kaillo E. Controlling and Analysis of Cost in Food Service operation. Wiley andSons . New York.

	~~PRACTICALS~~ SESSIONAL WORK
1.	Market Survey: To assess products and commodities in the market , to formulate price list, to list and categorise food production and service equipments

	5. Tools of Management - Tangible Tools- organisation chart, job description, job specification, job analysis: pathway chart, process chart, work schedule, production schedule, staff and service analysis, budget. - Intangible tools – Communication, Leadership, decision making	2 1
UNIT-II	**MATERIAL MANAGEMENT**	
	1. Menu planning : Functions, factors affecting menu planning, menu construction, types of menu, menu card, Characteristics of cuisines- Indian, Chinese, Continental, French, Thai and Mexican	2
	2. Purchase: Market, buyer, vendor, methods of purchase: Formal and informal purchasing procedure	2
	3. Storage: Types of storage, store room requirement, appropriate temperature for storing different foods, storeroom records	2
	4. Food Production: Production planning and control: importance of planning, production forecast, estimating quantities to buy quantity preparation techniques, production schedule, product evaluation, standardization of recipes, recipe adjustments and portion control	4
	5. Food delivery and service: Centralised and decentralised, factors affecting selection, styles of service , delivery and service equipment.	2
UNIT-III	**ORGANIZATION OF SPACES, EQUIPMENT , SANITATION and SAFETY**	
	1. Kitchen spaces: Types of kitchen, designing kitchens	1
	2. Planning service areas	1
	3. Architectural considerations for a food service establishment	1
	4. Feasibility assessment in terms of layout design and costs	1
	5. Classification and selection of equipment	1
	6. Care and maintenance of equipment	1
	7. Importance of hygiene and sanitation in food service units	1

PAPER - XV

Institutional Food Management

MSc.(Home Science) Sem. IX

Spl. Group 'B' and General

Theory

Course Type – Major

Credits – 4

Teaching Periods – 4/ wk

~~L : T : P :: 3:0:1~~

CCE- ~~40~~ 25 Marks

USE – ~~60~~ 75 Marks

Objectives :

- To develop a knowledge base about the different types of food service units and its evolution.
- To impart necessary expertise to function as a food service manager.
- To provide practical experience in managing food material for food service management.
- To equip individuals to understand human resources.
-

CONTENTS

UNIT-I	FOOD SERVICE MANAGEMENT and ORGANIZATION	PERIODS
	1. Definition, principles and functions	2
	2. Types of catering establishments (Conventional, commissary, ready prepared, assembly / serve)	1
	3. Management Theories (Classical, scientific, behavioural systems approach, contingency approach, MBO, JIT , TQM)	2
	4. Managerial operations - Functions of Manager - Principles of Management - Definition of organisationand steps in organising	1 2 1

	iii. Verbal Techniques (word association, sentence completion, word blank and sentence blank).	
UNIT-III	**Assessment of Mental Ability**	
	a. Verbal-Non verbal tests	**4**
	b. Bayley scale of infant ability	**2**
	c. Wechsler and Binet test of Intelligence	**6**
UNIT- IV	**Tests of Physical and Social Ability/Acquity**	
	a. Motor-Manual Tests	**5**
	b. Sociometery (Use, Methodology and Interpretation)	**4**
	c. Anthropometric measurements for studying health parameters	**3**

~~**Practical**~~ SESSIONAL WORK

1. Preparation of the following:-
   (a) Questionnaires (b) Interview schedule (c) Observation schedule.
2. Testing reliability and validity
3. Seminar Presentation on any scale/tool.

References:

1. Anastasi A and Urbina S. 2003 Psychology Testing Seventh Edition. Prentice Hall of India Pvt. Ltd. New Delhi
2. Smith Harre and Lagen hove 1995. Rethinking Psychology, Sage publication London.
3. Cronabach I.J. Essentials of Psychological. Testing (Second Edition) Harper Row, New York.
4. Vernon P.E. 1965, Personality Tests and Assessments Methuen and Co. Ltd. London.
5. Ahuja R. 1999 Research Methods. Vikas Publishers.
6. Aylword G. 1994 Practitioner's Guids to Developments and Psychological Testing Plenum Press New York.
7. Blavler I. Hughes C and Tight M. 1999 How to Research Vikas Book New Delhi.

Abbreviations:

ESE- End Semester Evaluation CCE- Continuous Comprehensive Evaluation

Paper – ~~IX~~ XIV

Methods of Studying Human Development

M.Sc. (Home Science) (General & Spl Grp. 'A')

Semester IX

Theory

Course Type: Major

Credits: 4

Teaching Periods: 4/ week

~~L:T:P::3:0:1~~

25

CIE – ~~40~~ Marks

ESE – ~~60~~ Marks

75

Objectives:

1. To study different methods and techniques of understanding human development.
2. To apply the various methods studied practically.

UNIT- I	Introduction	PERIODS
	a. Importance need and scope of studying human development	4
	b. Techniques of research in human development- time span longitudinal, cross sectional and sequential approach	3
	c. Psychological Tests – Meaning, Standards of a good test with emphasis on reliability and validity, sources of information about tests.	5
UNIT- II	**Methods of Studying Human Development**	
	a. Interview, observation, questionnaire, case study and rating scale – factors involved in preparation and administration, advantages and disadvantages.	6
	b. Projective Techniques –Meaning, uses and importance. i. Inkblot Techniques (Rorschach and Holtzman) ii. Pictorial techniques (CAT, TAT, Rosenweig Picture Frustration study).	6

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SEMESTER

IX

BACHELOR (RESEARCH)

IN FACULTY

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Paper – XIII

Research Project

M. Sc. (Home Science)

(General, Grp. 'A', Grp. 'B' and Grp. 'E')

Semester VIII

CIE : 25 marks
UE : 75 marks

Credit : 4

Course Content:

1. Review of Literature and methodology of the study
2. Finalization of Data collection tool

References

1. V. A. Shenai(1987), Chemistry of Dyes and principles of Dyeing, Sevak. Prakasan, Mumbai.
2. H. A. Lubs, Robert E. Chemistry of Synthelic Dyes and pigments, Krieger Publishing company, New Yark.
3. V. A. Shenai(1999), Azo Dyes – Facts and Figures- SevakPrakashan, Mumbai.
4. R. S. Prayag, Technology Textile printing- Nayes Data Corporation Carporation.
5. V. A. Shenai (1977), Technology of printing – Technology of Textile processing, Vol. IV, Sevak Publication.
6. M. L. Gulrajari and Deepti Gupta (1990), Natural Dyes and their Application to Textiles" ed. I.I.T. Delhi publication.
7. John and margarat Cannon (1994), Dye plants and Dyeing, The Herbert press (UK)
8. ASTM and ISI Standards.
9. K. Venkatrama (1970) Chemistry of Synthetic Dyes, Part I and II.

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PAPER XII

Surface Ornamentation on Textiles

M.Sc. (Home Science)

General ~~Grp. 'A', 'B', 'E'~~

Semester VIII

Course type: Practical Major
Teaching Period : 4/week
Credits: 4

UE: 75 Marks

CIE: 25 Marks

Objectives

To impart skill of value addition to various products through dyeing and printing

Contents

S. N.	Topic	~~Practical~~
1. a.	Textile design through dyeing.	6
	- Tie and dye - Batik	
b.	Making an article using each of these.	
2.	Preparation of screens for printing and making an article of Textile design through Screen printing.	10
3.	Textile design through Block printing and Stencil printing and making an article using each of these'.	10
4.	Usage of traditional and contemporary embroidery techniques for developing an article.	6
5.	Preparation an article using any two of the above techniques.	4
6.	Developing a portfolio exhibiting various styles and methods of dyeing, printing and embroidery traditionally used in India.	6
7.	Reports of visits to dyeing and printing Units.	4
8.	Learning to exhibit products made in the semester.	2

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	of trainers/resource persons, aids and equipment transportation, finances, monitoring of training. 2. Organizational factors-Working environment, leadership, values, mechanics of change, organizations as socio-technical systems-impact development. 3. Developing organizational structures for facilitating micro and macro level interventions for facilitating development.	4 4
4.	Evaluation of training Issues in evaluation in training, evaluation of learning in terms of gain in knowledge, attitude and skills; measurement of change in behavior in participants; measurement of results/impact of training.	10

Sessional Work

1. Designing training programmes for different developmental goals
2. Developing skills in selection and use of different training methods-case study, role playing, psychodrama, buzz group, group discussion, transactional analysis, process work, micro labs, business games etc.
3. Organizing and conducting training programmes.

References

1. William R. Tracy, "Designing training & development system" Bombay T. publication.
2. Singh B. Manual, "Advances in Training Technology (manual IARI)"
3. William R. Tracy, "Designing training & development sy

Abbreviation:

CIE- Continuous Internal Evaluation.
UE – University Examination.

Paper-XI

Training and Management

M.Sc (H.Sc) General & Spl (Grp.E)

VIII Semester

Instruction hours/week-4
Course Type
Theory Major
Credit- 4

Max Marks- 100
CIE- 25
UE- 75

Objectives -

1) To be aware of the overall goals of designing training programmes for development.
2) To understand the different methodologies of Training.
3) To conceptualize the training process.
4) To develop skills in training programme

UNITS	COURSE AND DETAILS	PERIODS
1	1. Concept, need and importance of training.	3
	2. Principles of Adult Learning.	2
	3. Facilitation Skills in Training, Paraphrasing summarizing, question asking.	3
	4. Training Process-phases of training process-Pre-training, training and post-training.	3
	5. Conceptual models of training process-simple elaborated and spiral.	3
	6. Participatory and conventional training.	3
2	Designing Training Programme:	
	1. Need Assessment-concept and techniques.	4
	2. Designing overall training schedule	5
3	Management of Training Programme	
	1. Physical arrangements, selection of participants, selection	4

	b) Leavening agents : Importance, classification, nature and use	2
	c) Food product development: Definition, factors affecting product development and health concerns.	3

References:

1. Charley, H. (1982): Food Science (2nd Edition), John Wiley and Sons, New York.
2. Potter, N. and Hotchkins, J.H. (1996): Food Science, 5th Edition, CBS Publishers and Distributors, New Delhi
3. Belitz, H.D and Geosch , W (1999): Food Chemistry, 2nd Edition, Springer, New York
4. Manay, N.S and ShadarsSharaswamy , M .1987. Food ,Facts and Principles. Wiley Eastern Ltd, New Delhi.
5. Srilakshmi , B.2001. Food Science. New Age International Pvt Ltd. 2nd Edition.
6. Meyer ,L.H.Food Chemistry, Reinhold Book Corporation, New York.

	PRACTICALS
1.	Experience in training for taste perception and thresh holds, hedonic scale for attributes of foods and developing score cards. Triangular tests, duo and trio tests and others.
2.	Standardisation of recipes and methods or reporting recipes.
3.	Experiments on crystallization of sugar and effects of temperature, concentration, acids and other preparation and evaluation of any three preparations. Laddoo, HalwaandGulabJamun.
4.	Experiment on starch gelatinization, viscosity, measurement of starch pastes- comparison of different sources of starch.
5.	Experiment with eggs to study the properties of coagulation foaming, emulsifying, colouring, effect of quality of eggs on these properties. Preparation of cakes, Mayonnaise evaluation.
6.	Milk cookery preparation and evaluation of soup(cream of tomato), cheese, curd, ice-cream.
7.	Meat- Methods of cooking, factors affecting texture of meat.
8.	Pulses- Method of cooking pulses, effect of soaking, alkali, salts, germination.
9	Vegetable and Fruit cooking- Factors affecting colour, texture, flavours, browning reactions and preventive methods.
10.	Fats and Oils – smoking point, absorptions, tests, shortening - effect in food preparations

UNIT-II	**Proteins and Fats in Food**	
	1. Protein Cookery (a) Properties of milk protein, other milk products- curds, evaporated, spray dried and condensed milk, Cheese, Khoya, Their use in food preparations.	3
	(b) Cereals, grams and dals-Effect of soaking, germination and fermentation on cereals and pulses, properties of gluten, gluten formation and the factors affecting it.	3
	(c) Eggs-Properties of egg-proteins and uses in egg preparations, egg as binding, foaming and emulsifying agent mayonnaise preparation.	3
	(d) Meat-Postmortem changes, changes on cooking, fish types, changes during heat treatment.	2
	2. Fats and Oils: Properties, smoking points, melting point, hydrogenation, shortening effect. Changes an Storage, rancidity, oxidative and hydrolytic, whipped cream as double emulsion, different commercial products and their uses.	3
UNIT-III	**Vegetables and Fruits, Sensory Evaluation**	
	1. Vegetables and Fruits: Structure of vegetable tissues, starch, sugars, pectic substances, celluloses and their effect on texture and palatability. Plant pigments, plant enzymes, enzymatic browning, use of plant enzymes for textural changes in foods eg. Effect on meat.	4
	2. Sensory evaluation a) Selection of panel of judges b) Types of tests c) Judging	2
	Objective methods of measurement of: a) Colour b) Texture	2
UNIT-IV	**New Product Development**	
	a) Food Additives: Definition, importance, classification and uses	2

PAPER - ~~VII~~ X

Advanced Food Science

M.Sc. (Home Science) Sem. VIII

Spl. Group 'B' (F.N.) and General

Course Type – Major Theory

Credits : ~~6~~ 4

Teaching Periods – ~~6~~ 4/ wk

~~L:T:P :: 4:0:1~~

CCE- ~~40~~ 25 Marks

ESE- ~~60~~ 75 Marks

Objectives :

- Enabling students to comprehend the changes that occur in the physiochemical properties of food stuffs during food preparation.
- Enabling the students to understand and apply the various techniques in the quality evaluation of foods.
- Imparting awareness on the concept of 'food product development'

CONTENTS

UNIT-I	Colloids and Carbohydrates in Food	PERIODS
	1. Introduction to food science.	1
	2. Physical and Chemical properties of foods-Changes occurring on cooking and storages.	2
	3. Colloids – Properties denaturation of proteins, gelatinisation, gel formation, emulsions, foams, browning reactions enzymatic and non-enzymatic.	4
	4. Sugar Cookery: Stages of cookery, fondants, fudges, caramels and brittles, crystallisation of sugar.	2
	5. Starch Cookery: Gelation, factors affecting gelation, starch as thickener, different sources of starch and their properties cereals and millets-their milling and parboiling.	3

Unit – III	Anthropometry and Biomechanics	
	(a) Definition of Anthropometry,Anthropometric consideration and principles. (b) Working posture and motions, Common postural problems and factors to be considered, Effect of wrong Posture on body,correct technique of Lifting and Carrying weight. (c) Body mechanics: Definitions, Principles, Height of work surfaces.	4 6 4
Unit- IV	**Work place: The Kitchen**	
	(a) Workers consideration in work space design. (b) Functional design of work place. (c) Work centers. (d) Component of work place.	3 3 3 3

~~Tutorials~~ SESSIONAL WORK

a. Survey on different types of work center.
b. Identifying anthropometric measures and types of posture during work in the kitchen.
c. Preparing educational material for incorrect postures.

References:

a. Asrard, P., Roods H.T.K. – Text book of work physiology.
b. HauptandFeinleis – Physiology of Movement.
c. Nag P.K. – Ergonomics and Work Design.
d. Cross man Richard – Ergonomics Pocket Book
e. Steidaland Bratton – Work in Home.
f. TulandWeerdneester – Ergonomics for beginners.
g. Gandtora, Oberoi and Sharma – Essential of Ergonomics.
h. Amit Bhattacharya - Occupation Ergonomics.
and James D. Mcglothlin (Theory and Application)
i. Karl H.E.Kroemer and - Office Ergonomics
Anne D. Kr

Paper - ~~V~~ IX

Ergonomics

M.Sc. (Home Science) Sem. VIII General

Course type : Major Theory

Credits : ~~5~~ 4

Teaching Periods : ~~5~~ 4/wk

~~L:T:P:: 4:1:0~~

CIE -~~40~~ 25 Marks

UE -~~60~~ 75 Marks

OBJECTIVES:

- To become aware of the role of ergonomics in work effectiveness and efficiency.
- To understand the environment factors contributing to safety, control and well-being of individual performing the work.
- To know application of ergonomic consideration in designing of work place.

Unit – I	Essentials of Ergonomics	Periods
	(a) Definition, Scope of Ergonomics in home.	4
	(b) Need and importance of Ergonomics.	4
	(c) Components of worker input- Affective, Cognitive, Temporal, Physical.	4
Unit – II	**Work and Work Environment**	
	(a) Work component- content of job, analysis of work and amount of house hold work.	6
	(b) Knowledge of various environmental factors and their effect- Heat, Noise, Vibration, Light and Atmospheric Pollution.	6

	Computer Applications in data Analysis	
	• Use of Statistical Software in data analysis	

~~Tutorials~~ SESSIONAL WORK

- Summarization and Presentation of data using tables and graphs.
- Applications of Statistical Techniques to data analysis and interpretation of data.
- Applications of z, t F and Chi-Square test in hypothesis testing.
- All the above will be done using Statistical Softwares.

References:

1. Hellan M. Walker.: Elementary Statistical Methods
2. Sharma. Choudharyand Gupta.: Descriptive Statistics
3. Elhance. D.N.: Elementary Statistics
4. S. P. Gupta : Statistical Methods
5. Shukla and Sahai: Principles of Statistics

Abbreviations:

~~ESE- End Semester Evaluation~~ ~~CCE- Continuous Comprehensive Evaluation~~

		3
	5. Formation of Discrete and Continuous Frequency Distribution	2
UNIT- II	**Statistical Measures**	
	1. Measures of Central Tendency (Mean, Median, Mode, Quartiles, Deciles, Percentiles)	6
	2. Measures of Dispersion/Variation (Range, Mean and Quartile Deviation, Standard Deviation, Coefficient of Variation)	6
UNIT- III	**Correlation, Regression and Association of Data**	
	1. Simple Correlation for Grouped and Ungrouped Data (Karl Pearson's , Spearman Rank Correlation), Basic concepts of Partial and Multiple Correlation	5
	2. Simple Linear Regression for Grouped and Ungrouped Data	5
	3. Measures of Association	2
UNIT- IV	**Test of Significance**	
	1. Hypothesis, its type and error, Level of Significance, Critical Region, One Tailed and Two Tailed Test	2
	2. Large Sample Test: One sample and two sample test for population Mean and Proportion	2
	3. Small Sample Test: Applications of t- test (for one sample and two problems)	3
	4. Chi Square Test and its applications	2
	5. F- Test and its applications	3

Paper – VIII

Fundamentals of Statistics

M.Sc. (Home Science) Sem. VIII

M.Sc. (Gen.)

Spl (Grp. 'A') (C.D.)

Spl. (Grp. 'B') (F.N.)

Spl. (Grp. 'E') (E.E.)

Course Type: Major Theory

Credits: ~~5~~ 4

Teaching Periods: ~~5~~ 4/ week

~~L:T:P::4:1:0~~

CCE – ~~40~~ 25 Marks

SE- ~~60~~ 75 Marks

Objectives:

- To understand the role of Statistics in Research.
- To apply Statistical Techniques to Research Data for analyzing and interpreting data meaningfully.
- To understand the use of Statistical Software in the analysis of data.

UNIT- I	Introduction to Statistics	PERIODS
	1. Meaning of Statistics and its scope in Home Science and other field of inquiry	2
	2. Processing of Data: Editing, Classification and Coding of Data	3
	3. Tabulation of Data	2
	4. Diagrammatical and Graphical representation of data: Significance of difference between Diagram and Graph, Types of Diagram and Graph (Bar Diagrams, Histogram, Polygon, Ogives)	

SEMESTER

VIII

Paper – VII

Research Project

M. Sc. (Home Science)

(General, Grp. 'A', Grp. 'B' and Grp. 'E')

Semester VII

CIE - 25 Marks
UE - 75 Marks

Credit : 4

Course Content:

1. Identification of research problem
2. Preparation and finalization of synopsis

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Paper. V
Nutritional Biochemistry-I
M. Sc. (Home Science) Gen and Spl. Group 'B'
Semester-VII

Course Type: Practical/ Major
Teaching Periods: 4/week
Credits: 4

UE – 75 Marks
CIE – 25 Marks

Objectives:

- Augment the biochemistry knowledge acquired and understand the significance of Biochemistry in Home Science research.
- Understand the mechanisms adopted by the human body for regulation of metabolic Pathways
- Become proficient for specialization in nutrition. Understand integration of cellular level metabolic events to nutritional disorders and imbalances.

Practical: - Interactive periods /week.

1. Qualitative test for reducing and non reducing sugars, fat and proteins
2. Separation of water and non water soluble protein from soybean and Bengal gram flour.
3. Estimation of cholesterol.
4. Determination of acid value of an oil/ fat.
5. Quantitative estimation of sugars.
6. Estimation of soluble protein by Biuret method.
7. Simple test of sterol.

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2. Egan G (2002) the skilled helpers : A systematic approach to effective helping (7th ed) Pacific grove Ca:Brooks /Cole.

Abbreviations:

ESE- End Semester Evaluation

CCE- Continuous Comprehensive Evaluation

UNIT-III	**Life Span Psychological Disorders and Counseling**	
	Nature of psychological disorders that require counseling and therapy in the following stages of human development-	
	a. Childhood	3
	b. Adolescence	3
	c. Adulthood	3
	d. Old age	3
UNIT- IV	**Counseling**	
	a. Meaning, aims, principles and basic assumptions of Counseling	3
	b. Needs and importance of child and family counseling	3
	c. Qualities and skills of counselor	3
	d. Techniques of counseling- directive and non-directive	3

~~Practical~~

SESSIONAL WORK

1. Visit and write report on any two counseling centers such as HIV/AIDS, drug deaddiction centers.
2. Collect three case studies and analyses the psycho-social problems in each. Prepare case reports.
3. Conduct role play/street play/puppet show etc. to generate community awareness on issues and topics related to human development and family relations.
4. Interaction with practicing counselors working in schools, clinics, women centers and hospitals and preparing a report of the same.

References:

1. Gibson R and Mitchell M(1999) introduction to guidance and counseling (5th ed) New Jersey:Printice Hall Inc.

Paper – IV

Guidance and Counseling Across the Lifespan

M.Sc. (Home Science) (General & Spl Grp. 'A')

Semester VII

Course Type: Major Theory

Credits: ~~5~~ 4

Teaching Periods: ~~5~~ 4/ week

~~L:T:P::4:0:1~~

CCE – ~~40~~ 25 Marks

UE – ~~60~~ 75 Marks

Objectives:

1. To understand the need for guidance and counseling in human development.
2. To introduce basic concepts in guidance and counseling therapy.
3. To discuss the processes involved in counseling at different stages in life.
4. To acquaint students will record to qualities of guidance workers and counselor.

UNIT- I	Guidance and its Nature	PERIODS
	a. Meaning, aims, principles and basic assumptions of guidance	3
	b. Needs and importance of child and family guidance	3
	c. Kinds of guidance- educational, vocational and personal	6
UNIT- II	**Guidance of Children at School and Home**	
	a. Elementary school years	3
	b. Adolescence- need of sex education at home and school	3
	c. Middle years	3
	d. Old age	3

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(c) Market survey on time and energy saving equipments available in the market.

(d) Application of work simplification techniques.

References

(a) Varghese M.A. OgaleandSrivasan. K - Home Mgt.

(b) Bigelous H. Family Finance.

(c) Gross and Crandall - management in family living.

(d) Steidell and Braton - work in home.

Unit - II	Time Management	
	(a) Goals of time management.	1
	(b) Factors affecting time management.	3
	(c) Constraints in time management.	2
	(d) Tools of time management.	3
	(e) Managerial process applied to time.	3
Unit-III	**Energy Management**	
	(a) Goals of energy management.	1
	(b) Factors affecting energy management.	3
	(d) Fatigue: Meaning, types and how to control.	4
	(e) The managerial process applied to energy management.	4
Unit- IV	**Work simplification**	
	(a) Meaning and definition of work simplification.	3
	(b) Techniques of work simplification.	3
	(c) Mundell's classes of change.	3
	(d) Importance for physically handicapped women.	3

~~Tutorials~~ SESSIONAL WORK

(a) Preparation of budget for various income groups.

(b) Seminars should be conducted on above topics.

Paper- III

Resource Management

M.Sc. (Home Science) Sem. VII General

Course type : Major Theory

Credits : ~~5~~ 4

Teaching Periods : ~~5~~ 4/wk

~~**L:T:P:: 4:1:0**~~

CIE -~~40~~ 25 Marks

ESE -~~60~~ 75 Marks

OBJECTIVES:

- To understand the significance of management of resources.
- ~~To develop the ability to evaluate the management efficiency and effectiveness in the family.~~
- To become familiar with the techniques of financial management.

CONTENTS

Unit - I	Money Management	Periods
	(a) Basic concepts: Permanent income, Total income, Potential income, National income and Personal income.	1
	(b) Stages of family life cycle and money management.	1
	(c) Methods of handling money.	1
	(d) Guidelines for money management.	1
	(e) Budgeting: Steps of preparation of a budget, Factors affecting budget, Engel's law of consumption, controlling use of money.	4
	(f) Investment: Meaning, definition, elements, objectives, types and points to be consider in making investments.	4

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4. Determination of acid value of an oil/ fat.
5. Quantitative estimation of sugars.
6. Estimation of soluble protein by Biuret method.
7. Simple test of sterol.

Reference books-

1. General biochemistry by Frutton and Simmond.
2. Text book of Biochemistry by West and Todd.
3. Introduction to Modern Biochemistry by Karlson.
4. Principles of Biochemistry by White Handler and Smith.
5. Biochemistry by Kleiner and Orten.
6. Hawk's Physiological Chemistry by Oser.
7. Review of Physiological Chemistry by H.A. Harper.
8. Essentials of food and Nutrition Vol.-I and II by M. Swaminathan.
9. Biochemistry by S.K. Dasgupta. Vol. I, II, III.
10. Essentials of Biochemistry by Dr. M.C. Pant.
11. Biochemistry by Virendra Kumar Shukla.
12. A Text Book of Biochemistry by S.P. Singh.
13. Chemical Analysis- An Instrumental Approach by A.K. Srivastava, P.C. Jain. S. Chandand Company Ltd.
14. Principles of Biochemistry by Leneinger, D.L. Nelson, M.M. Cox.
15. Instrumental methods of chemical analysis by B.K. Sharma.

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Sessional Work

1. Seminar, Presentation on any topic from syllabus.
2. Academic assesment through short and long questions.
3. Discussion on role of nutrients in biochemistry.

	• Beta oxidation theory with energetic • Ketosis, formation and utilization of ketone bodies.	
2.	**Proteins**	
	Definition, classification. • Structure and properties of proteins. • Essential and non essential amino acids.	5
	Metabolism of Proteins – • Urea cycle and its regulation. • Lipoproteins- types, composition ,role and significance in And its relationshipwith lipid transport.	
	Unit-III-	
1.	**Enzymes-** Definition, types and classification of enzymes	3
2.	Coenzymes, specificity of enzymes, isozymes, enzyme kinetics including factors affecting velocity of enzymes catalysed reaction. Enzyme Inhibition	4
3.	Enzymes in differential diagnosis of diseases and their clinical significance	2
4.	Allosteric Enzymes	1
	Unit-IV-	
1.	**Nucleic Acids -** Classification, composition, and function of nucleic acids	2
2.	Structure and properties of nucleosides, nucleotides	2
3.	DNA, RNA (mRNA, tRNA, rRNA)	3
4.	Replication, Transcription, Protein biosynthesis	6
5.	Genetic code.	1

Practical: - 1 interactive periods /week.

1. Qualitative test for reducing and non reducing sugars, fat and proteins
2. Separation of water and non water soluble protein from soybean and Bengal gram flour.
3. Estimation of cholesterol.

Paper - II

M. Sc. (Home Science) Sem. VII

General and Spl. Group 'B'(F.N)

Nutritional Biochemistry - I

~~UE- 60~~ 75 Marks

~~CCE- 40~~ 25 marks

Course type: ~~Major~~ Theory

Teaching Periods/week: ~~5~~ 4/week

Credit : ~~5~~ 4

~~L:T:P :: 4:0:1~~

Objectives:

- Augment the biochemistry knowledge acquired and understand the significance of Biochemistry in Home Science research.
- Understand the mechanisms adopted by the human body for regulation of metabolic Pathways
- Become proficient for specialization in nutrition. Understand integration of cellular level metabolic events to nutritional disorders and imbalances.

		Periods
	Unit-I -	
1.	Definition, objectives, scope and importance of biochemistry and its relation to nutrition	1
2.	**Carbohydrates-** • definition, classification, and properties of Glycoproteins,Proteoglycans • glycolysis, kreb's cycle, and its significance as amphibolic pathway, • glycogenesis, glycogenolysis, cori cycle and blood sugar regulation.	10
	Unit-II -	
1.	Definition, classification of lipids	2
	Metabolism of Lipids- • Biosynthesis of fatty acids	6

26-4-2022

28.4.22

2. R. Kumar: Research Methodology: A step by Step Guide for Beginners
3. M. H. Gopal: Introduction to Research Methodology for Social Sciences
4. Good, Carter, Scales and Douglas: Methods of Research

UNIT- II	**Research Process** 1. Planning the Research 2. Defining the Research problem 3. Research Objectives: Definition and formulation of hypothesis/objectives 4. Review of related literature 5. Basics of Sampling: Sampling vs. Complete Enumeration Objectives, Principles and Limitations of sampling, Sampling Techniques, Size and Error	 2 2 2 2 4
UNIT-III	**Data Gathering Instruments/ Tools** 1. Primary and Secondary Data 2. Methods and Tools in Data Collection (Schedule, Questionnaire, Interview, Case Study Method etc.) 3. Measurement and Scaling Techniques 4. Validity, Reliability, Sensitivity of Data Collection Tools	1 4 4 3
UNIT- IV	**Report Writing** 1. Summary, Conclusion and Recommendations 2. Writing References 3. Writing Process of Research Report: Formal Style of writing, Preface, Chapterization, Headings, Tables and Figures, Appendices, Bibliography and Acknowledgement	 3 2 7

~~Tutorials~~ SESSIONAL WORK

- Prepare a research plan of any field of Home Science.
- Prepare a Schedule/Questionnaire of the related topic using scaling techniques.
- Gathering information from pilot survey and make a sample master chart for analysis.

References:

1. C. R. Kothari: Research Methodology- Method and Techniques

26.4.22

Paper – I

Research Methodology

M.Sc. (Home Science) Sem. VII

M.Sc. (Gen.)

Spl (Grp. 'A') (C.D.)

Spl. (Grp. 'B') (F.N.)

Spl. (Grp. 'E') (E.E.)

Course Type: Major

Credits: 4

Teaching Periods: 4/ week

Max Marks-100

CCE – 25 Marks

UE – 75 Marks

Objectives:

- To understand the significance of Research Methodology in Home Science Research.
- To study the types, tools and Methods of Research and develop the ability to construct data appropriate to the Research Design.
- To be able to appreciate and understand importance of writing scientifically.

UNITS	COURSE AND DETAIL	PERIODS
UNIT- I	**Introduction toResearch**	
	1. Meaning, purpose, approaches and scope in various field of Home Science	2
	2. Types of Research	3
	3. Selection of Research problem: need, relevance and feasibility	2
	4. Research Design: meaning, purpose and criteria(Experimental and Observational)	3
	5. Quantitative and Qualitative approaches	2

26.4.2022

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RAJEEV KUMAR
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SEMESTER

VII

M.Sc. (HOME SCIENCE)

GENERAL

Abbreviation:

CIE: Continuous Internal Evaluation
UE: University Exam

P.G.D.R IN SUBJECT

SEMESTER XI

Paper No	Subject	Course Type	Credit	CIE	UE	Total
C 1	Thrust areas of Home Science	Major	6	25	75	100
C 2	Essentials of Entrepreneurship	Major	6	25	75	100
C 3	Research Methodology	Major	4	25	75	100
	Research Project (Qualifying)					
			16	75	225	300

26/4/2022

Dr. Nitu Singh

26.4.2022

SEMESTER IX

Paper No.	Subject	Course Type	Credit	CIE	UE	TOTAL
XIV	Methods of Studying Human Development	Theory Major	4	25	75	100
XV	Institutional Food Management	Theory Major	4	25	75	100
XVI	Advanced Apparel Designing and Production	Theory Major	4	25	75	100
XVII	Food Microbiology and Food Safety	Theory Major	4	25	75	100
XVIII	Computer application in Designing	Practical Major	4	25	75	100
XIX	Research Project		4	25	75	100
	Total		24	150	450	600

SEMESTER X

Paper No.	Subject	Course Type	Credit	CIE	UE	TOTAL
XX	Advanced Physiology	Theory Major	4	25	75	100
XXI	Clinical Nutrition with Compulsory Internship	Theory Major	4	25	75	100
XXII	Food Processing and Preservation	Theory Major	4	25	75	100
XXIII	Indian Socio Economic Environment : Development Perspectives	Theory Major	4	25	75	100
XXIV	Food Preservation Techniques	Practical Major	4	25	75	100
XXV	Research Project		4	25	75	100
	Total		24	150	450	600

(MASTER IN FACULTY)

Dr. Nitu Singh

26.4.2022

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Annexure - V

M.SC.(HOME SCIENCE) GENERAL

(As per NEP-2020 guidelines)

Session- (2022-2023)

SEMESTER VII

Paper No.	Subject	Course Type	Credit	CIE	UE	TOTAL
I	Research Methodology	Theory Major	4	25	75	100
II	Nutritional Biochemistry-I	Theory Major	4	25	75	100
III	Resource Management	Theory Major	4	25	75	100
IV	Guidance and Counseling Across the Lifespan	Theory Major	4	25	75	100
V	Nutritional Biochemistry-I	Practical Major	4	25	75	100
VI	Other Faculty *	Minor	4	25	75	100
VII	Research Project		4	25	75	100
	Total		28	175	525	700

SEMESTER VIII

Paper No.	Subject	Course Type	Credit	CIE	UE	TOTAL
VIII	Fundamentals of Statistics	Theory Major	4	25	75	100
IX	Ergonomics	Theory Major	4	25	75	100
X	Advanced Food Science	Theory Major	4	25	75	100
XI	~~Fashion Sketching and Illustration~~ Traing and Management	Theory Major	4	25	75	100
XII	Surface Ornamentation on Textile	Practical Major	4	25	75	100
XIII	Research Project		4	25	75	100
	Total		24	150	450	600

*Faculty of Linguistic, Faculty of Computers, Faculty of Management, Faculty of Basic Science

26/4/2022

Dr. Nitu Singh

(BACHELOR (RESEARCH) IN FACULTY)

Archana Kapoor

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SEMESTER

XI

14. स्नातक व स्नातकोत्तर कार्यक्रमों की वर्षवार संरचना

		Subject I	Subject II	Subject III	Subject IV	Vocational	Co-Curricular	Industrial Training/ Survey/ Research Project	{Minimum Credits} For the year	{Cummulative Minimum Credits} Required for Award of Certificate/ Diploma/ Degree
		Major	Major	Major	Minor Elective	Minor	Minor	Major		
		4/5/6 Credits	4/5/6 Credits	4/5/6 Credits	4/5/6 Credits	3 Credits		4 Credits		
Year	Sem.	Own Faculty	Own Faculty	Own/ Other Faculty	OtherSubject/ Faculty	Vocational/ Skill Development Course	Co-CurricularCourse (Qualifying)	Inter/Intra Faculty related to main Subject		
1	I	Th-1(6) or Th-1(4)+ Pract-1(2)	Th-1(6) or Th-1(4)+ Pract-1(2)	Th-1(6) or Th-1(4)+ Pract-1(2)	1 (4/5/6)	1	1		46	{46} Certificate in Faculty
	II	Th-1(6) or Th-1(4)+ Pract-1(2)	Th-1(6) or Th-1(4)+ Pract-1(2)	Th-1(6) or Th-1(4)+ Pract-1(2)		1	1			
2	III	Th-1(6) or Th-1(4)+ Pract-1(2)	Th-1(6) or Th-1(4)+ Pract-1(2)	Th-1(6) or Th-1(4)+ Pract-1(2)	1 (4/5/6)	1	1		46	{92} Diploma in Faculty
	IV	Th-1(6) or Th-1(4)+ Pract-1(2)	Th-1(6) or Th-1(4)+ Pract-1(2)	Th-1(6) or Th-1(4)+ Pract-1(2)		1	1			
3	V	Th-2(5) or Th-2(4)+ Pract-1(2)	Th-2(5) or Th-2(4)+ Pract-1(2)				1	1 (Qualifying)	40	{132} Bachelor in Faculty
	VI	Th-2(5) or Th-2(4)+ Pract-1(2)	Th-2(5) or Th-2(4)+ Pract-1(2)				1	1 (Qualifying)		
4	VII	Th-4(5) or Th-4(4)+ Pract-1(4)			1 (4/5/6)			1 (4)	52	{184} Bachelor (Research) in Faculty
	VIII	Th-4(5) or Th-4(4)+ Pract-1(4)						1 (4)		
5	IX	Th-4(5) or Th-4(4)+ Pract-1(4)						1 (4)	48	{232} Master in Faculty
	X	Th-4(5) or Th-4(4)+ Pract-1(4)						1 (4)		
6	XI	2 (6)	1 Research (4)Methodology					1 (Qualifying)	16	{248} PGDR in Subject
6,7,8	XII-XVI							Ph. D. Thesis		Ph.D. in Subject

Note:Blue Colour: No. of papersRed colour: Credits Purple colour: Non-Credit Qualifying Courses; Th-Theory, Pract-Practical

Research Project

(Qualifying)

	problem of plagiarism and related issues, International norms and standards.	

~~Tutorials~~ SESSIONAL WORK

- Prepare a research plan of any field of Home Science.
- Prepare a Schedule/Questionnaire of the related topic using scaling techniques. Gathering information from pilot survey and make a sample master chart for analysis.

References:

1. Research Methodology, Methods and Techniques. C.R. Kothari, New Age International (P) Limited Publishers.
2. Research Methodology – Deepak Kumar Bhattacharya Excel Books.
3. The Ethics of Science: An Introduction. David B Resnik, Routledge Publisher, USA.
4. Ethical values for Excellence in Education and Science. J.N. Kapur. VishvaPrakashan, New Delhi.
5. OSU Safety Manual 1.01
6. Practical skills in Chemistry, JR Dean, AM Jones, D. Holmes, R. Read, J. Weyers and A. Jones.Pearson Education Ltd. (Prentice Hall).
7. The Student's Guide to Preparing Dissertations and Thesis. London: Kogan.
8. MLA Handbook for writers of research papers, East West Press, New Delhi.
9. Thesis Writing: A manual for Researchers. New Age International Ltd.
10. Write and publish a scientific paper by Robert A. Day Oryse Press.
11. Research Projects and Research proposals. A guide for Students seeking funding by Paul G. Chaplin. Cambridge University Press.
12. Write Mathematics Right: L Radhakrishnan, Narosa.
13. Satarkar, S.V. (2000), Intellectual Property Rights And Copy Right, Ess Ess Publications.

Abbreviations: ESE- End Semester Evaluation CCE- Continuous Comprehensive Evaluation

UNIT- II	**IDENTIFYING THE RESEARCH PROBLEM** (a) What is research problem, Selection of the problem, Technique involved in defining a problem, Formulation of hypothesis, Meaning and need for research design, Research Designs- Exploratory, Descriptive, Experimental and Historical. Basic principles of research design, Execution of the research. (b) Sampling techniques, pilot study, Qualitative and Quantitative Data, Scaling and Measurement Techniques- Likert, Guttman and Thustone scale, testing of validity and reliability.	7 5
UNIT-III	**DATA GATHERING INSTRUMENTS/ TOOLS AND ANALYSIS OF DATA THROUGH COMPUTER APPLICATIONS** Collection and analysis of data, Data Analysis by using of computer software (Excel, SPSS) - Coding, Tabulation, measures of central tendency, measures of dispersion, correlation, regression and test of significance (Z-Test, t-Test, Chi-Square test, F –test, ANOVA).	12
UNIT- IV	**(a) INTERPRETATION AND REPORT WRITING** Meaning of Interpretation, Necessity of interpretation, Techniques and precautions in Interpretation, Significance of report writing, Research papers and reviews, Different steps in writing report, Layout of the research report, precautions of writing research reports, developing a research proposal, Basic knowledge of organizing conferences, symposia, workshop, and exhibitions. **(a) LITERATURE SURVEY** References, Abstraction of a research paper, possible ways of getting oneself abreast of current literature, High rank Journals, Impact Factors, h – factor, Citation Index. **(b) SCIENCE AND ETHICS** Intellectual property and Intellectual property rights, Indian patent system, Research agreement, Ethical theory and applications, Ethical issues in science research and reporting the	4 4 4

Revised

Paper – C3

Research Methodology

PGDR (Home Science)

Semester XI

Course Type: Major Theory

Credit: 4

Teaching Periods: 4/Week

~~**L:T:P::3:1:0**~~

CCE:~~40~~ Marks 25

ESE:~~60~~ Marks 75

Objectives:

- To understand the significance of Research Methodology in Home Science Research.
- To study the types, tools and Methods of Research and develop the ability to construct data appropriate to the Research Design.
- To be able to appreciate and understand importance of writing scientifically.
- To understand the role of Statistics in Research.
- To apply Statistical Techniques to Research Data for analyzing and interpreting data meaningfully.
- To understand the use of Statistical Software in the analysis of data.

UNITS	COURSE AND DETAIL	PERIODS
UNIT- I	**INTRODUCTION TO RESEARCH** Research Methodology, Meaning of Research, Scientific Thinking, Objectives of Research, Types of research- analytical, applied fundamental, quantitative and qualitative, Conceptual and Empirical, Significance of research, Criteria of good research, Basis of selection of the broad areas of research, selection of Institute, selection of research supervisor, Major research centers in India. Ranking Institutions (Criteria and Selection Procedure), Problems encountered by researchers in India.	12

3. Charantimath Poornima M.(2018), Entrepreneurship Development and Small Business Enterprises, Third Edition, Pearson Education .
4. Chandra, P. (1992) project preparation, appraisal, budgeting and implementation, Tata Mc graw Hill, New Delhi.
5. Goel, E.B. (1991) project management. Tata Mc graw Hill, New Delhi.

Abbreviations:

ESE- End Semester Evaluation

CCE- Continuous Comprehensive Evaluation

UNIT- II	**Establishing a Small Scale Enterprise**	
	Environment scanning	3
	Enterprise selection, market assessment, enterprise feasibility study, SWOT analysis	3
	Resource mobilization finance technology, raw material, site and manpower	3
	Costing, Quality control, profitability and future growth	3
UNIT-III	**Operating the Small Scale Enterprise**	
	Schemes available for women entrepreneurs	4
	Financial management issues in SSE- definition and scope	4
	Marketing management issues in SSE- marketing strategies and marketing mix variables	4
UNIT- IV	**Project Planning**	
	Planning basic concepts, need, and feasibility	4
	Project identification basic goal	4
	Monitoring and evaluation	4

~~Practical~~ SESSIONAL WORK

1. Prepare case profiles of any five entrepreneurs in India.
2. Review employment trends of women in the organized and unorganized sectors.
3. Visit small enterprises and prepare report on it.
4. Prepare a project plan for any business.

References:

1. Dr. G.K. Varshney (2019), Fundamentals of Entrepreneurship, Sahitya Bhawan Publication.
2. S A Kumar, S C Poornima, M K Abraham, K Jayshree (2021), Entrepreneurship Development Paperback, New Age International publishers.

Paper – C 2

Essentials of Entrepreneurship

PGDR (Home Science)

Semester XI

Course Type: Major Theory

Credits: 6

Teaching Periods: 6/ week

~~L:T:P::5:0:1~~

CCE – ~~40~~ 25 Marks

~~UE~~ SE – ~~60~~ 75 Marks

Objectives:

1. The main aims of the course are to familiarize students with various concepts used in understanding processes involved in entrepreneurship and business formation and development.
2. Understand theories of entrepreneurship and business development
3. Understand the key resources required to develop an existing business such as ideas and finance, launch a new venture, or initiate a business enterprise
4. Be able to state, understand and evaluate the key factors needed to develop a successful business
5. Understand the central role of opportunity recognition and marketing to business development

UNIT- I	Concept of Entrepreneurship	PERIODS
	Definition, Concept of entrepreneurial development, Theory of Entrepreneurial origin, Need for Self Employment	3
	Economic empowerment, Gender discrimination from societal perspective, Status of women in India in the last decade	3
	Desired qualities in entrepreneurs	3
	Development of women entrepreneurs in India	3

	Process to get funding for a research project	4
UNIT- IV	**RESEARCH APPLICATIONS OF HOME SCIENCE**	
	Research Applications of Home Science in formal and informal institutions	7
	Relevance of Home Science in Current Era	5

SESSIONAL WORK:

~~Tutorial~~: Assignments related to the respective units

References:

1. Research Projects and Research proposals. A guide for Students seeking funding by Paul G. Chaplin. Cambridge University Press.
2. Desrosier NW: Elements of Food Technology, Connecticut, USA: AVI publishing co.
3. Principles of Home Science: S.R.Sharma, Vijay Kausik; Anmol Publications PVT. LTD, New Delhi
4. Encyclopedia of Home Science: S. A Srivastava
5. Education and Communication for Development : O. P. Dahama and O.P. Bhatnagar; Oxford & IBH Publishing Co. PVT Ltd. New Delhi
6. Child Development : E. B. Hurlock
7. Human Development: F. P. Rice; Perntice Hall, New Jursey
8. Research Trends in Home Science and Extention: Prakash Singh; Akinik Publications, New Delhi

PAPER – C1

Thrust Areas of Home Science

PGDR (Home Science) Sem. XI

Theory
Course Type: Major

25
CIE: ~~40~~ Marks

Credit: 6

ESE: ~~60~~ Marks
75

Teaching Periods: 6/Week

~~L:T:P::5:1:0~~

Objectives:

- To understand the need and significance of Research in different areas Home Science.
- To know the different funding agencies for Research Projects
- To gain the knowledge of different Research Applications in various fields of Home Science

UNIT- I	INTRODUCTION TO RESEARCH IN HOME SCIENCE	PERIODS
	Need of research in different fields of Home Science	6
	Identification of thrust areas of Home Science	6
UNIT- II	SIGNIFICANCE OF RESEARCH IN HOME SCIENCE	
	Scope and Significance of Research Conducted in different areas of Home Science	12
UNIT- III	SOURCES AND PRIORITY OF FUNDING AGENCIES FOR PROJECTS AND RESEARCH	
	Understanding types of Grant and Funding	4
	National and international funding agencies (UGC, DST, NIPSIT, UNICEF, INSA)	4

6. Preparation of puffs.

7. Preparation of salt biscuits, sweet biscuits, masala biscuits, chilli biscuits, chocolate biscuits, tri color biscuits, chocolate cookies, coconut cookies, nut rings.

8. Preparation of fudge, fondant, candies, toffees chocolates

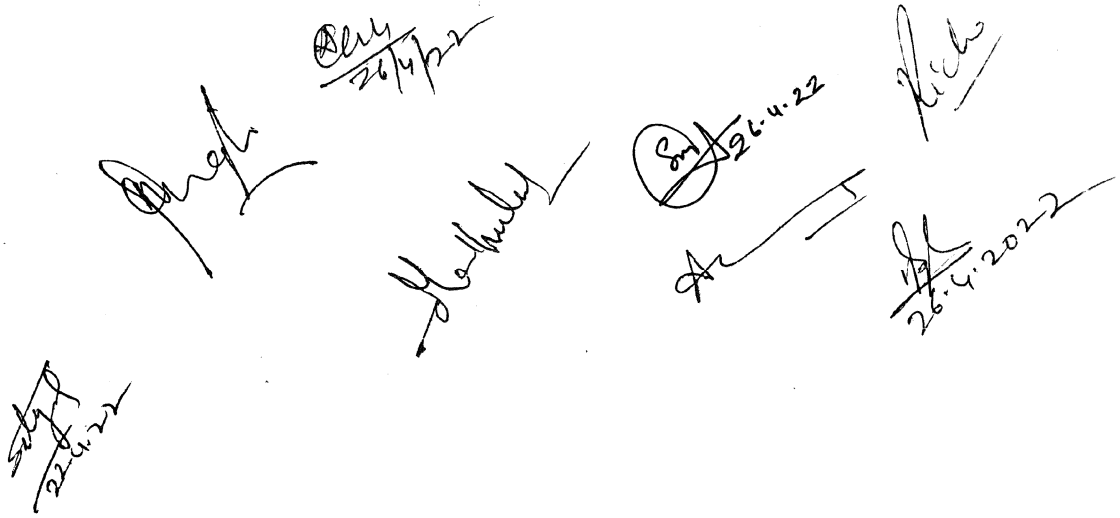
9. Planning and preparation of menu for various occasions

10. Calculation of food cost, labor cost, operating cost and overhead cost of a homemadedish.

11. Calculation of gross profit percentage of an establishment welfare/ commercial /transport for catering

References:

- Singh UK (2011). Theory of Bakery and Confectionary An operational approach,Kanishka Publishers and Distributors, New Delhi.
- Bakers Hand Book on Practical Baking (2000).U.S. Wheat Associates, New Delhi.
- Dubey SC (2002).Basic Baking. Published by the society of Indian Bakers, New Delhi.
- Nicolello I and Foote R (2000). Complete Confectionary Techniques, Hodder and Solution, London,



PAPER:IV

BAKERY AND CONFECTIONERY

Credit:5
L:T:P: 4:0:1

External (Theory: 60
Internal (Practical) :40

This course is designated to gain a deeper understanding in art of Bakery and Confectionery products.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Outline the various properties of raw materials in bakery and confectionery industries
ii. Discuss methods involved in manufacture of bakery products
iii. Compile technical knowledge in bakery
iv. Explain the physical factors of dough
v. Rate the characteristics of finished bakery and confectionery finished products

1. **Bakery and Confectionery industry:**
   - Raw material, quality parameters – dough development
   - Raw materials for cake making – flour, egg, yeast, butter, margarine, oil, leavening agents
2. **Preparation of bakery products I:**
   - Bakery products description –donut, puddings, waffle, caramel, rusk toast and custard.
3. **Preparation of bakery products II:**
   - Bakery products description – cakes, eggless cake, pizza base bread, biscuits, icecream and effect of variations in formulation.
4. **Physical Parameters:**
   - Rheological testing- Farinograph, Mixograph, Extensograph, Amylograph / Rapid Visco Analyzer, Falling number, Hosney'sdough stickiness tester.
5. **Confectionery products:**
   - Characteristics and processing of raw material, Technology of manufacturing of toffee, chocolate, hard candies, bars, bubble gums storage and characteristics of finished products.

Laboratory Experiments

1. Microscopic examination of wheat flour and other flours
2. Preparation of Gluten from various cereal flours.
3. Quality test for wheat flour used in the baked products- Maltose Number, Waterabsorption, Sedimentation value, Alcohol Acidity.
4. Preparation of wheat bread, milk bread, millet bead, buns, rolls.
5. Preparation of cakes and icing.

PRACTICALS

1. Preservation of foods by sugar

- Preparation of Jam, Jelly.
- Preparation of Marmalade, Cordial.
- Preparation of Squash, Fruit bars.
- Preparation of Preserves-Tuity Fruity, Ginger Murabha, AmlaPreserves.

2. Preservation of foods by salt and acid

- Preparation of Tomato ketchup and sauce.
- Preparation of Chutneys.
- Preparation of Pickles-Lemon, Mango, Garlic,Mixed vegetable.

3. Preservation by fermentation – Wine.

4. Visit to Food Processing Units – Cereal based, Pulse Based, Oil based and Spice Based.

References:

- Potter NN (2013) Food science.
- Brennan JG and Grandison AS (2012) Food processing handbook. 2nd Edition, JohnWiley.21
- Manoranjan Kalia (2014)Food Quality Management Second Edition, Aggrotech Publishing Academy, Udaipur.
- Walter A. Mercer, (1988) Advances in Food Research First Edition, Academic Press, University of California, U.S.A.
- Potter N (1995) Food Technology, 5th Edition, Cornell University, Ithaca, New York.

PAPER:III

FOOD PRESERVATION

Credit:5
L:T:P: 4:0:1

External (Theory: 60
Internal (Practical) :40

This course deals with the techniques and principles involved in processing andpreservation of food substances. The course is an important one and job orienting in naturethat opens many career scopes after its completion. It includes processing and preservationof fruits & vegetables, milk & milk products, meat, poultry & egg, sea foods, perishablefoods.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Explain different processing and preservation of fruits and vegetables and preparevarious milk products.
ii. Discuss various processing and preservation techniques.
iii. Identify novel technologies in the processing of fleshy foods.
iv. Identify high end techniques in sea food processing and preservation.
v. Compare various food processing technology.

Unit:1- Importance of food processing:

- Methods of processing cereals - wheat, rice,maize, pulses.
- Processing of fruits and vegetables, meat, fish, poultry, egg.oil seeds. milk and milk products. condiments and spices.

Unit: 2-Food preservation by low temperature:

- Freezing and refrigeration:
- Thawing, changes during thawing and its effect on food.

Unit: 3-Food preservation by high temperature:

- Thermal Processing- Commercial heatpreservation methods – Sterilization, commercial sterilization, Pasteurization, andCanning – bottling.

Unit:4- Food preservation by moisture control drying and dehydration:

- Drying, preservation, factors affecting rate of drying, types of driers used in the food industry.
- Evaporation – Definition, factors affecting evaporation, evaporators used in food industry.

Unit:5- Food preservation by irradiation: Introduction - units of radiation - kinds ofionizing radiations used in food irradiation- mechanism of action - uses of radiationprocessing in food industry.

Laboratory experiments:

- Milling of wheat
- Malting
- Standardization of different products
- Preparation of paneer, khoa, curd, yogurt,cream, butter, cheese, ghee, flavoured milk, ice creams, dehydrated milk products
- Product specifications and standards.
- Effect of cooking methods on pigmentation
- Adulteration of different food products

References:

1. Desrosier N W and Desrosier J N (1987) The Technology of Food Preservation,4thEdition, CBS, New Delhi.
2. Fellows P J (2000) Food Processing Technology: Principles and Practice 2nd edition CRC Woodhead Publishing Ltd., Cambridge.
3. Khetarpaul Neelam (2005) Food Processing and Preservation, Daya Publications, New
4. Delhi.
5. Salunke D K and Kadam S (1995) Hand book of Food Science and Technology -
6. production, composition, storage and processing, Marcel Dekker INC, New York.
7. Sivasankar B (2002) Food Processing & Preservation, Prentice Hall, India.

PAPER:II

FOOD PROCESSING TECHNOLOGY

Credit:5
L:T:P: 4:0:1

External (Theory: 60
Internal (Sessional) :40

This course deals with the techniques and principles involved in processing and preservingthe food substances. The course is an important one and job orienting in nature that opensmany career scopes after its completion.

Course Outcomes

Upon completion of this course, the student will be able to:

i. Apply the principles and methods involved in the processing of different foods anddiscuss the processing of cereals and pulses.
ii. Compare various millet processing techniques.
iii. Discuss pulse processing and preservation techniques.
iv. Identify oil seed processing and preservation.
v. Explain spice processing and preservation techniques.

1. Processing of foods: Primary, secondary and tertiary processing, historical perspective, traditional technologies used in food processing. Effects of processing on components, properties and nutritional value of foods.

2. Cereals and pulses: Milling of wheat - extraction of flour, refined wheat flour and pasta products Milling of rice – parboiled rice, rice based instant food Processing of corn, barley and millets – pearling, flaking and puffing, corn starch products, Malting-Pulses – Red gram, Bengal gram, black gram, green gram, soy-based products, Decortication and milling,

3. Milk and milk products: Collection, Standardization, pasteurization, homogenization, UHT processing, manufacture of paneer, khoa, curd, yogurt,cream, butter, cheese, ghee, flavoured milk, ice creams, dehydrated milk products

4. Fruits and vegetables: Harvesting, physiological and bio chemical changes during ripening, handling and storage, general methods of processing – extraction and pulping, raw material and product specifications and standards.

5. Meat, poultry, fish and egg: Ageing and tenderizing, curing, smoking and freezing of meat, fresh storage of meat. Meat based products: sausages, salami,bacon. Fish: Dry fish - Tuna Fish Canning - Fish processing and storage, pickling.Egg: storage, frozen egg, dehydrated egg powder.

5. Fruits and Vegetables

- Composition, classification, nutritive value, pigments in fruits and vegetables and effect of cooking on pigments. enzymatic browning, role in cookery.

Laboratory Experiments

1. Preparation of Malting, Extrusion and Germination.
2. Preparation of Pasta, Sandwich and Burger.
3. Preparation of Cake and Puff.
4. Preparation of Nutritious Balls and Chikki.
5. Preparation of Khoa, Paneer, Rasagulla and Sandesh.
6. Preparation of Custard, Mutton Cullet, Fish Finger and Chicken Pie.
7. Preparation of Caramel, Burfi, Jalebi and Halwa.
8. Sensory Evaluation.
9. Visit to Food Processing units

References:

- Srilakshmi B (2005) Dietetics. New Age International Publishers, New Delhi.
- Swaminathan M (1979) Food Science and Experimental foods. Ganesh and Co,Madras.
- Mudambi SR and Rao SM (1986) Food Science. Wiley Eastern Ltd. New Delhi.
- Chakraverty A (1988).Post-harvest Technology of Cereals, Pulses and oilseeds, Oxfordand IBH, New Delhi.
- GirdhariLal, Siddappa GS and Tandon CL (1967).Preservation of Fruits and Vegetables,ICAR, New Delhi.
- Norman W, Desrosier, Donald K andTressler (1977).Fundamentals of food freezing, AVIpublishing company, US.
- Potter (1973).Food science, 2nd edition.AVI Publishing Company, US.

PAPER:I

FUNDAMENTALS OF FOOD SCIENCE

Credit:5
L:T:P: 4:0:1

External (Theory: 60
Internal (Sessional) :40

This course deals with the basic understanding on cookery science. It includes basics offood Science, cereal & pulse cookery, milk cookery, meat, poultry & fish cookery andsugar cookery.

Course Outcomes

Upon completion of this course, the students will be able to:

i. Outline the basics of food science.
ii. Discuss the processing of cereals and pulses.
iii. Assess the different processing methods for milk and milk products.
iv. Explain the processing of meat, poultry and fish.
v. Analyze on the various compounds of sugar cookery.

Unit:1- Basics of food science:

- Definition for Food science, objectives, Functions of Food, Food Groups, Food Guide Pyramid
- Preliminary preparation (Cleaning, peeling, Stringing, Cutting, Grating, Sieving, Chopping, Soaking, Coating, Blanching, Grinding, Marinating). Cooking methods.

2. Cereals and pulses:

- Cereals - wheat and rice - structure, composition and Nutritive value -milling - by products of wheat and rice, parboiling - methods, advantages. Effect of soaking, germination & fermentation on cereals and pulses, properties of gluten, gluten formation and the factors affecting it.
- Pulses - Composition and Nutritive value, Germination, Effect of cooking on pulses, factors affecting cooking quality of pulses, role of pulses incookery. Ready –To- Eat cereals used in cooking.

3.Fats, Oils and Sugar

- Composition, nutritive value, Rancidity, Hydrogenation, role of fat in cookery, effect of heating, factors affecting absorption of fats, smoking point Rancidity-Types, Prevention.
- Sugar: Nutritive value, properties,. Sugar -Nutritive value, properties, Types of sugars, stages in sugar cookery, role of sugar in cookery.

4. Milk and Milk products

- Properties of milk protein, other milk products- curds, evaporated, spray dried and condensed milk, Cheese, Khoya, Their use in food preparations.
- Composition and Nutritive value, physical properties of milk, Different types of milk and milk products, role of milk and milk products in cookery.

SYLLABUS

17. Career opportunities after certification in certificate course in food processing and preservation:

- Formulate environmental friendly and nutritious food products.
- Develop analytical skills to be employed in industries.
- Gain employment in central and state government sectors.
- Competent to take up careers in academics, researches, health care, Processing and preservation industries.
- Develop skill to analyze food quality.
- Derive strategies to promote healthy living by the formulation of nutritious product.
- Entrepreneur

g. Develop skill to analyze food quality.

h. Derive strategies to promote healthy living.

11. Structure of the course

SEMESTER	PAPER NUMBER	COURSE TITLE	Credit	External (Theory)	Internal (Practical)	Total
I	I	Fundamentals of Food Science	5	60	40	100
	II	Food Processing Technology	5	60	40	100
	III	Food Preservation	5	60	40	100
	IV	Bakery & Confectionery	5	60	40	100
	Total			240	160	400

12. Infrastructure

a. Infrastructure available: Food & Nutrition lab, smart classroom, furniture.

b. Infrastructure needed : Required lab equipments

13. Number of students (Intake): 30 students in one semester

14. Fee structure:

Course fee: 5000/- Rupees

Examination fee: 1700/- Rupees

15. Is the course approved in Departmental/ University Academic committee: No, yet to be approved

16. Can this course get fund from any funding agencies?- No

17. Career opportunities after certification in certificate course in food processing and preservation:

- Formulate environmental friendly and nutritious food products.
- Develop analytical skills to be employed in industries.
- Gain employment in central and state government sectors.
- Competent to take up careers in academics, researches, health care, Processing and preservation industries.
- Develop skill to analyze food quality.
- Derive strategies to promote healthy living by the formulation of nutritious product.
- Entrepreneur

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RAJEEV KUMAR
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1. **Name of the course: Certificate course in food processing and preservation**
2. **Course Implemented by**: Department of Food & Nutrition, Institute of Home Science, Khandari, Agra.
3. **Year of Implementation:** July 2022
4. **Duration of Course:** Six month (1 Semester)
5. **Pattern of Examination:**
   - Theory: At the end of semester as per University rule
   - Practical: There will be practical examination at the end of semester.
6. **Medium of Instruction**: English/Hindi
7. **Eligibility for Admission:**
   - Intermediate, Bachelor from any stream, Masters from any stream with 50 % marks.
8. **Eligibility for Faculty: One**
   - **Qualification:** M.Sc/M.Tech in Food Science and Technology or Food Science and Quality control or Food and Nutrition with Ph.D/NET/SET.
9. **Eligibility for Lab Assistant: One**
   - **Qualification:** B.Sc/B.Tech in Food Science and Technology or Food Science and Quality control or Food and Nutrition
10. **Course Specific Outcomes (CSO)**
    a. Appreciate scientific principles and techniques of food processing and preservation.
    b. Acquire skills to establish food service outlet.
    c. Formulate environmental friendly and nutritious food products.
    d. Develop analytical skills to be employed in industries.
    e. Gain employment in central and state government sectors.
    f. Competent to take up careers in academics, researches, health care, Processing and preservation industries.

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CERTIFICATE COURSE IN FOOD PROCESSING

AND

PRESERVATION

SESSION- 2022-23.

Course proposed by:
Department of Food and Nutrition
Institute of Home Science, Khandari, Agra

26.4.22 26/4/2022 Dr. Neelu Singh 26/4/22 26/4/22 Dr. Madhulika Gaur 26.4.22 26/4/22 26.4.2022

1. Qualitative test for reducing and non reducing sugars, fat and proteins
2. Separation of water and non water soluble protein from soybean and Bengal gram flour.
3. Estimation of cholesterol.
4. Quantitative estimation of sugars.
5. Estimation of soluble protein by Biuret method.
6. Simple test of sterol.

References-

1. Text book of Biochemistry by West and Todd.
2. Introduction to Modern Biochemistry by Karlson.
3. Principles of Biochemistry by White Handler and Smith.
4. Essentials of food and Nutrition Vol.-I and II by M. Swaminathan.
5. Biochemistry by S.K. Dasgupta. Vol. I, II, III.
6. Essentials of Biochemistry by Dr. M.C. Pant.
7. Biochemistry by Virendra Kumar Shukla.
8. A Text Book of Biochemistry by S.P. Singh.
9. Principles of Biochemistry by Leneinger, D.L. Nelson, M.M. Cox.

Paper II - Food and Meal Management

Credits: 5

External (Theory): 60

Internal (Practical): 40

Unit-1:

- Food Groups - Five Basic Food groups, Seven Basic Food groups, Three Basic food groups as per ICMR. Basic food groups – Their Nutritive Value.
- Milk and Milk Products
- Fish, Meat, Egg.
- Cereals.
- Oils, Butter, Sugar, Jaggery.
- Pulses.
- Vegetables and Leafy Vegetables.
- Fruits
- Roots and Tubers.

Unit-2

- Cooking, Objectives of Cooking, Methods of Cooking, Nutritional aspects of Cooking, Importance of Microwave Cooking and Solar Cooking. Effects of Cooking on Food.

Unit-3

- Meal Management –Principles and Objectives, Concept of Balanced diet and it's components.

Unit-4

- Meal Planning -Principles, Objectives, Preparation of Menu, Planning of meal for Special Conditions
    a. Infancy,
    b. Childhood,
    c. Adolescents
    d. Pregnancy
    e. Lactation
    f. Old age
- Diet Planning as per income and activity, Factors affecting menu planning, Preparation of Menu for
    a. High income,
    b. Middle income
    c. Low income
    d. Sedentary
    e. Moderate
    f. Heavy

Practicals

1. Food preparation, understanding the principles involved , nutritional quality and portion size
    a. Cereals
    b. Pluses
    c. Vegetables
    d. Milk and milk products
    e. Meat, fish and poultry preparations
    f. Egg preparations
    g. Snacks: pakoras, cutlets, samosa, upma, poha, sandwiches

2. Identification of nutrient rich sources of foods, their seasonal availability and price, study of nutrition labeling on selected foods.

3. Use of food exchange list

4. Planning, preparation and evaluation of adequate diets using food exchange list to suit different socioeconomic groups for:

    a. Young adult
    b. Pregnant and lactating women
    c. Preschool child
    d. School age child and adolescents
    e. Elderly

References:

- Bamji MS, Krishnaswany K, Brahma GNV(2009). Textbook of Human Nutrition, 3rdEdition.Oxford and IBH Publishing Co. Pvt.Ltd.
- Srilakshmi (2010). Food Science, 5th Edition. New Age International Ltd.
- Raina U, Kashyap S, NarulaV ,Thomas S, Survira, Vir S, Chopra S (2010). Basic food preparation :A complete Manual, forth edition, Orient Black Swan ltd.
- Bamji MS, Krishnaswany K, Brahma GNV(2009). Textbook of Human Nutrition, 3rd Edition.
- Khanna K., Gupta S, Passi SJ, Seth R, Mahna R and Puri S (1997). Textbook of Nutrition & Dietetics. Phoenix Publishing House, New Delhi
- Stacy Nix (2009). William's Basic Nutrition and Diet Therapy, 13th Edition. Elsevier Mosby.

Paper III- Food Service Management

Credits: 5

External (Theory): 60

Internal (Practical): 40

UNIT I: INTRODUCTION TO FOOD SERVICE

- Factors contributing to the growth of food service industry
- Kinds of food service systems- Conventional, commissary, ready prepared, assembly/serve

UNIT II: ORGANIZATION & MANAGEMENT

• Management Theories: Classical, Scientific, Behavioural, Systems approach, Contingency approach, MBO, JIT, TQM

• Functions of management /manager, Principles of management

• Definition of Organization and steps in organizing Tools of management

• Tangible Tools: Organization chart, Job description, Job specification, Job analysis: Path way chart, Process chart, Work schedule, Production schedule, Staff and service analysis, Budget , Intangible tools: Communication, Leadership, Decision making

UNIT III: FOOD PRODUCTION

• Menu planning: Importance of menu, Factors affecting menu planning, Menu construction, Types of menu, Menu card, Qualifications of a menu planner

• Food Purchase: Purchasing methods – Market, Buyer, Vendor, Methods of Purchase: Formal and Informal, Purchasing procedure

• Storage: Types of storage, Store room requirement, Appropriate temperature for storage of different foods, Storeroom Records

• Quantity Food production: Production planning and control, Importance of planning, Production forecast, Estimating quantities to buy Quantity preparation techniques, Production schedule Product evaluation , Standardization of recipes, Recipe adjustments and portion control

• Food delivery and service: Centralized and decentralized, factors affecting selection, Styles of service: self, table, tray equipment for delivery and service

UNIT IV: PERSONNEL MANAGEMENT

• Functions of a personnel manager,

• Factors to consider while planning the kind and number of personnel: Menu, type of operations, Type of service, Job description and job specification

Manpower placement:

• Recruitment: Process and Sources-Internal and External

• Selection: Process interview, Tests

• Orientation: Importance, Content of programme, Developing an Orientation programme

• Training: Importance; Types - OJT, Group; continuous training, training for development , Developing a training programme

• Contract negotiation with employee : appointment letter, establishment of wages, components of wages , rules and regulations, duties, and service and benefits , contact with vendors

• Performance appraisal: Importance, Methods, Limitations

• Leadership: Importance; Styles, traits and skills

• Motivation: Role; Motivation theories and their application-Content theories: Maslow, Herzberg, McClelland; Process theories: Vroom, Equity; Reinforcement theory; Motivational plan and incentives

Practical:

1. Market survey for food items, both raw and processed
2. Equipment for production and service To compare cost
3. Field visit to two food service institutions
4. Planning menus within specified budget for any 3 of the following:

• Nursery school

• College hostel

• College canteen

• Hospital cafeterias

5. Standardization of a recipe

References:

- West B Bessie & Wood Levelle (1988) Food Service in Institutions 6th Edition Revised ByHargar FV, Shuggart SG, &Palgne Palacio June, Macmillian Publishing Company New York.
- SethiMohini (2005) Institution Food Management New Age International Publishers
- Koontz Harold &Weihrich Heinz (2006) Essentials of Management 7th edition Tata Mc Graw Hill Book Company .
- Terrell E M (1971) Professional Food Preparation, Wiley publishers (New York)
- Tripathi P C (2000) Personnel management 15th ed Sultan Chand, New Delhi
- Dessler Gary (2007). Human Resource Mangement 11th edition. Prentice H all, New Jersey.

PAPER IV- FOOD MICROBIOLOGY & FOOD SAFETY

Credits: 5

External (Theory): 60

Internal (Practical): 40

UNIT I- INTRODUCTION TO MICROBIOLGY

- Definition, scope of Food Microbiology
- An Introduction to microbial world: Bacteria, Fungi , Yeast, Viruses.
- Bacterial groups based on their morphology: Gram positive , gram negative, motile/ non-motile bacteria, sporulating/ non sporulating bacteria.
- Bacterial groups based on their physiological growth factors: Temperature, pH, water activity, availability of oxygen. Intrinsic and extrinsic parameters that affect microbial growth and their relevance to food spoilage and preservation.
- Fungi and Yeast : General features and their importance in food microbiology
- Viruses and Bacteriophages: Definition, their general characteristics and multiplication

Unit II-FOOD SPOILAGE AND DESTRUCTION OF MICROBES

- Food Spoilage :Definition, microorganisms involved in spoilage of various foods: Milk, bread, canned food, vegetables and fruits, fruit juices, meat, eggs and fish.
- Physical and chemical means used in destruction of microbes: Definition of sterilisation and disinfection. Role of heat, filtration and radiation in sterilization, use of chemical agents- alchohol halogens and detergents.

Unit III- CONTAMINATION- INTOXICATION & INFECTION

- Sources of food contamination, food poisoning Symptoms &control .
- Food Borne Intoxication: Botulism and Staphylococcal intoxication
- Food borne infections- Salmonellosis, Clostridium perfrigens, bacillus cereus gastroenteritis

Unit IV: MICRORGANISMS IN FOOD

- Microorganisms in food enzyme and technology:
- Food Fermentation
- Enzymes and food production
- Microorganisms as food
- Probiotics and Single cell proteins
- HACCP system and food safety used in controlling microbiological hazards

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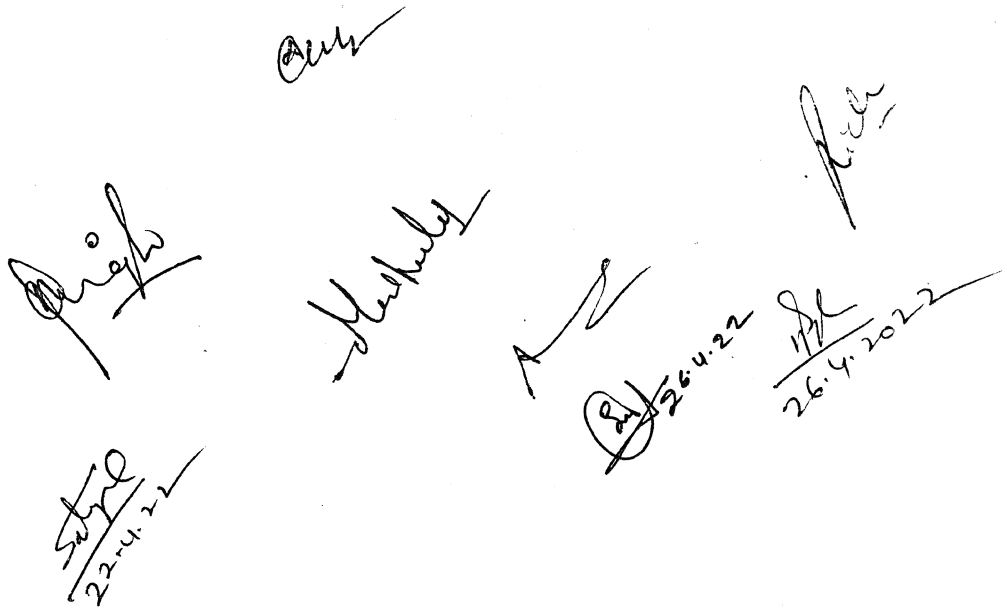
PRACTICALS

1. Identification of microbes
2. Preparation of chart and models (same as theory)
3. Identification of slides of microbes.
4. Sterilization
5. Techniques of culturing from liquid and solid media
6. Staining of bacteria: Gram staining and spore staining
7. Determination of plate count
8. Bacteriological analysis of water and milk

References:

1. Text Book of Zoology P.S Dhami, Pardeep Publication.
2. Food Microbiology Frazier, willian C and West off Dannis C, Tata McGraw Will Publish Company Ltd.
3. Pelczar, M.L. and Reid, R.D. Microbiology. Mc Graw Hill Book Company, New York.
4. Jay, J.M: Food Microbiology; 6th Edition, Aspen publishers, Inc.,Maryland.
5. Adams, M.R. and Moss M.G: Food Microbiology, 1ST Edition, New age International (P) Ltd.



PAPER V- PUBLIC HEALTH NUTRITION

Credits: 5

External (Theory): 60

Internal (Practical): 40

Unit I – PUBLIC HEALTH NUTRITION & HEALTH CARE SYSTEM

1. Aim, scope and content of public health nutrition
2. Current concerns in public health nutrition: An overview
3. Role of Public health nutritionists in National Development
- - Health- definition, dimensions, determinants, indicators
- - Community health care
4. National Health care delivery system

UNIT- II- PUBLIC HEALTH ASPECT OF UNDER NUTRITION

1. Aetiology, public health implications, prevention and community based management of PEM, Severe acute malnutrition
2. Micronutrient deficiencies of public health significance

UNIT-III-FOOD AND NUTRITION SECURITY

1. Concepts and definitions of food and nutrition security at National, regional , household and individual levels.
2. Public sector programmes for improving food and nutrition security
3. National Plan of Action on Nutrition

UNIT IV- BEHAVIOUR CHANGE COMMUNICATION FOR NUTRITION AND HEALTH PROMOTION

1. Planning of communication strategies for behaviour change programme.
- Stakeholders in nutrition promotion.
- Developing nutrition education plan
- Identifying communication strategies and approaches for health promotion (e.g social marketing)
- Designing nutrition and health messages, selecting communication channels, developing and field testing of communication materials
2. Ethics in Nutrition and Health Communication

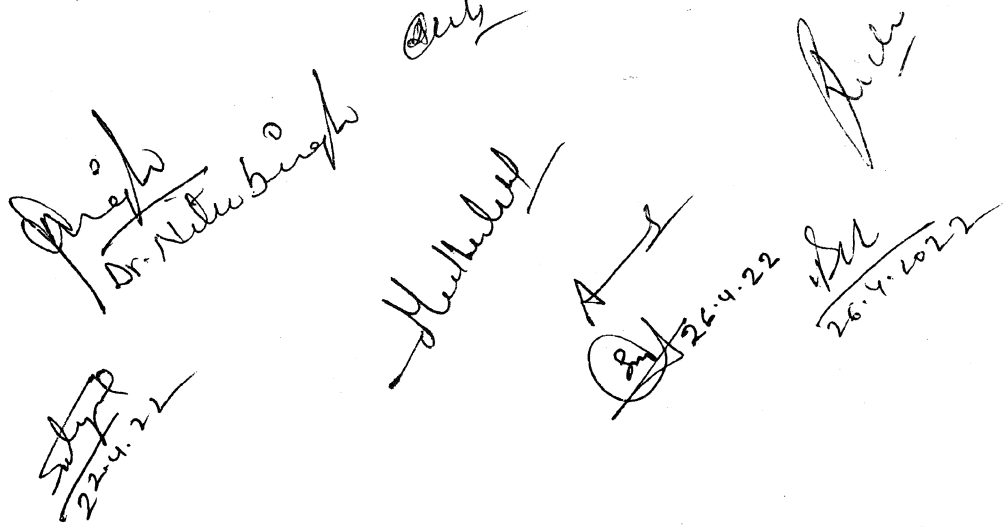
PRACTICAL

1. Planning and preparation of diet/dishes for PEM, VAD and IDA.
2. Field Visit to ongoing national nutrition programmes
3. Assessment of Nutritional problem in an identified community and their determinants in different population groups through analysis of secondary data (such as NSSO, NFHS data etc)

4. Planning of a communication strategy for a nutrition education programme in the community; field testing of messages, materials and methods

References:

- Achaya,K.T. (Ed) (1984). Interface between Agriculture, Nutrition and Food Science. The United National University.
- Beaton, G.H and Bengoa, J.M (Eds) (1996) . Nutrition in Preventive Medicine, WHO.
- Gibney M.J., Margetts,B.M., Kearney, J.M. Arab, I., (Eds)(2004). Public health Nutrition, NS Blackwell publishing.
- National consensus workshop on Management of SAM children through Medical Nutrition Therapy (2009)- Compendium of scientific publications Volume I & ii. Jointly organised by AIIMS, SitaramBhartia Institute of Science and Research, IAP (subspeciality chapter on Nutrition, New Delhi. Sponsored by DBT.
- Park, K. (2009). Parks Textbook of Preventive and Social Medicine, 20th Edition, Jabalpur. M/S Banarsidas
- Gopalan,C and Kaur, S. (Eds) (1993). Towards better Nutrition , problems and policies. Nutrition Foundation of india.
- National Nutrition Policy, GOI, 1993.
- National Plan of Action on Nutrition, GOI, 1995.
- Public Health Communication: Evidence for Behaviour change by Robert C.Hornik (2002) by Lawrence Erlbaum Associates, Inc.
- Communication and Health : Systems and Applications. Edited by Eileen Berlin Ray and Lewis Donohew(1990) by Lawrence Erlbaum Associates, Inc.
- Designing health messages: Approaches for communication Theory and Public Health Practice ;Editors : Edward Maibach and Roxanne Louiselle Parrott (1995) by Sage Publications, Inc.



PAPER VII- ADVANCED PHYSIOLOGY

Credits: 5

External (Theory): 60

Internal (Practical): 40

Unit I- INTRODUCTION TO LYMPHATIC & CIRCULATORY SYSTEM

1. Lymphatic system and its and functions.
2. Circulatory System: blood – composition, blood cells - development and function of blood cells, blood clotting, blood grouping and haemoglobin
3. Heart and its anatomy. Circulation of blood, cardiac cycle, blood pressure and factors affecting blood pressure.

UNIT-II RESPIRATORY AND DIGESTIVE SYSTEM

1. Respiratory system: anatomy, physiology and mechanism of respiration, regulation of respiration.
2. Digestive system: anatomy of gastrointestinal tract and accessory organs. Digestion and absorption of food.

UNIT-III EXCRFTORY AND ENDOCRINE SYSTEM

1. Excretory system: anatomy and functions of kidney, formation, composition and excretion of urine.
2. Endocrine glands, mode of action of hormones

UNIT- IV REPRODUCTIVE AND NERVOUS SYSTEM

1. Reproductive system: structure and functions of male and female reproductive organs.
2. Nervous system: anatomy and functions.

PRACTICALS

1.Microscopic examination of prepared slides of different human organs
2. Estimation of haemoglobin
3.Identification of blood groups
4.Preparation of blood smear.
5.Measurement of blood pressure.
6.Estimation of blood glucose
7.Preparation of TEC and TLC
8.Preparation of blood Haem-crystals

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9.Demonstration and study of models of human body system.

Reference Books:

1. Best CH & Taylor NB. 1989. The Human Body. ASI Publ. House. (Source: National Book Depot, Bombay).
2. Chatterjee CC. 1992. Human Physiology. Vols. I, II. Medical Allied Agency.
3. Guyton AC. 1991. Text Book of Medical Physiology. WB Saunders.
4. Mukherjee KL. 1994. Medical Laboratory Technology. Vol I. Tata McGraw Hill.
5. Wilson KJW & Ross JS.1987. Ross and Wilson Anatomy and Physiology in Health and Illness. 6th Ed. Churchill Livingstone.

PAPER VII- CLINICAL NUTRITION

Credits: 5
External (Theory): 60
Internal (Practical): 40

Unit I- NUTRITIONAL ASSESSMENT & CARE OF PATIENTS

1. Nutrition care process
   - Nutritional screening and assessment of patients- outpatient &hospitalised
   - Nutritional interpretation of routine medical and laboratory data
   - Nutrition care plan and implementation
   - Monitoring & follow up
2. Diet counselling
3. Diet, Nutrition and drug interaction
4. Nutrition support : Enteral & Parenteral Nutrition

Unit-II WEIGHT MANAGEMENT, DIABETES & HEART DISEASE

Pathophysiology, metabolic & clinical aberrations, diagnosis , complications, treatment, MNT, dietary counselling and recent advances in –

1. Weight imbalance disorders- Overweight and Underweight
2. Diabetes Mellitus – Type 1, Type 2 & Gestational Diabetes
3. Cardiovascular disease- Hypertension, hyperlipidaemia, metabolic syndrome, myocardial infarction, congestive heart failure, coronary bypass surgery.

UNIT-III GASTROINTESTINAL TRACT, LIVER & KIDNEY DISORDERS

Pathophysiology, metabolic & clinical aberrations, diagnosis, complications, treatment, MNT, Dietary counselling and recent advances in:

1. Gastrointestinal tract disorders – GERD, Peptic ulcer, diarrhoea, lactose intolerance, celiac disease, diverticular disease, Crohn's disease and ulcerative colitis.
2. Liver, Gallbladder & Pancreatic disorders-
   Cirrhosis, Encephalopathy, liver transplant, cholecystitis, cholecystectomy, Pancreatitis.
3. Kidney Disorders –Nephrotic syndrome, glomerulonephritis, acute renal failure, chronic kidney disease, dialysis, transplant, renal stones.

UNIT-IV METABOLIC STRESS AND CANCER

Metabolic & Clinical aberrations, diagnosis, complications, treatment, MNT and dietary counselling in :

1. Metabolic stress –Surgery, Burns, sepsis and trauma
2. Cancer-Role of diet in aetiology and management , effect of cancer therapy on MNT

PRACTICALS

1. Assessment of patient needs- Nutritional assessment & screening
2. Market survey of commercial nutritional supplements
   - Collection of information on commercial food formula available in the market
   - Intravenous nutrition supplement – TPN, Cost , Composition, dosage , indications.
3. Planning & preparation of diets using exchange lists for
   - Overweight & underweight
   - Diabetes mellitus
   - Peptic ulcer
   - Diarrhoea
   - Ulcerative colitis
   - Cirrhosis
   - Hypertension
   - Hyperlipidaemia
   - Glomerulonephritis
   - Acute & chronic renal failure
   - Dialysis
   - Burns

References:

1. Lee RD & Neiman DC (2009). Nutritional Assessment. 5th Edition. Brown & Benchmark.
2. Mahan , L.K. and Escott Stump. S(2008). Krause's Food & Nutrition Therapy.12th Edition. Saunders- Elsevier.
3. Shils, M.E.., Shike ,M, Ross, A.C., Caballero B and Cousins RJ (2005). Modern Nutrition in Health & Disease. 10th .Lipincott, William and Wilkins.
4. Gibney MJ, Elia M, Ljungquist&Dowsett J. (2005).Clinical Nutrition. The Nutrition society textbook series. Blackwell publishing company.
5. Marian M. Russel M, Shikora SA. (2008). Clinical Nutrition for surgical patients. Jones and Bartlett publishers.

World Cancer Research fund & American Institute for Cancer Research (2007). Food, Nutrition, Physical activity and the prevention of cancer – A global perspective. Washington E.D.WCRF

PAPER IX- INTERNSHIP AND REPORT PRESENTATION

Credits: 5

External (Theory): 0

Internal (Practical): 100

Duration : 3 Months

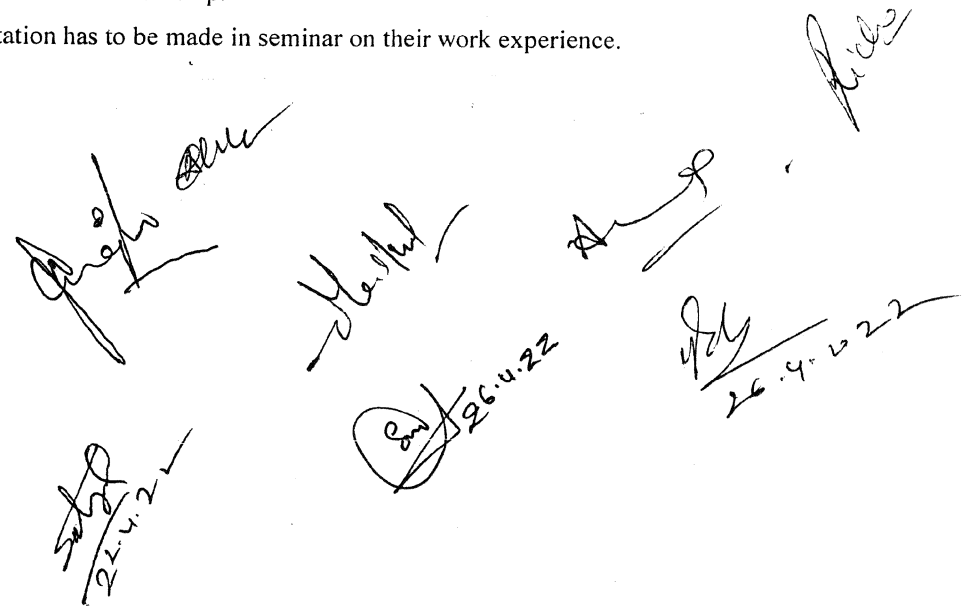
Training : Hospital Setting

Norms :

3 months internship in a hospital setting of Minimum 200 bedded NABH accredited hospital with a Dietetic department.

Evaluation:

1. The students will have to prepare a give a case presentation and submit report after completion of their internship.
2. A presentation has to be made in seminar on their work experience.



Paper I - NUTRITIONAL BIOCHEMISTRY

Credits: 5

External (Theory): 60

Internal (Practical): 40

UNIT I:

- Definition, objectives, scope and importance of biochemistry and its relation to nutrition

Carbohydrates-

- Definition, classification, and properties of Carbohydrates.
- Overview of Glycolysis, kreb's cycle, and its significance as amphibolic pathway, cori cycle and blood sugar regulation.

Water, -electrolyte and acid –base balance

UNIT II:

- Definition, classification of lipids
- Beta oxidation theory with energetic
- Ketosis.
- Biosynthesis of fatty acids

UNIT III:

Definition, classification Structure and properties of protein.

- Essential and non essential amino acids.
- Urea cycle and its regulation.
- Transamination and deamination of amino acids
- Lipoproteins- types, composition, role and significance in And its relationship with lipid transport.

UNIT IV:

Enzymes-

- Definition, types and classification of enzymes
- Coenzymes, specificity of enzymes, isozymes, enzyme kinetics including factors affecting velocity of enzymes catalysed reaction. Enzyme Inhibition

Nucleic Acids –

- Classification, composition, and function of nucleic acids
- Structure and properties of nucleosides, nucleotides
- Genetic code.

Practical: - 1 Interactive periods /week.

SYLLABUS

COURSES:

I SEMESTER

Paper No.	Subject	Credits	External (Theory)	Internal (Practical)	TOTAL
I	Nutritional Biochemistry-I	5	60	40	100
II	Food and Meal Management	5	60	40	100
III	Food Service Management	5	60	40	100
IV	Food Microbiology &Food Safety	5	60	40	100
	Total		240	160	400

II SEMESTER

Paper No.	Subject	Credits	External (Theory)	Internal (Practical)	TOTAL
V	Public Health Nutrition	5	60	40	100
VI	Advanced Physiology	5	60	40	100
VII	Clinical Nutrition	5	60	40	100
VIII	Internship and Report Presentation	5	-	100	100
	Total		180	220	400

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1. **Name of the course: PG DIPLOMA IN NUTRITION & DIETETICS**
2. **Course Implemented by**: Department of Food & Nutrition, Institute of Home Science, Khandari, Agra.
3. **Year of Implementation:** July 2022
4. **Eligibility for Admission:**

Bachelor or Masters Degree in Science/ life Science/ Home Science /B.Pharma/ B.A.M.S / B.H.M.S/ MBBS/Business Administration/ Equivalent from a University with 50% marks

5. **Mode of Admission**

Admission for P.G. Diploma in Nutrition and Dietetics shall be based on purely on merit basis. The intake capacity is 30 students.

6. **Duration:**

1. Two semesters (1 year)

2. Odd semesters is from July to December (i.e. 1st semester).

The examination shall be held in tentatively the month of December.

3. Even semester is from January to May (i.e. 2nd semester). The examination shall be held tentatively the month of May/June.

7. **Standard of Passing**

To pass the examination a candidate must obtain 40% of marks in each paper (internal as well as external examination). The Minimum standard of passing in each theory paper of 60 marks shall be 24 and for Practical paper of 40 marks shall be 16.

8. **Fee Structure:**

Course fee: Rs. 15000/- (Two semester)

Examination Fee: Rs. 1700/- (Each semester)

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COURSES:

PG DIPLOMA IN NUTRITION & DIETETICS

SESSION- 2022-23

Course proposed by
Department of Food and Nutrition
Institute of Home Science, Khandari, Agra

Research Project

(Qualifying)

SESSIONAL WORK

- Prepare a research plan of any field of Home Science.
- Prepare a Schedule/Questionnaire of the related topic using scaling techniques. Gathering information from pilot survey and make a sample master chart for analysis.

References:

1. Research Methodology, Methods and Techniques. C.R. Kothari, New Age International (P) Limited Publishers.
2. Research Methodology – Deepak Kumar Bhattacharya Excel Books.
3. The Ethics of Science: An Introduction. David B Resnik, Routledge Publisher, USA.
4. Ethical values for Excellence in Education and Science. J.N. Kapur. VishvaPrakashan, New Delhi.
5. OSU Safety Manual 1.01
6. Practical skills in Chemistry, JR Dean, AM Jones, D. Holmes, R. Read, J. Weyers and A. Jones.Pearson Education Ltd. (Prentice Hall).
7. The Student's Guide to Preparing Dissertations and Thesis. London: Kogan.
8. MLA Handbook for writers of research papers, East West Press, New Delhi.
9. Thesis Writing: A manual for Researchers. New Age International Ltd.
10. Write and publish a scientific paper by Robert A. Day Oryse Press.
11. Research Projects and Research proposals. A guide for Students seeking funding by Paul G. Chaplin. Cambridge University Press.
12. Write Mathematics Right: L Radhakrishnan, Narosa.
13. Satarkar, S.V. (2000), Intellectual Property Rights And Copy Right. Ess Ess Publications.

Abbreviations:
CIE: Continuous Internal Evaluation **UE:** University Exam

UNIT- II	**IDENTIFYING THE RESEARCH PROBLEM** (a) What is research problem, Selection of the problem, Technique involved in defining a problem, Formulation of hypothesis, Meaning and need for research design, Research Designs- Exploratory, Descriptive, Experimental and Historical. Basic principles of research design, Execution of the research. (b) Sampling techniques, pilot study, Qualitative and Quantitative Data, Scaling and Measurement Techniques- Likert, Guttman and Thustone scale, testing of validity and reliability.	7 5
UNIT-III	**DATA GATHERING INSTRUMENTS/ TOOLS AND ANALYSIS OF DATA THROUGH COMPUTER APPLICATIONS** Collection and analysis of data, Data Analysis by using of computer software (Excel, SPSS) - Coding, Tabulation, measures of central tendency, measures of dispersion, correlation, regression and test of significance (Z-Test, t-Test, Chi-Square test, F –test, ANOVA).	12
UNIT- IV	**(a) INTERPRETATION AND REPORT WRITING** Meaning of Interpretation, Necessity of interpretation, Techniques and precautions in Interpretation, Significance of report writing, Research papers and reviews, Different steps in writing report, Layout of the research report, precautions of writing research reports, developing a research proposal, Basic knowledge of organizing conferences, symposia, workshop, and exhibitions. **(a) LITERATURE SURVEY** References, Abstraction of a research paper, possible ways of getting oneself abreast of current literature, High rank Journals, Impact Factors, h – factor, Citation Index. **(b) SCIENCE AND ETHICS** Intellectual property and Intellectual property rights, Indian patent system, Research agreement, Ethical theory and applications, Ethical issues in science research and reporting the problem of plagiarism and related issues, International norms and standards.	4 4 4

Paper – C3

Research Methodology

PGDR (Home Science)

Semester XI

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Objectives:

- To understand the significance of Research Methodology in Home Science Research.
- To study the types, tools and Methods of Research and develop the ability to construct data appropriate to the Research Design.
- To be able to appreciate and understand importance of writing scientifically.
- To understand the role of Statistics in Research.
- To apply Statistical Techniques to Research Data for analyzing and interpreting data meaningfully.
- To understand the use of Statistical Software in the analysis of data.

UNITS	COURSE AND DETAIL	PERIODS
UNIT- I	**INTRODUCTION TO RESEARCH** Research Methodology, Meaning of Research, Scientific Thinking, Objectives of Research, Types of research- analytical, applied fundamental, quantitative and qualitative, Conceptual and Empirical, Significance of research, Criteria of good research, Basis of selection of the broad areas of research, selection of Institute, selection of research supervisor, Major research centers in India. Ranking Institutions (Criteria and Selection Procedure). Problems encountered by researchers in India.	12

	Resource mobilization finance technology, raw material, site and manpower	3
	Costing, Quality control, profitability and future growth	3
UNIT-III	**Operating the Small Scale Enterprise**	
	Schemes available for women entrepreneurs	4
	Financial management issues in SSE- definition and scope	4
	Marketing management issues in SSE- marketing strategies and marketing mix variables	4
UNIT- IV	**Project Planning**	
	Planning basic concepts, need, and feasibility	4
	Project identification basic goal	4
	Monitoring and evaluation	4

SESSIONAL WORK

1. Prepare case profiles of any five entrepreneurs in India.
2. Review employment trends of women in the organized and unorganized sectors.
3. Visit small enterprises and prepare report on it.
4. Prepare a project plan for any business.

References:

1. Dr. G.K. Varshney (2019), Fundamentals of Entrepreneurship, Sahitya Bhawan Publication.
2. S A Kumar, S C Poornima, M K Abraham, K Jayshree (2021), Entrepreneurship Development Paperback, New Age International publishers.
3. Charantimath Poornima M.(2018), Entrepreneurship Development and Small Business Enterprises, Third Edition, Pearson Education .
4. Chandra, P. (1992) project preparation, appraisal, budgeting and implementation, Tata Mc graw Hill, New Delhi.
5. Goel, E.B. (1991) project management. Tata Mc graw Hill, New Delhi.

Abbreviations:
CIE: Continuous Internal Evaluation
UE: University Exam

Paper – C 2

Essentials of Entrepreneurship

PGDR (Home Science)

Semester XI

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 6/Week
Credits: 6

Objectives:

1. The main aims of the course are to familiarize students with various concepts used in understanding processes involved in entrepreneurship and business formation and development.
2. Understand theories of entrepreneurship and business development
3. Understand the key resources required to develop an existing business such as ideas and finance, launch a new venture, or initiate a business enterprise
4. Be able to state, understand and evaluate the key factors needed to develop a successful business
5. Understand the central role of opportunity recognition and marketing to business development

UNIT- I	**Concept of Entrepreneurship**	**PERIODS**
	Definition, Concept of entrepreneurial development, Theory of Entrepreneurial origin, Need for Self Employment	3
	Economic empowerment, Gender discrimination from societal perspective, Status of women in India in the last decade	3
	Desired qualities in entrepreneurs	3
	Development of women entrepreneurs in India	3
UNIT- II	**Establishing a Small Scale Enterprise**	
	Environment scanning	3
	Enterprise selection, market assessment, enterprise feasibility study, SWOT analysis	3

	Relevance of Home Science in Current Era	5

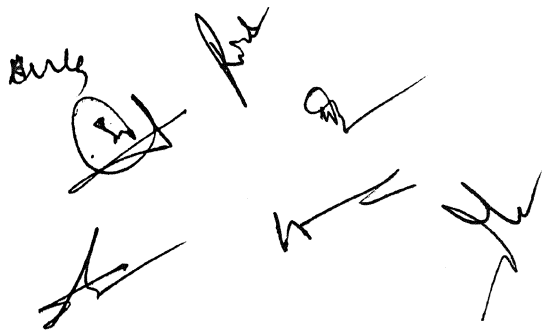
SESSIONAL WORK: Assignments related to the respective units

References:

1. Research Projects and Research proposals. A guide for Students seeking funding by Paul G. Chaplin. Cambridge University Press.
2. Desrosier NW: Elements of Food Technology, Connecticut, USA: AVI publishing co.
3. Principles of Home Science: S.R.Sharma, Vijay Kausik; Anmol Publications PVT. LTD. New Delhi
4. Encyclopedia of Home Science: S. A Srivastava
5. Education and Communication for Development : O. P. Dahama and O.P. Bhatnagar; Oxford & IBH Publishing Co. PVT Ltd. New Delhi
6. Child Development : E. B. Hurlock
7. Human Development: F. P. Rice; Perntice Hall, New Jursey
8. Research Trends in Home Science and Extention: Prakash Singh; Akinik Publications. New Delhi
9. Teaching of Home Science, Seema Yadav; Anmol Publications PVT. LTD. New Delhi

Abbreviations:
CIE: Continuous Internal Evaluation

UE: University Exam



PAPER – C1

Thrust Areas of Home Science

PGDR (Home Science)

Semester XI

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 6/Week
Credits: 6

Objectives:

- To understand the need and significance of Research in different areas Home Science.
- To know the different funding agencies for Research Projects
- To gain the knowledge of different Research Applications in various fields of Home Science

		PERIODS
UNIT- I	**INTRODUCTION TO RESEARCH IN HOME SCIENCE**	
	Need of research in different fields of Home Science	6
	Identification of thrust areas of Home Science	6
UNIT- II	**SIGNIFICANCE OF RESEARCH IN HOME SCIENCE**	
	Scope and Significance of Research Conducted in different areas of Home Science	12
UNIT- III	**SOURCES AND PRIORITY OF FUNDING AGENCIES FOR PROJECTS AND RESEARCH**	
	Understanding types of Grant and Funding	4
	National and international funding agencies (UGC, DST, NIPCED, UNICEF, INSA)	4
	Process to get funding for a research project	4
UNIT- IV	**RESEARCH APPLICATIONS OF HOME SCIENCE**	
	Research Applications of Home Science in formal and informal institutions	7

Semester XI

PGDR

(Home Science)

(2022)

Paper – C 25

Research Project

M.A (Home Science)

Semester X

CIE – 25 Marks
UE – 75 Marks

Credits: 4

Course Content:

Report writing and finalization of Research project

Paper- C 24
Food Preservation Techniques
M.A (Home Science)

Semester-X

Course Type: Practical Major
Teaching Periods: 4/week
Credits: 4

UE – 75 Marks
CIE – 25 Marks

Objectives :

- Enabling students to understand the principles and processes involved in food processing
- Familiarizing the students with the technological innovations for various food stuffs.
- Making students aware of the role packaging plays in the delivery of food stuffs.

	PRACTICALS
1.	Dehydration of fruits and vegetables and shelf life studies: is effect on colour, texture and flavour.
2	Preservation of fruits and vegetables using low temperature
3.	Preservation of fruits and vegetables using heat, salt and sugar
4.	Processing of tomato products
5.	Processing of Jams, jellies and marmalades
6.	Processing of pickles and brines.
7.	Prepare simple extruded foods

	1. An Introduction to packaging technology - Objectives - Basic packaging materials and their protective qualities - Effect of packaging on the nutritive value of foods	2
	2. FPO and other food laws governing Indian Food Industry	2

References:

- Dey S: Outlines of Dairy Technology, Oxford University Press, Delhi.
- Desrosier NW: Elements of Food Technology, Connecticut, USA: AVI publishing co.
- Mat : Cereal Technology, Connecticut, USA: AVI publishing co.
- Siddapa, GS (1986), Preservation of Fruits & Vegetables, ICAR Publication.
- National Dairy development board, Amul, Milk and Milk products processing
- Gould GW. New Methods of Food Preservation. Blacklie. Academic & Professional. London.

Sessional Work-

1. Seminar Presentation on any topic from syllabus.
2. Academic Assessment through short and long questions.
3. Discussions on any topic from entire syllabus.

Paper-C 23
Food Processing and Preservation
M.A (Home Science)

Semester-X

Course Type: Theory Major

UE – 75 Marks
CIE – 25 Marks

Credits: 4
Teaching Periods: 4/week

Objectives :

- Enabling students to understand the principles and processes involved in food processing
- Familiarizing the students with the technological innovations for various food stuffs.
- Making students aware of the role packaging plays in the delivery of food stuffs.

CONTENTS		PERIODS
UNIT- I	**FOOD PRESERVATION**	
	1. Principles underlying food preservation operations :- i) Thermal ii) Refrigeration and freezing iii) Dehydration iv) Radiation	2 2 1 1
	2. Use of chemical additives, ionizing radiations, pickling and curing in preservation.	4
UNIT -II	**PROCESSING TECHNOLOGY OF FOODS**	
	1. Cereals: Wheat milling process, baking technology, production of bread, barley malting. Rice processing, fractionation, parboiled rice.	4
	2. Fruits & Vegetables: Changes during ripening	2
	3. Canning process of fruits & vegetables	2
	4. Milk and Milk products: Milk processing, separation, standardization, pasteurization, homogenization, ultrahigh sterile milk.	4
	5. Meat & Fish processing : Rigor mortis, ageing, tenderizing, curing, salting, pickling.	2
UNIT-III	**FORTIFICATION AND EXTRUSION TECHNOLOGY**	
	1. Fortification Technology - Objectives - Nutritional significance -Selection of Vehicle -Fortification of salt, cereal products & dairy products	2
	2. Extruded Food: An introduction to extrusion technology	2
UNIT-IV	**PACKAGING TECHNOLOGY, FOOD LABELLING & FOOD LAWS**	

	of trainers/resource persons, aids and equipment transportation, finances, monitoring of training. 2. Organizational factors-Working environment, leadership, values, mechanics of change, organizations as socio-technical systems-impact development. 3. Developing organizational structures for facilitating micro and macro level interventions for facilitating development.	4 4
4.	Evaluation of training Issues in evaluation in training, evaluation of learning in terms of gain in knowledge, attitude and skills; measurement of change in behavior in participants; measurement of results/impact of training.	10

Sessional Work

1. Designing training programmes for different developmental goals
2. Developing skills in selection and use of different training methods-case study, role playing, psychodrama, buzz group, group discussion, transactional analysis, process work, micro labs, business games etc.
3. Organizing and conducting training programmes.

References

1. William R. Tracy, "Designing training & development system" Bombay T. publication.
2. Singh B. Manual, "Advances in Training Technology (manual IARI)"
3. William R. Tracy, "Designing training & development sy

Abbreviation:

CIE- Continuous Internal Evaluation.
UE – University Examination.

Paper-C 22

Training and Management

M.A (Home Science)

Semester X

Max Marks- 100
CIE- 25
UE- 75

Instruction hours/week-4
Course Type
Theory Major
Credit- 4

Objectives -

1) To be aware of the overall goals of designing training programmes for development.
2) To understand the different methodologies of Training.
3) To conceptualize the training process.
4) To develop skills in training programme

UNITS	COURSE AND DETAILS	PERIODS
1	1. Concept, need and importance of training.	3
	2. Principles of Adult Learning.	2
	3. Facilitation Skills in Training, Paraphrasing summarizing, question asking.	3
	4. Training Process-phases of training process-Pre-training, training and post-training.	3
	5. Conceptual models of training process-simple elaborated and spiral.	3
	6. Participatory and conventional training.	3
2	Designing Training Programme:	
	1. Need Assessment-concept and techniques.	4
	2. Designing overall training schedule	5
3	Management of Training Programme	
	1. Physical arrangements, selection of participants, selection	4

	b. Family health issues	3
	c. Religion and family cohesiveness	3
	d. Ecology and family	3

Sessional Work

1. Identification and study of family in relation to societal changes.
   (a) Working Women
   (b) Family health issues
   (c) Ecology and family
2. Case study of three families in different stages of family life cycle and reporting their objectives, needs and adjustment.
3. Seminar Presentation of Five families in distress reported in media

References:

1. Kenkel W.F. 1973 The Family in Perspective (III Edition) Appleton Century Crofts Meredith corporation. New York.
2. Stewart E.W. 1978 sociology – The Human Science Mc Graw Hill Company.
3. Leslie G.R. 1976. The Family in social Context, Oxford University Press New York
4. Duvall E.M. 1962. Family Development J.P. Lippincot Co.
5. Wineh R.F. 1963. The Modern Family. Holt Rinchart and Winston.
6. Adarms B.N. 1975. The family: A sociological Interpretation. Rand Menully Co. Chicago.
7. Ahuja R. 1997 India Social System (IInd Edition) Rawat Publishing Jaipur
8. Lock S.L. 1992. Sociology of the family Prentice Hall London.

Abbreviation:

CIE: Continuous Internal Evaluation
UE: University Exam

Paper – C 21

Study of Family and Society
M.A (Home Science)

Semester X

Course Type: Theory Major
Credits: 4
Teaching Periods: 4/ week

CIE – 25 Marks
UE – 75 Marks

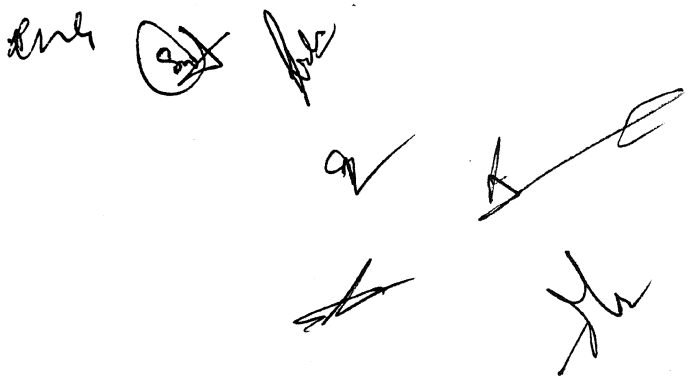
Objectives:

1. To understand family as a component of socio-cultural milieu and context.
2. To familiarize student with developmental perspectives in family life cycle.
3. To understand variations in family life patterns.
4. To create awareness regarding philosophy, structure, function, needs and strengths of families with specific reference to the Indian family.

		PERIODS
UNIT- I	**The Family in Social Context**	
	a. The family as a component of social system i. Family as an evolving and dynamic institution ii. Functions of Family	6
	b. Types of family- Nuclear, Joint, Extended, Alternate families (Single parent, Female headed families, DINK families, adopted families and live in families)	6
UNIT- II	**Mental Hygiene, Family Disorganization and Legislatives**	
	a. Mental health, meaning and movement, its importance in family life	3
	b. Family counseling process	3
	c. Divorced and separated families, legislations pertaining to marriage, property and adoption	6
UNIT-III	**Contemporary Issues and Concerns**	
	a. Dowry	3
	b. Family violence	3
	c. Family crises	3
	d. Gender and role discrimination	3
UNIT- IV	**Family and Societal Changes and their Influences on Family Working**	
	a. Working Women in family	3

CIE: Continuous Internal Evaluation

UE: University Exam



Unit – III	**Anthropometry and Biomechanics**	
	(a) Definition of Anthropometry,Anthropometric consideration and principles.	4
	(b) Working posture and motions, Common postural problems and factors to be considered, Effect of wrong Posture on body,correct technique of Lifting and Carrying weight.	6
	(c) Body mechanics: Definitions, Principles, Height of work surfaces.	4
Unit- IV	**Work place: The Kitchen**	
	(a) Workers consideration in work space design.	3
	(b) Functional design of work place.	3
	(c) Work centers.	3
	(d) Component of work place.	3

SESSIONAL WORK

a. Survey on different types of work center.
b. Identifying anthropometric measures and types of posture during work in the kitchen.
c. Preparing educational material for incorrect postures.

References:

a. Asrard, P., Roods H.T.K. – Text book of work physiology.
b. HauptandFeinleis – Physiology of Movement.
c. Nag P.K. – Ergonomics and Work Design.
d. Cross man Richard – Ergonomics Pocket Book
e. Steidaland Bratton – Work in Home.
f. TulandWeerdneester – Ergonomics for beginners.
g. Gandtora, Oberoi and Sharma – Essential of Ergonomics.
h. Amit Bhattacharya - Occupation Ergonomics.
and James D. Mcglothlin (Theory and Application)
i. Karl H.E.Kroemer and - Office Ergonomics
Anne D. Kr

Abbreviations:

Paper – C 20

Ergonomics

M.A (Home Science)

Semester X

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

OBJECTIVES:

- To become aware of the role of ergonomics in work effectiveness and efficiency.
- To understand the environment factors contributing to safety, control and well-being of individual performing the work.
- To know application of ergonomic consideration in designing of work place.

		Periods
Unit – I	**Essentials of Ergonomics**	
	(a) Definition, Scope of Ergonomics in home.	4
	(b) Need and importance of Ergonomics.	4
	(c) Components of worker input- Affective, Cognitive, Temporal, Physical.	4
Unit – II	**Work and Work Environment**	
	(a) Work component- content of job, analysis of work and amount of house hold work.	6
	(b) Knowledge of various environmental factors and their effect- Heat, Noise, Vibration, Light and Atmospheric Pollution.	6

Semester X

Paper – C 19

Research Project

M.A (Home Science)

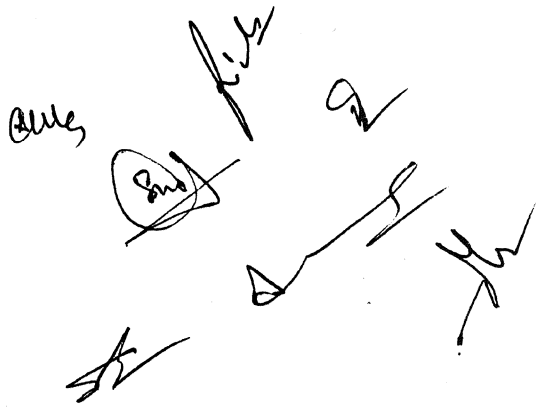
Semester IX

CIE – 25 Marks
UE – 75 Marks

Credits: 4

Course Content:

1. Data collection for the Study
2. Interpretation of the data



		4
3.	Planning and preparation of communication material for rural women related to agriculture/ home science Slides Leaflet/Folder Booklet/flip Book Cover page of different publications	 4 4 6 2
4.	Field testing of developed communication material	2
5.	Evaluation of the developed material	2
	Total	**44**

Reference: List of books related Computer Designing, Coral draw, photo shop and Page maker

1. Computer Graphics and Virtual Reality 2ed Willey Publication by R. K Mourya
2. Photoshop CS6 in Simple Steps by Congent Learning Solution Incorporation
3. Graphic Design Exercise Book - Revised Edition **Author:** Jessica Glaser
4. PageMaker 7 from A to Z**Author:** Marc Campbell Publisher Laxmi Publications
5. CorelDRAW X6 The Official Guide Paperback – by Gary David Bouton

Abbreviations:
CIE: Continuous Internal Evaluation **UE:** University Exam

Paper- C 18

Computer Application in Designing

M.A (Home Science)

Semester IX

Course Type: Practical Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Objectives:-

1. To enable students to learn /acquaint the CAD based application.

2. To understand the work of computers while designing.

3. To develop creativity in designing A.V.Aids.

Practical:

S.No.	Topics	No. of Classes
1.	Use of computer peripherals	
	Scanner	2
	Printer	2
	Storage device	2
2.	Use of designing software	
	Power point	3
	Coral draw	7
	Photo Shop	
	Page Maker	4

	institutions	
3	community resource perspectives 1.concepts of resources, national and shared resources, ecological (air, water, fuel, flora and fauna) 2. Indicators of environmental unsustainability.	4 3
4	People's initiative and sustainability 1. Ecology and resource conservation – concepts, biodiversity, resource conservation methods, renewable energy and resources 2. Environmentally sound technologies; their impact on sustainable management of resources, adoption pattern. 3. Environment and habitat. Advantages and lacuna in the initiatives of different social structures in sustainable community resource management initiatives	8 5 5

Sessional Work

a. Study of community resources in the selected area.
b. Leadership building
c. Capacity building
d. Self-reliance for Sustainable development.

References

1- Dale, R. (2000): organization and development strategies, structure and processes sage publication, New Delhi.

2- Sinha PC(1998) international and encyclopedia of sustainable development Vol. 1-20 Anmol publication pvt. Ltd New Delhi.

Abbreviation:

CIE- Continuous Internal Evaluation.
UE – University Examination

Paper: C 17

Sustainable Development

M.A (Home Science)

IX Semester

Instruction hours/week-4
Course Type-
Theory Major
Credit- 4

Max Marks- 100
CIE- 25
UE- 75

Objectives -

- To understand the concept of sustainability and development.
- Critically evaluate the inter linkages of people's participation and sustainable development.
- Understand the community resources and identify the trends in the extent and consequences of utilization.
- To understand the relationship between environmentally sound technologies and sustainability.

UNIT	COURSE DETAILS	PERIODS
1	1. Sustainability – meaning, concept and implications for development. Sustainable development – concept, philosophy, goals and challenges. 2. Dimensions of sustainable development 3. Theories of development 4. Changes in concept of development.	4 3 2 3
2	People's participation and sustainability 1. People's participation – history, concept and controversies, 2. Types and forms in development initiatives. 3. Relationship between participation, learning and sustainability, inter linkages of people's participation for building local knowledge, capacity of people and local	3 3 5

	3. Alternative systems for health and fitness like Ayurveda, yoga, meditation, vegetarianism and traditional diets.	2
UNIT- IV	**NUTRITION IN SPORTS**	
	1.Physiological aspects- Metabolic changes during sports activity	2
	2.Energy systems for endurance and power activity	2
	3.Fuels for muscle contraction, Nutritional requirements for sports: Pre game, during and post game meal (Short-duration, endurance)	4
	4. Water & Electrolyte balance and replenishments	2
	5.Erogogenic aids, sports drink, uses and abuse of dietary supplements	2

References:

1. Shils ME, Olson JA and Shike N (1994). Modern Nutrition in Health & Disease. 8th Edition, Vol I and II, Philadelphia Lea and Febiger.
2. Bagchi K and Puri S (1999). Diet and Ageing: Exploring some facts. Society of Gerontological research and HelpageIndia,New Delhi.
3. Parizkova J (1997). Nutrition, physical activity and health in early life. Ed. Wolinsky, I. CRC press.
4. McArdle W, Katch F, Katch V (1996). Exercise physiology, exercise energy, nutrition and human performance. 4thEditiion. Williams and Wilkins,Philadelphia.
5. Indian Council of Medical Research (2000). Nutrient Requirements and Recommended Dietary Allowances for Indians: A report of the expert group of the ICMR, New Delhi.
6. Hickson JH (2000). Nutrition for exercise & sport. CRC Press. 2nd Edition.
7. Mahan, L.K and Escott Stump .S. (2008). Krause's Food & Nutrition Therapy.12th Ed. Saunders-Elsevier.
8. Ira Wolinsky (Ed.). Nutrition in Exercise & Sports.3rd Edition.

Journals:

1. Medicine and Science in sports in exercise
2. International Journal of Sports Nutrition
3. Journal of Applied Nutrition

	~~PRACTICALS~~ Sessional
1.	Market Survey for commercial nutritional products for physical fitness & sports performance available in India
2.	Ayurveda Cooking
3.	Yoga and Pranayaam
4.	Vegetarian , Vegan and traditional Diets
5.	Diet for different sports activities- Endurance & power

Paper – C 16

Applied Nutrition-Health and Fitness

M.A (Home Science)

Semester IX

Course Type: Theory Major
Credits: 4
Teaching Periods: 4/ week

CIE – 25 Marks
UE – 75

Objectives:

- To promote the students understanding about the functional benefits of foods for health and fitness.
- To enable the students to understand the role of nutrition in the dietary management of geriatrics
- To enable the students to understand the physiological demands during different sports activities.

CONTENTS

		PERIODS
UNIT -I	**ANTIOXIDANTS IN HEALTH & DISEASE**	
	1.Effect of oxidants on Macromolecules- Carbohydrates, proteins, lipids , nucleic acids.	3
	2.Nutrient antioxidants with potent health effects	2
	3. Non- Nutritive food components with potential effects (Flavonoids-polyphenols and tannates, phytoestrogens, cyanogenic compounds)	2
	4. Pre and Probiotics	2
	5. Foetal origin of Non-communicable disease	1
	6.Nutrigenomics- the future of Nutrition care for health management, treatment and prevention of diseases.	2
UNIT-II	**GERIATRIC NUTRITION- MULTIFACETED ASPECT OF AGEING**	
	1.Ageing process- changing demographic trends, theories of ageing	3
	2.The ageing process- physiological, biochemical and body composition changes	3
	3.Health and Nutritional problems of the elderly	2
	4. Nutritional requirements and dietary guidelines	2
	5. Community geriatrics- Dimensions, issues and solutions.	2
UNIT-III	**NUTRITIONAL MANAGEMENT- HEALTH & FITNESS**	
	1.Definitions, components and assessment criteria of- - Specific fitness - Health status	2
	2. Holistic approach to management of fitness and health - energy input and output - diet and exercise - effect of specific nutrients on work performance and physical fitness - nutrition, exercise, physical fitness and health inter-relationships	1 1 3 3

	b. Women and mass media	2
	c. Women's health and family planning, health indicators	2
	d. National Women's Commission and State Commission for Women and their role in women studies and policy issues	4

Sessional Work

a) Observational visits to women's organization
b) Planning and organizing awareness campaigns on vital women's issues
c) Portrayal of women in mass media-newspapers, magazines, television, movies.
   - Critical analysis
d) Situation analysis of gender equality and equity

References:

1. Baker, H.A. Berthieide, G.W. and other (Eds.) (1980) Women Today: A multidisciplinary approach to women's studies. Brooks/cole publication.
2. Joseph, A & Shama K. (Ede) (1994). Whose News? The media and women's issues: sage: New Delhi.
3. Jain D & Banerjee N. (1985) The tyranny of house hold, investigative essay on women and work: Vikas New Delhi.
4. Anderoson L. Margoret (1997) Thinking about women sociological perspective on sex and gender, allyn and bacon, A via com company. 160 gold stroet needhenin heights, U.S.A.
5. Dutta R.K. 2003 Crimes Against Women Reference Press.
6. Devi L. 1998 Encyclopedia of Women Development and Family Welfare. Volumes 1-6, Anmol Publication Pvt. Ltd. New Delhi.
7. Baruah A. 2003 Women in India Anmol Publication Pvt. Ltd.
8. Kahol Y. 2003 Violence Against women Reference Press.

Abbreviations:

CIE: Continuous Internal Evaluation
UE: University Exam

Paper – C 15
Women Studies
M.A (Home Science)
Semester IX

Course Type: Theory Major
Credits: 4
Teaching Periods: 4/ week

CIE – 25 Marks
UE – 75 Marks

Objectives:
To impart knowledge regarding scope and perspectives to women' studies in cultural context and acquaint them to various important issues regarding women's studies and development.

		PERIODS
UNIT- I	**Women Perspectives and Movements- A General Overview**	
	a. Meaning and scope of women's studies	2
	b. Women's perspective and its constituent elements in present social economic and cultural context	4
	c. Women's Movement in pre independent and post independent periods and present trends	4
	d. Milestones and obstacles in women's Movement in India	2
UNIT- II	**Women and the Indian Scenario**	
	a. Feminism, its basic types and their relevance to Indian context. Facts and myths of feminism.	2
	b. Importance of women's participation in economics, educational, social and political development.	6
	c. Gender role and sex role stereotypes. changes in educational, economic, social and familial status of women	4
UNIT-III	**Women Challenges and Issues**	
	a. Population statistics and sex ratio	2
	b. Working women and challenges - problems of working women in unorganized sector	3
	c. Issues concerning Women-gender violence, dowry harassment and deaths, suicides. Commercial and religious prostitution, eve-teasing, family and domestic violence foeticide and infanticide, child marriage.	7
UNIT- IV	**Media, Laws and Policies**	
	a. A critique of laws for women	4

	(i) Its adaptation to various skirt styles on half scale (ii) Construction of any one of these / Indo- western outfit.	
4.	Designing of two adaptive clothing for each of the following and construction of any one for any group - (i) Maternity wear (ii) Feeding mothers (iii) Physically challenged (iv) Old age.	8

References

1. Leanard G. Rubin (1976): The world of fashion, Publication canfield Press, San Fransisco.
2. Patrick John Ireland: Fashion Design Illustration, B. T. Batsford Ltd. London.
3. Prakash, K. (1989): Impressions, Ethnic Textile Designs, Deluxe Packaging.
4. Prakash, K. (1989): Impressions, Deluxe Packaging.
5. Carr, H. and Pomery, J. (1992): Fashion Design and Product Development. Blackwell scientific Publication, London, Edinburgh, Boston.

UNIT III: TECHNIQUES OF MASS PRODUCTION	(a) Planning of Garment Business, procurement of raw material, organization in an apparel firm. (b) Sampling Department- Importance, objective, types of samples (size set, fit sample, prototype sample, production sample.), Design development and Developing a sample garment (c) Cutting Department-Cutting procedure - fabric laying, marker preparations, sorting, numbering & bundling. (d) Machinery and equipment require for garment production for industrial level cutting, sewing, finishing and embellishment	3 3
UNITIV:PRODUCTION AND QUALITY CONTROL	(a) Production Department- Selection of production system (progressive bundle system, unit production system), modular manufacturing, piece work, production planning. (b) Finishing and pressing Department- Trimming, packing. (c) Applying Quality control, quality assurance in production processes - fabric cutting, sewing, finishing and packing.	2 2 2

~~Practical~~ Sessional

S. N.	~~Practical~~ Sessional	Periods
1.	Drafting of personal Blouse pattern and plain sleeve block and construction of simple sari blouse.	8
2.	1. (a)Manipulation of personal block – (i) Relocation of darts by slash and spread method (ii)Converting darts into tucks, (iii) gathers (iv) yokes (v) lines. (b) Construction of three sari blouses using any of the above.	8
3.	Development of basic skirt block and its adaptation into style variations (Half scale) Construction of any one skirt for self.	8

Paper – C14
Advanced Apparel Designing & Production
M.A (Home Science)
Semester: IX

Course type: Theory Major

CIE: 25

UE: 75

Credits: 4

Objectives:

1. To impart an in depth knowledge of style reading pattern making and garment construction techniques.
2. To develop and understand the principles of pattern making through flat pattern.
3. To impart creative and technical and kills for designing product with special emphasis on structural design.

Contents

Units	Topic	Periods
UNIT I: INTRODUCTION	(a) Target market, Merchandising. (b.) Line and its development.	1 1
UNIT II:APPAREL PRODUCTION	(a) Costing a garment (b) Purchasing of piece goods (c) Production schedule. (d) Garment Assembly (e) Preparation for dispatch	1 1 1 1

Semester IX

Paper – C 13

Research Project

M.A. Home Science

Semester VIII

CIE - 25 Marks
UE - 75 Marks

Credits: 4

Course Content:

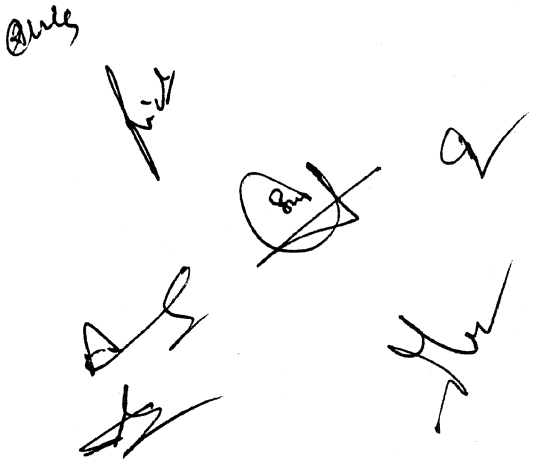
1. Review of Literature and methodology of the study
2. Finalization of Data collection tool

Abbreviations:

CIE: Continuous Internal Evaluation

UE: University Exam

6. M. L. Gulrajari and Deepti Gupta (1990), Natural Dyes and their Application to Textiles" ed. I.I.T. Delhi publication.
7. John and margarat Cannon (1994), Dye plants and Dyeing, The Herbert press (UK)
8. ASTM and ISI Standards.
9. K. Venkatrama (1970) Chemistry of Synthetic Dyes, Part I and II.



Paper – C12

Surface ~~Ornaments~~ Ornamentation on Textile ~~Practical~~

M.A. Home Science

Semester VIII

CIE: 25
UE: 75

Curse Type -Practical Major
Credit: 4

Objectives

To impart skill of value addition to various products through dyeing and printing

Contents

S. N.	Topic	Practical
1. a.	Textile design through dyeing.	6
	- Tie and dye - Batik	
b.	Making an article using each of these.	
2.	Preparation of screens for printing and making an article of Textile design through Screen printing.	10
3.	Textile design through Block printing and Stencil printing and making an article using each of these.	10
4.	Usage of traditional and contemporary embroidery techniques for developing an article.	6
5.	Preparation an article using any two of the above techniques.	4
6.	Developing a portfolio exhibiting various styles and methods of dyeing, printing and embroidery traditionally used in India.	6
7.	Reports of visits to dyeing and printing Units.	4
8.	Learning to exhibit products made in the semester.	2

References

1. V. A. Shenai(1987), Chemistry of Dyes and principles of Dyeing, Sevak. Prakasan. Mumbai.
2. H. A. Lubs, Robert E. Chemistry of Synthelic Dyes and pigments, Krieger Publishing company, New Yark.
3. V. A. Shenai(1999), Azo Dyes – Facts and Figures- SevakPrakashan, Mumbai.
4. R. S. Prayag, Technology Textile printing- Nayes Data Corporation Carporation.
5. V. A. Shenai (1977), Technology of printing – Technology of Textile processing, Vol. IV, Sevak Publication.

- Large & flat chest• Flat & large hips
- Broad & narrow shoulders •Long, short & thick neck

Unit-IV

1. Introduction of Apparel Design with respect to Fashion

- Fashion cycle
- Theories of Fashion
- Fashion terminology

2. Family clothing
- Factors affecting family clothing
- Wardrobe planning for the family

3. Techniques in pattern making

- Flat pattern• Drafting • Draping

Books & References Paper-

Traditional Textiles & Apparel designing

1. Agarwal Rajni& Gupta Sanjula :PraidhanNirmanAvam Fashion Designing
2. HenerySapna&PatniManju :ParivarikParidhanVyavastha
3. PatniManju :VastraVigyanAvamParidhanVyasvastha, Star Publication, Agra
4. Singh Vrinda :VastraVigyanAvamParidhan
5. Tumter G.L. : Cutting & Tailoring
6. VermaPramila :VastraVigyanAvamParidhan

Paper – C11

Traditional Textiles and Apparel Designing

M.A. Home Science

Semester VIII

CIE : 25

Curse Type -Theory Major **UE: 75**

Credit: 4

Objective

1. To impart knowledge about the traditional textiles of India

2. To enable the students to familiarize with the essentials of apparel making

3. To acquaint with the various steps involved in the apparel making system and to gain skill in making certain garments.

Unit-I Introduction to Traditional Indian textiles

1. Dacca Muslin 2. ChanderiSarees and muslin

3. Kashmir shawls 4. Brocades of Hyderabad

5. Banaras Brocades 6. Brocades of Gujrat

7. Tie & Dye of Rajasthan and Gujrat

8. Patola of Gujrat, Orissa and Cuttack (Ikat)

9. Kota cotton and zari border sarees of Rajasthan

Unit-II Embroideries of India

1. Chikan Kari of Uttar Pradesh 2. Kasuti of Karnataka

3. Phulkari of Punjab 4. Kashida of Kashmir

5. Kantha of Bengal 6. Embroidery of Kutch and Kathiawar

7. Zari Embroidery 8. Sindhi Embroidery 9. ChambaRumal

10. Manipuri

Unit-III Design Analysis with respect to apparel and textile design

1. Introduction to applied art
   - Elements of Design
   - Principles of Design
2. Designs: Structural, Decorative and abstract designs
3. Fittings- Principles, common fitting problems for different figure type, their rectifications
   - Short figures •Thin figures

UNIT- IV	**Personality and Contemporary Theories**	
	a. Gordon Allport	3
	b. Kurt Lewin	3
	c. Urie Bronfenbrenner	3
	d. Maslow	3

Sessional Work

1. Term paper on any one of the theories
2. Seminar presentation of various issues related to theoretical perspectives
3. Presentations / making reading cards on articles from Journal

References:

1. Hall C.S. and Lindzey G. 1978. Theories of Personality (IIIrd Edition). John Wiley and Sons. Toronto.
2. Dicapero S.N. 1974 Personality Theories- Guides to Living. Department of Psychology. John Carroll University.
3. Baldwin A.L. 1967 Theories of Child Development IInd Edition.
4. Ryckman R.M. 1978. Theories of personality, D. Van Nostrand Company, New York.
5. Abramson R.P. 1980 Personality, University of California.
6. Hilgard R.E. 1975 Theories of learning Englewood Chiff. New Jersey.

Abbreviations:

CIE: Continuous Internal Evaluation
UE: University Exam

Paper – C 10

Theories of Human Development
M.A. (Home Science)

Semester VIII

Course Type: Theory Major
Credits: 4
Teaching Periods: 4/ week

CIE – 25 Marks
UE – 75 Marks

Objectives:

1. To make the students have knowledge of the theories of human development and behavior
   a) To analyse the major contributions of a theorist
   b) Identify and address the major criticisms of a theory
2. To develop in students an appreciation for primary literature
3. To introduce the students to the latest theories of human development and behaviour

		PERIODS
UNIT- I	**Overview of Theories**	1
	a. Concepts/ definitions of theories	1
	b. Role of theory in advancement of knowledge	2
	c. Process of theory development	
	d. Psychoanalytic Perspectives - Freud and the Neo Freudians	2
	(i) Psycho analytic theory of Freud	2
	(ii) Alfred Adler	2
	(iii) Carl Jung	
	(iv) Erick Erickson	
UNIT- II	**Learning Perspective**	3
	a. Classical conditioning - Pavlov	3
	b. Operant conditioning	3
	c. Trial and error – Thorndike	3
	d. Bandura and Walters	
UNIT-III	**Cognitive and Moral Perspective**	3
	a. Piaget`s theory of cognition	2
	b. Vygotsky theory	4
	c. Information processing theory	3
	d. Moral reasoning and development-perspective of Kohlberg and Piaget	

7.	Meat- Methods of cooking, factors affecting texture of meat.
8.	Pulses- Method of cooking pulses, effect of soaking, alkali, salts, germination.
9	Vegetable & Fruit cooking- Factors affecting colour, texture, flavours, browning reactions & preventive methods.
10.	Fats & Oils – smoking point, absorptions, tests, shortening - effect in food preparations

	2. Fats & Oils: Properties, smoking points, melting point, hydrogenation, shortening effect. Changes an Storage, rancidity, oxidative and hydrolytic, whipped cream as double emulsion, different commercial products and their uses.	3
UNIT-III	Vegetables & Fruits, Sensory Evaluation	
	1. Vegetables & Fruits: Structure of vegetable tissues, starch, sugars, pectic substances, celluloses and their effect on texture and palatability. Plant pigments, plant enzymes, enzymatic browning, use of plant enzymes for textural changes in foods eg. Effect on meat.	4
	2. Sensory evaluation a) Selection of panel of judges b) Types of tests c) Judging Objective methods of measurement of: a) Colour b) Texture	2 2
UNIT-IV	New Product Development	
	a) Food Additives: Definition, importance, classification & uses	2
	b) Leavening agents : Importance, classification, nature & use	2
	c) Food product development: Definition, factors affecting product development and health concerns.	3

References:

1. Charley, H. (1982): Food Science (2nd Edition), John Wiley and Sons, New York.
2. Potter, N. and Hotchkins, J.H. (1996): Food Science, 5th Edition, CBS Publishers and Distributors, New Delhi
3. Belitz, H.D and Geosch , W (1999): Food Chemistry, 2nd Edition, Springer, New York
4. Manay, N.S and ShadarsSharaswamy , M .1987. Food ,Facts and Principles. Wiley Eastern Ltd, New Delhi.
5. Srilakshmi , B.2001. Food Science. New Age International Pvt Ltd. 2nd Edition.
6. Meyer ,L.H.Food Chemistry, Reinhold Book Corporation, New York.

	PRACTICALS Sessional
1.	Experience in training for taste perception & thresh holds, hedonic scale for attributes of foods & developing score cards. Triangular tests, duo & trio tests & others.
2.	Standardisation of recipes & methods or reporting recipes.
3.	Experiments on crystallization of sugar & effects of temperature, concentration, acids and other preparation & evaluation of any three preparations. Laddoo, Halwa&GulabJamun.
4.	Experiment on starch gelatinization, viscosity, measurement of starch pastes- comparison of different sources of starch.
5.	Experiment with eggs to study the properties of coagulation foaming, emulsifying, colouring. effect of quality of eggs on these properties. Preparation of cakes, Mayonnaise evaluation.
6.	Milk cookery preparation & evaluation of soup(cream of tomato), cheese, curd, ice-cream.

Paper – C 9
Advanced Food Science
M.A. (Home Science)

Semester-VIII

UE – 75 Marks
CIE – 25 Marks

Course Type: Theory Major

Credits: 4
Teaching Periods: 4 I week

Objectives :

- Enabling students to comprehend the changes that occur in the physiochemical properties of food stuffs during food preparation.
- Enabling the students to understand and apply the various techniques in the quality evaluation of foods.
- Imparting awareness on the concept of 'food product development'

CONTENTS		PERIODS
UNIT-I	Colloids and Carbohydrates in Food	
	1. Introduction to food science.	1
	2. Physical & Chemical properties of foods-Changes occurring on cooking and storages.	2
	3. Colloids – Properties denaturation of proteins, gelatinisation, gel formation, emulsions, foams, browning reactions enzymatic and non-enzymatic.	4
	4. Sugar Cookery: Stages of cookery, fondants, fudges, caramels and brittles, crystallisation of sugar.	2
	5. Starch Cookery: Gelation, factors affecting gelation, starch as thickener, different sources of starch and their properties cereals and millets-their milling and parboiling.	3
UNIT-II	Proteins and Fats in Food	
	1. Protein Cookery (a) Properties of milk protein, other milk products- curds, evaporated, spray dried and condensed milk, Cheese, Khoya, Their use in food preparations.	3
	(b) Cereals, grams and dals-Effect of soaking, germination & fermentation on cereals and pulses, properties of gluten, gluten formation and the factors affecting it.	3
	(c) Eggs-Properties of egg-proteins & uses in egg preparations, egg as binding, foaming and emulsifying agent mayonnaise preparation.	3
	(d) Meat-Postmortem changes, changes on cooking, fish types, changes during heat treatment.	2

	Tabulation of Data,	3
	4. Statistical Measures (Measures of Central Tendency, Dispersion, and Correlation)	3
	5. Test of Significance: t-test, chi-square test	
UNIT- IV	**Report Writing**	3
	1. Summary, Conclusion and Recommendations	2
	2. Writing References	
	3. Writing Process of Research Report: Formal Style of writing, Preface, Chapterization, Headings, Tables and Figures, Appendices, Bibliography and Acknowledgement	7

Sessional

- Prepare a research plan of any field of Home Science.
- Prepare a Schedule/Questionnaire of the related topic using scaling techniques.
- Use and importance of coding and preparation of master chart for analysis.

References:

1. C. R. Kothari: Research Methodology- Method and Techniques
2. R. Kumar: Research Methodology: A step by Step Guide for Beginners
3. M. H. Gopal: Introduction to Research Methodology for Social Sciences
4. Good, Carter, Scales and Douglas: Methods of Research

Abbreviations:

CIE: Continuous Internal Evaluation

UE: University Exam

Paper – C 8
Research Methodology

M.A. (Home Science)

Semester VIII

CIE – 25 Marks
UE – 75 Marks

Course Type: Theory Major

Teaching Periods: 4/Week
Credits: 4

Objectives:

- To understand the significance of Research Methodology in Home Science Research.
- To study the types, tools and Methods of Research and develop the ability to construct data appropriate to the Research Design.
- To develop skills for preparation of research proposal and writing report.

		PERIODS
UNIT- I	**Introduction to Research**	
	1. Meaning, purpose, approaches and scope in various field of Home Science	2
	2. Types of Research	3
	3. Selection of Research problem: need, relevance and feasibility	2
	4. Research Design: meaning, purpose and criteria(Experimental and Observational)	3
	5. Quantitative and Qualitative approaches	2
UNIT- II	**Research Process**	
	1. Planning the Research	2
	2. Defining the Research problem	2
	3. Research Objectives: Definition and formulation of hypothesis/objectives	2
	4. Review of related literature	2
	5. Basics of Sampling: Sampling vs. Complete Enumeration Objectives, Principles and Limitations of sampling. Sampling Techniques, Size and Error	4
UNIT-III	**Data Collection Tools and Statistical Methods**	
	1. Primary and Secondary Data, Methods and Tools in Data Collection (Schedule, Questionnaire, Interview, Case Study Method etc.)	2
	2. Measurement and Scaling Techniques, Validity, Reliability, Sensitivity of Data Collection Tools	2
	3. Processing of Data: Editing, Classification, Coding.	2

Semester VIII

Paper – C 7

M.A. (Home Science)

Research Project

CIE 25 Marks
UE 75 Marks

Credits: 4

Course Content:

1. Identification of research problem
2. Preparation and finalization of synopsis

Abbreviations:

CIE: Continuous Internal Evaluation

UE: University Exam

Paper: C 6

M.A. (Home Science)

Minor

(Other Faculty)

Paper: C 5

M.A. (Home Science)

Internship

Course Type: Practical Major
Credits: 4
Teaching Periods: 4/ week

CIE - 25 Marks
UE - 75 Marks

Work Experience/Internship

Focus:

Knowing does not automatically result in the ability to " do" or to "feel" which are necessary for professional development. Students need exposure to various setting in community and social welfare to enable them acquire some experience of working with specific target group like children , rural- women, adolescent, youth, aged and masses. The assignment will also provide an opportunity for student to get acquainted with innovative projects of community development and welfare. It is a sort of work experience for student.

Objectives:

To enable the students to get an opportunity for exposure to the functioning of the specific agency.

Placement Agencies –

KVK'S, Family welfare agencies/ NGO'S / special cells of women in distress/./ social welfare organization / Institution meant for international agencies, community radio station televisions institutions and dept. of mass communication and journalism, advertising agencies and old age homes. & hospitals

Evaluation / Assessment of students performance may be done on following point -

a. Regularity and punctuality in attendance
b. Ability to work in the team.
c. Ability to be sensitive to the client.
d. Initiative to organize specific programme.
e. Proper record maintenance
f. Oral presentation

Students have to make presentation and submit a report at the beginning of IX Semester.

	3) Assessment of Resources and choosing the Media.	2
	4) Defining content & form of Message	2
	5) Designing & implementing the communication	2
	6) Evaluation of communication	2

References:

1. Singh, Kartar (1999), Rural Development Principles, Policies and Management, Sage Publications India Pvt. Ltd., New Delhi.
2. Mudy, B (1992) Designing Messages with audience participation, Sage, New Delhi.
3. Naenla, U (1994) Development Communication, Maranand, New Delhi.
4. Kotler, Roberts, Lee (2002) Social Marketing, Improving Quality of life, 2nd Edition, Sage, Thousands Oabs.
5. Servaes, Jacobson and White (1996) Participatory communication for social change, sage, New Delhi.

Sessional Work

1. Seminar presentation on any topic from syllabus.
2. Academic assessment through short and long questions.
3. Discussions on issues related to Development Communication.

Abbreviation:

CIE- Continuous Internal Evaluation.
UE – University Examination.

Paper: C 4

Development Communication

M.A. (Home Science)

VII Semester

Max Marks- 100
CIE- 25
UE- 75

Instruction hours/week-4
Course Type-
Theory Major
Credit- 4

Objectives - The course will enable the students to -

- Make students understand the role of communication in development.
- Get acquainted with the approaches, issues, patterns and perspective for development communication in India

UNITS	COURSE AND DETAILS	PERIODS
I.	CONCEPTS 1) Definition, nature, role and significance of development and development communication. 2) Interrelation between development and development communication. 3) Global and historical perspectives of development communication.	2 2 2
II.	Models of Development Communication 1) Interdependent Model 2) Dependency Model 3) Basic Need Model	2 2 2
III	Development Communication projects and experiments 1) Traditional Media experiments. 2) Modern Media experiments – SITE, JDCP & PEARL 3) New Media experiments – GYANDOOT, CYBER EXPERIMENTS.	3 3 2
IV	Strategies for Message design in Development Communication 1) Need Assessment 2) Role of communication and audience in message design.	2 2

- Wardlaw and Insel MG, Insel PM (2004). Perspectives in Nutrition, Sixth Edition. Mosby.

~~Internal :~~ Sessional :

1. Working instructions. Weights and measures and table setting, preparing market order.
2. Identification of food sources for various nutrient
3. Food preparation, understanding the principles involved , nutritional quality and portion size
   - Beverages : Hot tea/coffee, milk shakes/lassi, fruit based beverages
   - Cereals: boiled rice, pulao, chapati, paratha, puri, pastas.
   - Pluses : Whole, dehusked
   - Vegetables: curries, dry preparations
   - Milk and milk products: Kheer, custard
   - Meat, fish and poultry preparations
   - Egg preparations: Boiled, poached, fried, scrambled, omelet, egg pudding
   - Soups: Broth, plain and cream soups
   - Baked Products : Biscuits, cookies, cream cakes, sponge cake preparations, tarts and pies.
   - Snacks: pakoras, cutlets, samosa, upma, poha, sandwiches
   - Salad: Salads and salad dressings
   - Preserved Foods

Paper-C3

Fundamentals of Nutrition and Food Science
MA (Home Science)
Semester- VII

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

UNIT- I - Basic concepts in Food and Nutrition

1. Basic terms used in the study of Food and Nutrition.
2. Understanding relationship between food, nutrition and health
3. Functions of food – physiological, psychological and social.

UNIT –II- Nutrients

Functions, dietary source and Recommended Dietary allowances (RDA)

1. Carbohydrates, lipids, and proteins.
2. Fat soluble vitamins- A, D,E and K
3. Water soluble vitamins – thiamine, riboflavin, niacin, pyridoxine, folate, vitamin B12, and vitamin C.
4. Minerals- calcium, iron and iodine

UNIT –III- Food Groups

Selection, nutritional contribution and changes during cooking of the following food groups:-

1. Cereals
2. Pulses
3. Fruits and vegetables
4. Milk and milk product
5. Eggs
6. Meat, poultry and fish
7. Fats and oils

UNIT –IV Methods of Cooking and preventing nutrient losses

1. Dry, moist, frying and microwave cooking
2. Advantages, disadvantages and the effect of various method of cooking on nutrients
3. Minimizing nutrient losses

References:

- Bamji MS, Krishnaswany K, Brahma GNV(2009). Textbook of Human Nutrition, 3rd Edition.Oxford and IBH Publishing Co. Pvt.Ltd.
- Srilakshmi (2010). Food Science, 5th Edition. New Age International Ltd.
- Raina U, Kashyap S, Narula V ,Thomas S, Survira, Vir S, Chopra S (2010). Basic food preparation : A complete Manual, forth edition, Orient Black Swan ltd.

	b. Adolescence	3
	c. Adulthood	3
	d. Old age	3
UNIT- IV	**Counseling**	
	a. Meaning, aims, principles and basic assumptions of Counseling	3
	b. Needs and importance of child and family counseling	3
	c. Qualities and skills of counselor	3
	d. Techniques of counseling- directive and non-directive	3

SESSIONAL WORK

1. Visit and write report on any two counseling centers such as HIV/AIDS. drug deaddiction centers.
2. Collect three case studies and analyses the psycho-social problems in each. Prepare case reports.
3. Conduct role play/street play/puppet show etc. to generate community awareness on issues and topics related to human development and family relations.
4. Interaction with practicing counselors working in schools. clinics. women centers and hospitals and preparing a report of the same.

References:

1. Gibson R and Mitchell M(1999) introduction to guidance and counseling (5th ed) New Jersey:Printice Hall Inc.
2. Egan G (2002) the skilled helpers : A systematic approach to effective helping (7th ed) Pacific grove Ca:Brooks /Cole.

Abbreviations:

CIE: Continuous Internal Evaluation

UE: University Exam

Paper – C 2
Guidance and Counseling Across the Lifespan

M.A. (Home Science)

Semester VII

CIE – 25 Marks
UE – 75 Marks

Course Type: Theory Major

Teaching Periods: 4/Week
Credits: 4

Objectives:

1. To understand the need for guidance and counseling in human development.
2. To introduce basic concepts in guidance and counseling therapy.
3. To discuss the processes involved in counseling at different stages in life.
4. To acquaint students will record to qualities of guidance workers and counselor.

		PERIODS
UNIT- I	**Guidance and its Nature**	
	a. Meaning, aims, principles and basic assumptions of guidance	3
	b. Needs and importance of child and family guidance	3
	c. Kinds of guidance- educational, vocational and personal	6
UNIT- II	**Guidance of Children at School and Home**	
	a. Elementary school years	3
	b. Adolescence- need of sex education at home and school	3
	c. Middle years	3
	d. Old age	3
UNIT-III	**Life Span Psychological Disorders and Counseling**	
	Nature of psychological disorders that require counseling and therapy in the following stages of human development-	
	a. Childhood	3

	(b)	Techniques of work simplification.	3
	(c)	Mundell's classes of change.	3
	(d)	Importance for physically handicapped women.	3

SESSIONAL WORK

(a) Preparation of budget for various income groups.

(b) Seminars should be conducted on above topics.

(c) Market survey on time and energy saving equipments available in the market.

(d) Application of work simplification techniques.

References

(a) Varghese M.A. OgaleandSrivasan. K - Home Mgt.

(b) Bigelous H. Family Finance.

(c) Gross and Crandall - management in family living.

(d) Steidell and Braton - work in home.

Abbreviations:

CIE: Continuous Internal Evaluation

UE: University Exam

	be consider in making investments.	
Unit – II	**Time Management**	
	(a) Goals of time management.	1 3
	(b) Factors affecting time management.	2
	(c) Constraints in time management.	3
	(d) Tools of time management.	3
	(e) Managerial process applied to time.	
Unit-III	**Energy Management**	
	(a) Goals of energy management.	1 3
	(b) Factors affecting energy management.	4
	(d) Fatigue: Meaning, types and how to control.	4
	(e) The managerial process applied to energy management.	
Unit- IV	**Work simplification**	
	(a) Meaning and definition of work simplification.	3

Paper- C 1

Resource Management

M.A. (Home Science)

Semester VII

CIE – 25 Marks
UE – 75 Marks

Course Type: Theory Major

Teaching Periods: 4/Week
Credits: 4

OBJECTIVES:

- To understand the significance of management of resources.
- To develop the ability to evaluate the management efficiency and effectiveness in the family.
- To become familiar with the techniques of financial management.

CONTENTS

Unit – I	Money Management	Periods
	(a) Basic concepts: Permanent income, Total income, Potential income, National income and Personal income.	1 1
	(b) Stages of family life cycle and money management.	1
	(c) Methods of handling money.	1
	(d) Guidelines for money management.	4
	(e) Budgeting: Steps of preparation of a budget, Factors affecting budget, Engel's law of consumption, controlling use of money.	4
	(f) Investment: Meaning, definition, elements, objectives, types and points to	

Semester VII

M.A. (H.Sc.)

(2022)

(As per NEP- 2020 Guidelines)

[Session - 2022-2023]

PGDR (Home Science)

Semester XI

Paper No	Subject	COURSE TYPE	CREDIT	CIE	UE	TOTAL
C 1	Thrust areas of Home Science	Major	6	25	75	100
C 2	Essentials of Entrepreneurship	Major	6	25	75	100
C 3	Research Methodology	Major	4	25	75	100
	Research Project (Qualifying)					
			16	75	225	300

Abbreviation:

CIE: Continuous Internal Evaluation
UE: University Exam

Bachelor (Research) in Faculty

Semester VII

Paper No	Subject	Course Type	Credits	CIE	UE	Total
C 1	Resource Management	Theory Major	4	25	75	100
C 2	Guidance and Counseling Across the Lifespan	Theory Major	4	25	75	100
C 3	Fundamentals of Nutrition and Food Science	Theory Major	4	25	75	100
C 4	Development Communication	Theory Major	4	25	75	100
C 5	Internship	Practical Major	4	25	75	100
C 6	Other Faculty *	Minor	4	25	75	100
C 7	Research Project	Project	4	25	75	100
			28	175	525	700

Semester VIII

Paper No	Subject	Course Type	Credits	CIE	UE	Total
C 8	Research Methodology	Theory Major	4	25	75	100
C 9	Advanced Food Science	Theory Major	4	25	75	100
C 10	Theories of Human Development	Theory Major	4	25	75	100
C 11	Fashion Sketching ~~& Illustration~~	Theory Major	4	25	75	100
C 12	Surface ~~Ornaments~~ on Textile ~~Practical~~ Ornamentation	Practical Major	4	25	75	100
C 13	Research Project	Project	4	25	75	100
			24	150	450	600

→ Traditional textiles and Apparel Design

*Faculty of Linguistic, Faculty of Computer, Faculty of Management, Faculty of Basic Science

26/4/2022 Dr. Neetu Singh 26/4/22 26.04.22 26.4.2022 26/4/22 (Archana Kapoor) 26/4/22 26.4.2022

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RAJEEV KUMAR
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PGDR (Home Science)

Semester XI

Paper No	Subject	COURSE TYPE	CREDIT	CIE	UE	TOTAL
C 1	Thrust areas of Home Science	Major	6	25	75	100
C 2	Essentials of Entrepreneurship	Major	6	25	75	100
C 3	Research Methodology	Major	4	25	75	100
	Research Project (Qualifying)		16	75	225	300

Abbreviation:

CIE: Continuous Internal Evaluation
UE: University Exam

MA (Home Science)

Semester IX

Paper No	Subject	COURSE TYPE	CREDIT	CIE	UE	TOTAL
C 14	Advanced Apparel Designing & Production	Theory Major	4	25	75	100
C 15	Women Studies	Theory Major	4	25	75	100
C 16	Applied Nutrition-Health and Fitness	Theory Major	4	25	75	100
C 17	Sustainable Development	Theory Major	4	25	75	100
C 18	Computer Application in Designing	Practical Major	4	25	75	100
C 19	Research Project	Project	4	25	75	100
			24	150	450	600

Semester X

Paper No	Subject	COURSE TYPE	CREDIT	CIE	UE	TOTAL
C 20	Ergonomics	Theory Major	4	25	75	100
C 21	Study of Family and Society	Theory Major	4	25	75	100
C 22	Training and Management	Theory Major	4	25	75	100
C 23	Food Processing and Preservation	Theory Major	4	25	75	100
C 24	Food Preservation Techniques	Practical Major	4	25	75	100
C 25	Research Project	Project	4	25	75	100
			24	150	450	600

Archana Kapur

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MA(H.Sc)

Annexure - IV

Bachelor (Research) in Faculty

Semester VII

Paper No	Subject	Course Type	Credits	CIE	UE	Total
C 1	Resource Management	Theory Major	4	25	75	100
C 2	Guidance and Counseling Across the Lifespan	Theory Major	4	25	75	100
C 3	Fundamentals of Nutrition and Food Science	Theory Major	4	25	75	100
C 4	Development Communication	Theory Major	4	25	75	100
C 5	Internship	Practical Major	4	25	75	100
C 6	Other Faculty *	Minor	4	25	75	100
C 7	Research Project	Project	4	25	75	100
			28	175	525	700

Semester VIII

Paper No	Subject	Course Type	Credits	CIE	UE	Total
C 8	Research Methodology	Theory Major	4	25	75	100
C 9	Advanced Food Science	Theory Major	4	25	75	100
C 10	Theories of Human Development	Theory Major	4	25	75	100
C 11	Fashion Sketching & Illustration Traditional Textiles & Apparel Designing.	Theory Major	4	25	75	100
C 12	Surface Ornamentation on Textile Practical	Practical Major	4	25	75	100
C 13	Research Project	Project	4	25	75	100
			24	150	450	600

*Faculty of Linguistic, Faculty of Computer, Faculty of Management, Faculty of Basic Science

26/4/2022 Dr. Neetu Singh

26/4/22

26.04.22 22.4.2022

26/4/22

(Archana Kapoor)

21/4/22

26.4.2022

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Annexure - III

Requirement of Faculty for Proposed M.A. (H.Sc.)

Session: 2022-2023

No of Faculty-2

Salaries- 25,000/- each

Minimum Eligibility: As per UGC Norms (Masters in Home Science & UGC NET /JRF/PhD

Career opportunities after certification in certificate course in food processing and preservation:

- Formulate environmental friendly and nutritious food products.
- Develop analytical skills to be employed in industries.
- Gain employment in central and state government sectors.
- Competent to take up careers in academics, researches, health care, Processing and preservation industries.
- Develop skill to analyze food quality.
- Derive strategies to promote healthy living by the formulation of nutritious product.
- Entrepreneur

g. Develop skill to analyze food quality.

h. Derive strategies to promote healthy living.

11. Structure of the course

SEMESTER	PAPER NUMBER	COURSE TITLE	Credit	External (Theory)	Internal (Practical)	Total
1	I	Fundamentals of Food Science	5	60	40	100
	II	Food Processing Technology	5	60	40	100
	III	Food Preservation	5	60	40	100
	IV	Bakery & Confectionery	5	60	40	100
	Total			240	160	400

12. Infrastructure

a. Infrastructure available: Food & Nutrition lab, smart classroom, furniture.

b. Infrastructure needed : Required lab equipments

13. Number of students (Intake): 30 students in one semester

14. Fee structure:

Course fee: 5000/- Rupees

Examination fee: 1700/- Rupees

15. Is the course approved in Departmental/ University Academic committee: No, yet to be approved

16. Can this course get fund from any funding agencies?- No

17. Career opportunities after certification in certificate course in food processing and preservation:

- Formulate environmental friendly and nutritious food products.
- Develop analytical skills to be employed in industries.
- Gain employment in central and state government sectors.
- Competent to take up careers in academics, researches, health care, Processing and preservation industries.
- Develop skill to analyze food quality.
- Derive strategies to promote healthy living by the formulation of nutritious product.
- Entrepreneur

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1. **Name of the course: Certificate course in food processing and preservation**
2. **Course Implemented by**: Department of Food & Nutrition, Institute of Home Science, Khandari, Agra
3. **Year of Implementation:** July 2022
4. **Duration of Course:** Six month (1 Semester)
5. **Pattern of Examination:**
   - Theory: At the end of semester as per University rule
   - Practical: There will be practical examination at the end of semester.
6. **Medium of Instruction**: English/Hindi
7. **Eligibility for Admission:**
   - Intermediate, Bachelor from any stream, Masters from any stream with 50 % marks.
8. **Eligibility for Faculty: One**
   - **Qualification:** M.Sc/M.Tech in Food Science and Technology or Food Science and Quality control or Food and Nutrition with Ph.D/NET/SET.
9. **Eligibility for Lab Assistant: One**
   - **Qualification:** B.Sc/B.Tech in Food Science and Technology or Food Science and Quality control or Food and Nutrition
10. **Course Specific Outcomes (CSO)**
    a. Appreciate scientific principles and techniques of food processing and preservation.
    b. Acquire skills to establish food service outlet.
    c. Formulate environmental friendly and nutritious food products.
    d. Develop analytical skills to be employed in industries.
    e. Gain employment in central and state government sectors.
    f. Competent to take up careers in academics, researches, health care, Processing and preservation industries.

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CERTIFICATE COURSE IN FOOD PROCESSING

AND

PRESERVATION

SESSION- 2022-23

Course proposed by:
Department of Food and Nutrition
Institute of Home Science, Khandari, Agra

COURSES:

I SEMESTER

Paper No.	Subject	Credits	External (Theory)	Internal (Practical)	TOTAL
I	Nutritional Biochemistry-I	5	60	40	100
II	Food and Meal Management	5	60	40	100
III	Food Service Management	5	60	40	100
IV	Food Microbiology &Food Safety	5	60	40	100
	Total		240	160	400

II SEMESTER

Paper No.	Subject	Credits	External (Theory)	Internal (Practical)	TOTAL
V	Public Health Nutrition	5	60	40	100
VI	Advanced Physiology	5	60	40	100
VII	Clinical Nutrition	5	60	40	100
VIII	Internship and Report Presentation	5	-	100	100
	Total		180	220	400

26.4.2022

22.4.22

26.4.22

1. **Name of the course: PG DIPLOMA IN NUTRITION & DIETETICS**
2. **Course Implemented by**: Department of Food & Nutrition, Institute of Home Science, Khandari, Agra.
3. **Year of Implementation:** July 2022
4. **Eligibility for Admission:**

Bachelor or Masters Degree in Science/ life Science/ Home Science /B.Pharma/ B.A.M.S / B.H.M.S/ MBBS/Business Administration/ Equivalent from a University with 50% marks

5. **Mode of Admission**

Admission for P.G. Diploma in Nutrition and Dietetics shall be based on purely on merit basis. The intake capacity is 30 students.

6. **Duration:**

1. Two semesters (1 year)

2. Odd semesters is from July to December (i.e. 1st semester).

The examination shall be held in tentatively the month of December.

3. Even semester is from January to May (i.e. 2nd semester). The examination shall be held tentatively the month of May/June.

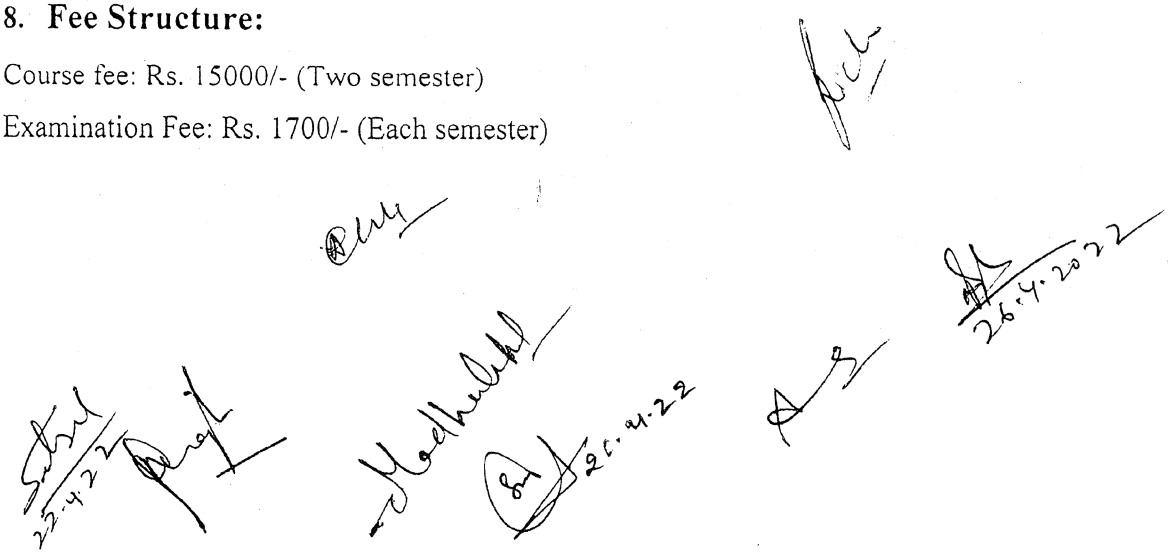
7. **Standard of Passing**

To pass the examination a candidate must obtain 40% of marks in each paper (internal as well as external examination). The Minimum standard of passing in each theory paper of 60 marks shall be 24 and for Practical paper of 40 marks shall be 16.

8. **Fee Structure:**

Course fee: Rs. 15000/- (Two semester)

Examination Fee: Rs. 1700/- (Each semester)



COURSES:

PG DIPLOMA IN NUTRITION & DIETETICS

SESSION- 2022-23

Course proposed by
Department of Food and Nutrition
Institute of Home Science, Khandari, Agra

Fee for Semester III	
Tuition Fee	8000/-
Examination Fee	2200/-
Total	10,200/-

Fee for Semester IV	
Tuition Fee	8000/-
Examination Fee	2200/-
Project Fee	2000/-
Total	12,200/-

Annexure II

Proposed Courses by Institute of Home Science

M.A. (Home Science) [Self Finance]

PG Diploma in Nutrition & Dietetics [Self Finance]

CERTIFICATE COURSE IN FOOD PROCESSING AND PRESERVATION [Self Finance]

M.A. (Home Science)

- Eligibility Criteria- Home Science as a subject at graduate level. Minimum 50% for General & OBC & 45% for SC Candidates in graduation.
- Total Seats- 50 (Minimum 20 admission are required to start the course)
- Fee Structure- 8,000/- per Semester + Examination Fee (per semester) + Enrollment Fee (one time) + Project fee (final year)

Fee Structure for M.A. (Home Science)

Fee for Semester I	
Tuition Fee	**8000/-**
Examination Fee	**2270/-**
Enrollment Fee	**300/-**
Total	**10,570/-**

Fee for Semester II	
Tuition Fee	**8000/-**
Examination Fee	**2200/-**
Total	**10,200/-**

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4. Minor subject will be selected from other Institute/Faculty viz Faculty of Computer Science. Faculty of Management, Faculty of Linguistic and Basic Science
5. Board recommended starting PG diploma in Nutrition & Dietetics from coming session 2022-2023 (Syllabus enclosed).
6. Board also recommended to start the certificate course in Food processing and Food Preservation (Syllabus enclosed).
7. Boys will be eligible to take admission in all the courses being run in the Institute of Home Science.

8. MSc (FN) Group 'B' seats to be increased from 3 to 5.

26/4/22

26/4/2022
Dr. Nitu Singh

Archana Kapoor

26.4.22

26/4/22
Dr Madhulika Gautam

Minutes of Board of Study on 26/04/2022

Minutes of the meeting of **Board of Study of Institute of Home Science** held on 26 April 2022 at 12 pm. Institute of Home Science, Khandari, Agra

The following members were present in the meeting

1.	Prof. Achla Gakkhar	Dean & Director, IHS, Agra (Member)
2.	Dr. Archana Singh	Associate Professor, IHS, Agra (Member)
3.	Dr. Sanghmitra Gautam	Assistant Professor, IHS, Agra (Member)
4.	Dr. Saleem Javed	Assistant Professor, IHS, Agra (Member)
5.	Professor Archana Kapoor	Retd. Dean, Emeritus Prof. DEI, Agra (Expert)
6.	Dr. Nitu Singh (Subject Expert)	Associate Prof. & HOD Home Science, Hemvati Nandan Bahuguna Govt PG College Naini Prayagraj (Expert)
7.	Dr. Madhulika Gautam, (Subject Expert)	Associate Professor, DEI, Agra (Expert)
8.	Dr. RichaVerma (Subject Expert)	Assistant Professor, DEI, Agra (Expert)

Meeting started with welcoming of the members by the Director. The following issues were considered and discussed in the meeting as per the recommendations of Academic Committeeof Institute of Home Science held on 19/04/2022. The Board confirmed the following issues.

1. Board suggested not to introduce B.A Home Science program as Institute is already offering a valuable degree of B.Sc. Home Science with same eligibility criteria for admission similar course structure with low fee.
   In addition to this 50% of B.Sc. Home science seats are lying vacant in since few years, so instead of starting a new bachelor's degree with similar course, focus should be on filling up the seats of existing bachelor's degree (B. Sc. Home Science).
   However the authorities may consider it launching of BA course in self finance, in view of its self sustainability.
2. Board recommended to start with M.A Home Science (under self finance scheme) from next coming session, i.e 2022-2023 with minimum eligibility criteria of 50% for general/OBC and 45% for SC/ST categories. At graduation level candidates having Home Science as one of the subjects will be eligible to take admission in the M.A. Home Science in the Institute. Fee structure is enclosed. Number of seats are 50. The course will not run if the candidates are less than 20.
3. Board revised the syllabus of M.Sc. Home Science (General, Group A, B, & E) as per the norms of NEP 2020.

26/4/22

26/4/2022
Dr. Nitu Singh

26/4/22
(Archana Kapoor)

26/4/22
(Madhulika Gautam)

26/4/22

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4. Minor subject will be selected from other Institute/Faculty viz Faculty of Computer Science, Faculty of Management, Faculty of Linguistic and Basic Science
5. Board recommended starting PG diploma in Nutrition & Dietetics from coming session 2022-2023 (Syllabus enclosed).
6. Board also recommended to start the certificate course in Food processing and Food Preservation (Syllabus enclosed).
7. Boys will be eligible to take admission in all the courses being run in the Institute of Home Science.
8. MSc (FN) HSC Group-'B' seats to be increased from 3 to 5.

26/4/22

26/4/2022

26/4/2022

(Archana Kapoor)

26/4/22

26/4/2022

Annexure I

Minutes of Board of Study on 26/04/2022

Minutes of the meeting of **Board of Study of Institute of Home Science** held on 26 April 2022 at 12 pm, Institute of Home Science, Khandari, Agra

The following members were present in the meeting

1. Prof. Achla Gakkhar — Dean & Director, IHS, Agra (Member)
2. Dr. Archana Singh — Associate Professor, IHS, Agra (Member)
3. Dr. Sanghmitra Gautam — Assistant Professor, IHS, Agra (Member)
4. Dr. Saleem Javed — Assistant Professor, IHS, Agra (Member)
5. Professor Archana Kapoor — Retd. Dean, Emeritus Prof, DEI, Agra (Expert)
6. Dr. Nitu Singh (Subject Expert) — Associate Prof. & HOD Home Science, Hemvati Nandan Bahuguna Govt PG College Naini Prayagraj (Expert)
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8. Dr. RichaVerma (Subject Expert) — Assistant Professor, DEI, Agra (Expert)

Meeting started with welcoming of the members by the Director. The following issues were considered and discussed in the meeting as per the recommendations of Academic Committeeof Institute of Home Science held on 19/04/2022. The Board confirmed the following issues.

1. Board suggested not to introduce B.A Home Science program as Institute is already offering a valuable degree of B.Sc. Home Science with same eligibility criteria for admission similar course structure with low fee.
   In addition to this 50% of B.Sc. Home science seats are lying vacant in since few years, so instead of starting a new bachelor's degree with similar course, focus should be on filling up the seats of existing bachelor's degree (B. Sc. Home Science). ~~However the authorities may consider in launching of BA course in self finance, in view of its self sustainability.~~
2. Board recommended to start with M.A Home Science (under self finance scheme) from next coming session, i.e 2022-2023 with minimum eligibility criteria of 50% for general/OBC and 45% for SC/ST categories. At graduation level candidates having Home Science as one of the subjects will be eligible to take admission in the M.A. Home Science in the Institute. Fee structure is enclosed. Number of seats are 50. The course will not run if the candidates are less than 20.
3. Board revised the syllabus of M.Sc. Home Science (General, Group A, B, & E) as per the norms of NEP 2020.

26/4/2022 26/4/2022 Nitu Singh 26/4/22 26.4.22 26/4/22

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RAJEEV KUMAR
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To,

The Registrar

Dr. B.R. Ambedkar University

Agra

Date:17/05/2022

Subject: Regarding submission of Minutes of Board of Studies held in Institute of Home Science

Sir/Madam,

Kindly find out the copy of Minutes of Board of Studies held in Institute of Home Science on 26/04/2022. Please find here with the document-

1. Minutes of Meeting (Annexure I, Pg No. 2-5)
2. Layout/Scheme of the proposed courses under self finance [M.A. (Home Science), PG Diploma in Nutrition and Dietetics, Certificate Course in Food Processing and Food Preservation] (Annexure II, Pg No. 6-14)
3. Faculty requirement for the above said courses (Annexure III, Pg No. 15)
4. Syllabus of courses proposed [M.A. (Home Science), PG Diploma in Nutrition and Dietetics, Certificate Course in Food Processing and Food Preservation] (Annexure IV Pg No. 16-11
5. Syllabus of M.Sc. (Home Science) under NEP, 2020 Guidelines for M.Sc. General, Group 'A', Group 'B', Group 'E'. (Annexure V, Pg No. 116 - 355)

Prof Achla Gakkhar

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RAJEEV KUMAR
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Annexure I

HMJ 75 - 26

Minutes of Board of Study on 26/04/2022

The meeting of **Board of Study of Institute of Home Science** held on 26 April 2022 at Institute of Home Science, Khandari, Agra

The following members were present in the meeting

1. Prof. Achla Gakkhar — Dean & Director, IHS, Agra (Member)
2. Dr. Archana Singh — Associate Professor, IHS, Agra (Member)
3. Dr. Sanghmitra Gautam — Assistant Professor, IHS, Agra (Member)
4. Dr. Saleem Javed — Assistant Professor, IHS, Agra (Member)
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Meeting started with welcoming of the members by the Director. The following issues were considered and discussed in the meeting as per the recommendations of Academic Committeeof Institute of Home Science held on 19/04/2022. The Board confirmed the following issues.

1. Board suggested not to introduce B.A Home Science program as Institute is already offering a valuable degree of B.Sc. Home Science with same eligibility criteria for admission similar course structure with low fee.
   In addition to this 50% of B.Sc. Home science seats are lying vacant in since few years, so instead of starting a new bachelor's degree with similar course, focus should be on filling up the seats of existing bachelor's degree (B. Sc. Home Science).
   ~~However the authorities may consider launching of M.A course in self finance, in view of its job oriented nature.~~
2. Board recommended to start with M.A Home Science (under self finance scheme) from next coming session, i.e 2022-2023 with minimum eligibility criteria of 50% for general/OBC and 45% for SC/ST categories. At graduation level candidates having Home Science as one of the subjects will be eligible to take admission in the M.A. Home Science in the Institute. Fee structure is enclosed. Number of seats are 50. The course will not run if the candidates are less than 20.
3. Board revised the syllabus of M.Sc. Home Science (General, Group A, B. & E) as per the norms of NEP 2020.

26/4/2022 — 26/4/2022 Dr. Nitu Singh — 26/4/22 — 26.4.22 — 26/4/22 — 26/4/22 (Kapoor)

Signature Not Verified
PRAVEEN KUMAR
Digitally Signed By Registrar

डॉ० भीमराव आंबेडकर विश्वविद्यालय, आगरा

विभाग ....

संचिका संख्या ....

सहायक कुलसचिव,(शैक्षिक) / कुलसचिव

कृपया गृह विज्ञान संस्थान, खन्दारी परिसर,खन्दारी, आगरा की संलग्न पत्रावली का अवलोकन करने का कष्ट करें, जिसके अन्तर्गत संस्थान की निदेशक प्रो0 अचला गक्खर द्वारा संस्थान में दिनांक 26 अप्रैल, 2022 को आहूत हुई एकेडेमिक कमेटी की संस्तुतियों को अग्रिम कार्यवाही हेतु प्रस्तुत किया गया है। समिति की संस्तुतियाँ निम्नवत् है:-

1. Board suggested not to introduce B.A. Home Science Programme as Institute is already offering a valuable degree of B.Sc. Home Science with same eligibility criteria for admission similar course structure with low fee.
   In addition to this 50% of B.Sc. Home Science seats are lying vacant in since few years, so instead of starting a new bachelor's degree with similar course, focus should be on filling up the seats of existing bachelor's degree (B.Sc. Home Science).
2. Board recommended to start with M.A. Home Science (under self finance scheme) from next coming session, i.e 2022-2023 with minimum eligibility criteria of 50% for general/OBC and 45% for SC/ST categories. At graduation level candidates having Home Science as one of the subject will be eligible to take admission in the M.A. Home Science in the Institute. Fee structure is enclosed. Number of seats are 50. The course will not run if the candidates are less than 20.
3. Board revised the syllabus of M.Sc. Home Science (General, Group A, B, & E) as per he norms of NEP 2020.
4. Minor Subject will be selected from other Institute/Faculty viz Faculty of Computer Science, Faculty of Management, Faculty of Linguistic and Basic Science.
5. Board recommended starting PG Diploma in Nutrition & Dietetics from coming session 2022-23.(Syllabus enclosed).
6. Board also recommended to start the certificate course in Food processsing and Food Preservation (Syllabus enclosed).
7. Boys will be eligible to take admission in all the courses being run in the Institute of Home Science.
8. M.Sc.(FN) Group 'B' seats to be increased from 3 to 5.

यदि आप सहमत हो तो कृपया उक्त संस्तुतियों को आगामी विद्या परिषद् के समक्ष प्रस्तुत करने की अनुमति प्रदान करना चाहें।

M. Singh 25.05.22

Kumar 25/05/2022

प्रभारी(शैक्षिक विभाग)

27.05.22

कुलपति जी

Please put it in academic council for approval & discussion

24/5/22

Signature Not Verified
RAJEEV KUMAR
Digitally Signed By: Registrar

कृ. प. उ.