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)
7. Dr. Madhulika Gautam, (Subject Expert)	Associate Professor, DEI, Agra	(Expert)
8. Dr. Richa Verma (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 B.A 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 Archana Kapoor 26.4.22 Madhulika 26/4/22

Signature Not Verified
RAJEEV KUMAR
Digitally Signed By Registrar

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) GPB seat to be increased from 3 to 5.

26/4/22

26/4/2022
Dr. Nitu Singh

Anshana Kapoor

26.4.22

26/4/22
Dr Madhulika Gautam

Signature Not Verified
RAJEEV KUMAR
Digitally Signed By: Registrar

Minutes of the meeting of Board of Study Held on 31/08/2022

Minutes of the meeting of **BOARD OF STUDY** held in Institute of Home Science on 31/08/2022 at 12 pm, Institute of Home Science, Khandari Agra. Meeting was organized to frame the syllabus of B. Sc. (Home Science) as per the NEP guideline 2020. The following members were present in the meeting –

- Prof. Achla Gakkhar Dean & Director, IHS Agra (Member & convener)
- Prof. Archana Singh IHS Agra (Member)
- Mrs. Sanghmitra Gautam Assistant Professor, IHS Agra (Member)
- Dr. Madhulika Gautam Subject Expert, Associate Professor, DEI, Agra (Expert)
- Dr. Richa Verma Assistant Professor, DEI, Agra (Expert)

Meeting started with the welcoming of the members by the Director. Below mention issues were discussed in the meeting as per the recommendations of Academic Committee of Institute of Home Science held on 20/08/22. The Board confirmed the following:

1. Board recommended to start with B. Sc. Home Science (Regular Course) from coming session that is 2022-23 as per the NEP Guideline 2020. The minimum eligibility criteria 50% for General/OBC, 45% for Sc/St Category. Candidates having 10+2 certificate with Commerce, Science, and Arts subject will be eligible to take admission in B. Sc. (Home Science) in faculty of Home Science, Dr. B. R. Ambedkar University Agra. The numbers of seats are 120.
2. Board revised the syllabus and papers of B. Sc. (Home Science) as per the norms of NEP 2020. Board recommended the minor courses, co-curricular courses, and vocational courses.

Meeting ended with the vote of thanks.

31/8/22

31.8.2022

NATIONAL EDUCATION POLICY, 2020
MASTER OF SCIENCE IN HOME SCIENCE
(General)
Institute of Home Science,
Dr. Bhimrao Ambedkar University, Agra

Course Code	Course Title: B.Sc. (Home Science) VII Semester/ M. Sc. (H.Sc.) I Semester	Course Type	Marks		Total	Credit	Course Mapping		
			CIE	UE			EC	EPC	SDC
I	Research Methodology	Theory Major	25	75	100	4			
II	Nutritional Biochemistry-I	Theory Major	25	75	100	4			
III	Resource Management	Theory Major	25	75	100	4			
IV	Guidance and Counseling Across the Lifespan	Theory Major	25	75	100	4			
V	Nutritional Biochemistry-I	Practical Major	25	75	100	4			
VI	Other Faculty * Linguistic	Minor	25	75	100	4			
VII	Research Project		25	75	100	4			
	Total		175	525	**700**	28			
Course Code	**Course Title: B.Sc. (Home Science) VIII Semester/ M. Sc. (H.Sc.) II Semester**	**Course Type**	**Marks**		**Total**	**Credit**	**Course Mapping**		
			CIE	**UE**			**EC**	**EPC**	**SDC**
VIII	Fundamentals of Statistics	Theory Major	25	75	100	4			
IX	Ergonomics	Theory Major	25	75	100	4			
X	Advanced Food Science	Theory Major	25	75	100	4			
XI	Training and Management	Theory Major	25	75	100	4			
XII	Surface Ornamentation on Textile	Practical Major	25	75	100	4			
XIII	Research Project		25	75	100	4			
	Total		150	450	**600**	24			

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

Bachelor (Research) in Faculty

Course Code	Course Title M.Sc. (Home Science) III Semester/ SEMESTER IX	Course Type	Marks		Total	Credit	Course Mapping		
			CIE	UE			EC	EPC	SDC
XIV	Methods of Studying Human Development	Theory Major	25	75	100	4			
XV	Institutional Food Management	Theory Major	25	75	100	4			
XVI	Advanced Apparel Designing and Production	Theory Major	25	75	100	4			
XVII	Food Microbiology and Food Safety	Theory Major	25	75	100	4			
XVIII	Computer application in Designing	Practical Major	25	75	100	4			
XIX	Research Project		25	75	100	4			
	Total		150	450	**600**	24			
Course Code	**Course Title** **M.Sc. (Home Science) IV Semester/** **SEMESTER X**	**Course Type**	**Marks**		**Total**	**Credit**	**Course Mapping**		
			CIE	**UE**			**EC**	**EPC**	**SDC**
XX	Advanced Physiology	Theory Major	25	75	100	4			
XXI	Clinical Nutrition with Compulsory Internship	Theory Major	25	75	100	4			
XXII	Food Processing and Preservation	Theory Major	25	75	100	4			
XXIII	Indian Socio Economic Environment : Development Perspectives	Theory Major	25	75	100	4			
XXIV	Food Preservation Techniques	Practical Major	25	75	100	4			
XXV	Research Project	Project	25	75	100	4			
	Total		150	450	600	24			

(MASTER IN FACULTY)

Mapping of the course to Local/ Regional/National/Global need :

***Loc:** **Local Need** ***Reg:** **Regional Need** ***Nati :** **National Need** ***Glob:** **Global Need**

PGDR (Home Science)

Course Code	Course Title: Semester XI	Course Type	Marks		Total	Credit	Course Mapping		
			CIE	UE			EC	EPC	SDC
C 1	Thrust areas of Home Science	Major	25	75	100	6			
C 2	Essentials of Entrepreneurship	Major	25	75	100	6			
C 3	Research Methodology	Major	25	75	100	4			
	Research Project (Qualifying)								
	Total		75	225	**300**	16			

MASTER OF SCIENCE IN HOME SCIENCE
(General)

Programme Educational Objectives (PEOs)

The Program Educational Objectives (PEOs) for the Master of Science in Home Science (General) describe accomplishments that post graduates are expected to attain.

PEO-1: To develop knowledge about various field of home science.

PEO-2: Impart skill training programme

PEO-3: Be committed as responsible consumers and able designers

PEO-4: Acquire knowledge, skill and attitude to work with the communities

Programme Outcomes (POs)

The students of Master of Science in Home Science will be able to:

PO-1: To develop the capabilities and knowledge of students in the area of –

- ✓ Human development and family studies
- ✓ Food and nutrition
- ✓ Extension communication and management
- ✓ Textile and Apparel Design
- ✓ Family resource management

PO-2: To develop skills and make the students efficient in academics, industry and community service in the field of home science.

Programme Specific Outcome (PSOs)

After the successful completion of Master of Science in Home Science, the students will able to:

PSO-1: Get sensitized on the issues of society

PSO-2: Apply theoretical knowledge and practical exercise for investigation in the area of home science.

PSO-3: Acquire knowledge to develop entrepreneurial skills

PSO-4: Application of knowledge and techniques of work simplification

PSO-5: Competency in rural development practices

PSO-6: Provide scope for trainings and internships to get real exposure to work environment and professional abilities

SYLLABUS OF M.SC. (HOME SCIENCE) GENERAL

(As per NEP 2020 guidelines)

(SESSION 2022-23)

SEMESTER

VII

Paper – I

Research Methodology

M.Sc. (Home Science) I Semester

(General, Spl. Grp. 'A', 'B'& 'E')/

B.Sc. (H.Sc.) Semester VII

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives: This course aims to introduce the basic concepts in research methodology in Social science, Address the issues inherent in selecting a research problem, Discuss the techniques and tools to be employed in completing a research project, Equip students with a basic understanding of the underlying principles of quantitative and qualitative research methods, Provide students with in-depth training on the conduct and management of research from inception to completion using a wide range of techniques.

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

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**

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
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

Course Outcomes:

This course will enable the students-

CO-1: To understand the significance of Research Methodology in Home Science Research.

CO-2: To study the types, tools and Methods of Research and develop the ability to construct data appropriate to the Research Design.

CO-3: To be able to appreciate and understand importance of writing scientifically.

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	2	2	1	2	1	1	2	1
CO2	2	2	1	2	1	1	1	1
CO3	2	2	1	2	1	1	2	1

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper – II

Nutritional Biochemistry - I

M. Sc. (Home Science) I Semester

(General and Spl. Group 'B')/

B.Sc. (H.Sc.) Semester VII

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives:

The course aims to equip students with the knowledge and analytical skills necessary to understand the complex interactions between nutrients and biochemical pathways, and to apply this understanding to promote health, prevent disease, and optimize nutritional interventions across the lifespan.

	Unit-I -	**Periods**
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 • Beta oxidation theory with energetic • Ketosis, formation and utilization of ketone bodies.	**6**
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**

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.

Sessional Work

1. Seminar presentation on any topic from syllabus.
2. Academic assessment through short and long questions.
3. Discussions on role of nutrients in biochemistry.

Course Outcomes

After completing this course, student is expected to learn the following:

CO1: To augment the biochemistry knowledge acquired and understand the significance of Biochemistry in Home Science research.
CO2:To understand the mechanisms adopted by the human body for regulation of metabolic Pathways
CO3: To become proficient for specialization in nutrition. Understand integration of cellular level metabolic events to nutritional disorders and imbalances.

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	1	2	3
CO2	2	2	1	2	2	1	1	2
CO3	1	1	2	2	1	2	2	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper- III

Resource Management

M.Sc. (Home Science) I Semester General/

B.Sc. (H.Sc.) Semester VII

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives:

This course will enable the students-

- 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

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

Course Outcomes :

After completing this course, student is expected to learn the following:

CO1: Ability to understand the concepts of management.

CO2: Gain knowledge of techniques of financial management.

CO3: To understand the concept of management efficiency and effectiveness in the family.

Abbreviations:

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

Course Mapping :

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	3	2	3	3	1
CO2	3	3	2	3	2	&	3	3
CO3	3	3	2	3	1	3	3	2

Matching: ‘0to 30% = 1: ‘30% to 60% = 2: ‘60% to 100% = 3

Paper – IV

Guidance and Counseling Across the Lifespan

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

B.Sc. (H.Sc.) Semester VII

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives: This course aims to develop an understanding about the concept of guidance and counselling among students, Recognize the behavioural problems and examine strategies for positive behaviour management and to teach students an ethical approach of counselling.

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**
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**

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.

Course Outcomes:

This course will enable the students-

CO-1: To understand the need for guidance and counseling in human development.
CO-2: To introduce basic concepts in guidance and counseling therapy.
CO-3: To understand the processes involved in counseling at different stages in life.
CO-4: To learn qualities of guidance workers and counselor.

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	1	1	2
CO2	2	2	2	2	2	1	1	2
CO3	2	2	2	2	1	1	1	2
CO4	2	2	2	2	2	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper. V

Nutritional Biochemistry I

M. Sc. (Home Science) (Gen & Spl. Grp. 'B') I Semester/

B.Sc. (H.Sc.) Semester-VII

Course Type: Practical Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives: This course helps to understanding the biochemical processes involved in nutrient metabolism, their roles in human health, and the implications for disease prevention and treatment. Here are some specific objectives.

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.

Course Outcomes

After completing this course, student is expected to learn the following:

CO1:To augment the biochemistry knowledge acquired and understand the significance of Biochemistry in Home Science research.
CO2:To understand the mechanisms adopted by the human body for regulation of metabolic Pathways
CO3:To become proficient for specialization in nutrition. Understand integration of cellular level metabolic events to nutritional disorders and imbalances.

Abbreviations:

CIE: Continuous Internal Evaluation

UE: University Exam

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	1	2	3
CO2	2	2	1	2	2	1	1	2
CO3	1	1	2	2	1	2	2	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper-VI

M.Sc. (Home Science) I Semester

(General, Spl. Grp. 'A', 'B'& 'E')/

B.Sc. (H.Sc.) Semester VII

Course Type: Minor

(Other Faculty) As per the University List

ALI101: Introducing Language Sciences

Course Objective:

The course introduces students to the basics of Linguistics. It quashes many myths about language and gives a fair idea of the areas that modern linguistics addresses to.

Unit I. Introduction to Language and Linguistics, Descriptive vs Prescriptive, Tradition, Design Features of Human Language The Origin of Speech.

Unit II. Building blocks of language: Phonetics & Phonology, Building blocks of language: Morphology , Building blocks of language: Syntax , Building blocks of language: Semantics

Unit III. Structure of Sign Languages, Language in Society, Variation, Indian Multilingualism, Linguistic Diversity, Language Endangerment and Maintenance

UNIT IV. Language Contact, Language Change, Language Universals

Textbook

1. O'Grady, William and John Archibald (ed). 2017. Contemporary Linguistics: An Introduction (7e). New York
2. Fromkin, Victoria, Robert Rodman and Nina Hyams. 2014. An Introduction to Language (10e). Singapore: Wadsworth.

Course Outcomes:

At the end of the course students are expected to have:

CO-1: An overview of the field of Language Sciences/Linguistics as it stands today

CO-2: An ability to answer questions like "how many languages do you know", "do you know all the languages", "linguistics of which language" and "what exactly you do in Linguistics" .

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	1	2	3
CO2	2	2	1	2	2	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper – VII

Research Project

M. Sc. (Home Science) I Semester

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

B.Sc. (H.Sc.) Semester VII

CIE – 25 Marks
UE – 75 Marks

Credits: 4

Course Objectives:

- Demonstrate advanced critical research skills, to establish links between theory and methods within their field of study
- Acquire research skills to develop a research proposal, understand protocol, design and manage a piece of original project work

Course Content:

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

Course outcomes:

CO-1: Help to develop in-depth knowledge of the major subject/field of study, including deeper insight into current research

CO-2: Develop capability to use a holistic view to critically, independently and creatively identify, formulate and deal with research topic

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	2	2	2	2	2	1	2	3
CO2	2	2	1	2	2	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

SEMESTER

VIII

Paper – VIII
Fundamentals of Statistics
M.Sc. (Home Science) II Semester
(General, Spl. Grp. 'A', 'B' &'E')/
B.Sc. (H.Sc.) Semester VIII

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives: The course aims to develop an understanding of scope of statistics in ome Science and provide a comprehensive knowledge about statistical measures to analyze data and interpretation 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)	**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**
	Computer Applications in data Analysis	
	• Use of Statistical Software in data analysis	

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 Software.

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

Course Outcomes:

This course will enable the students-

CO-1: To understand the role of Statistics in Research.
CO-2: To apply Statistical Techniques to Research Data for analyzing and interpreting data meaningfully.
CO-3: To understand the use of Statistical Software in the analysis of data.

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	1	2	1	2	1	1	1	2
CO2	1	2	1	2	1	1	1	2
CO3	1	2	1	2	1	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper – IX

Ergonomics

M.Sc. (Home Science) II Semester General/

B.Sc. (H.Sc.) Semester VIII

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives:

This course will enable the students:

- To become aware of the components of worker in ergonomics in home.
- To understand the working posture and motion.
- To know application of ergonomic consideration in designing of work place.

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

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

Course Outcomes :

After completing this course, student is expected to learn the following:

CO1: Ability to understand the concepts of components of worker in home.

CO2: Gain knowledge of working posture and motion.

CO3: To understand the concept designing of work place.

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

Course Mapping :

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	1	3	1	2	2	&
CO2	3	2	3	3	1	3	2	2
CO3	3	2	1	3	2	3	2	2

Matching: ‘0to 30% = 1: ‘30% to 60% = 2: ‘60% to 100% = 3

PAPER - X
Advanced Food Science
M.Sc. (Home Science) II Semester (Spl. Grp'B' and General)/
B.Sc. (H.Sc.) Semester VIII

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives

This course aims to provide students with a deeper understanding of various aspects of food science beyond the basics and exploring the process of developing new food products from concept to commercialization. Integrating knowledge of food science, consumer preferences, market trends, and regulatory requirements to innovate and create successful food products.

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-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,	3

	Their use in food preparations. (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. (c) Eggs-Properties of egg-proteins and uses in egg preparations, egg as binding, foaming and emulsifying agent mayonnaise preparation. (d) Meat-Postmortem changes, changes on cooking, fish types, changes during heat treatment.	3 3 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 Objective methods of measurement of: a) Colour b) Texture	2 2
UNIT-IV	**New Product Development**	
	a) Food Additives: Definition, importance, classification and uses	2
	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.

Sessional Work

1. Seminar presentation on any topic from syllabus.
2. Academic assessment through short and long questions.
3. Discussions on role of nutrients in food science.

Course Outcomes

After completing this course, student is expected to learn the following:

CO1:Enabling students to comprehend the changes that occur in the physiochemical properties of food stuffs during food preparation.
CO2:Enabling the students to understand and apply the various techniques in the quality evaluation of foods.
CO3:Imparting awareness on the concept of 'food product development'

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	1	2	3
CO2	2	2	1	2	2	1	1	2
CO3	1	1	2	2	1	2	2	3

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

PAPER - XI

Training and Management

M.Sc. (Home Science) II Semester

(General & Spl. Grp. 'E')/

B.Sc. (H.Sc.) Semester VIII

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course objectives: The students will able to design training programmes for development

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

	1. Physical arrangements, selection of participants, selection 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

Course Outcomes:

This Course will enable students-

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

Abbreviations:

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

Course Mapping

	PO1	PO2	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	1	2	1	2	2	2	2	-
CO2	1	1	1	1	1	2	1	2
C03	2	2	2	1	`1	2	2	3
CO4	2	2	2	2	2	2	2	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

PAPER XII

Surface Ornamentation on Textile

M.Sc. (Home Science) II Semester General/

B.Sc. (H.Sc.) Semester VIII

Course Type: Practical Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objective: Exploring and applying the old and new ideas of designing in different sector. To beautify the appearance of a fabric or a material. The variety of beautiful clothes and other accessories. The colours we see and the textures we feel are the result of such processes.

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.
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.

Course Outcomes:

After completing this course, student is expected to learn the following:

CO-1: Students will able to develop creative garments for home textiles, interior and other sectors of society.

CO-2: Students will able to develop creative and sustainable fabrics.

CO-3: Students will able to do exploration in terms of designing of different textile material and techniques.

CO-4: Students will be able to use the techniques for developing different products

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	3	3	2	-
CO2	3	3	3	3	3	3	2	-
CO3	3	3	3	3	3	3	2	-
CO4	3	3	3	3	3	3	2	-
CO5	3	3	3	3	3	3	2	-

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper – XIII

Research Project

M. Sc. (Home Science) (General, Spl. Grp. 'A', 'B' & 'E') II Semester/

B.Sc. (H.Sc.) Semester VIII

CIE – 25 Marks
UE – 75 Marks

Credits: 4

Course Objectives:

- Demonstrate advanced critical research skills, to establish links between theory and methods within their field of study
- Acquire research skills to develop a research proposal, understand protocol, design and manage a piece of original project work

Course Content:

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

Course Outcomes:

CO-1: Help to develop in-depth knowledge of the major subject/field of study, including deeper insight into current research
CO-2: Develop capability to use a holistic view to critically, independently and creatively identify, formulate and deal with research topic

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	2	2	2	2	1	1	2	1
CO2	2	2	1	2	1	1	1	1

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

SEMESTER

IX

Paper – XIV

Methods of Studying Human Development

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

Semester IX

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives: This course aims to comprehend the developmental designs adopted to study children and develop an insight into the various methods of data collection.

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). iii. Verbal Techniques (word association, sentence completion, word blank and sentence blank).	**6**
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**

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.

Course Outcomes:

CO-1: This course will enable the students to understand different methods and techniques of studying human development.

CO-2: This course will enable the students to apply the various methods studied practically.

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	3	1	1	1	3
CO2	3	3	2	3	1	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

PAPER - XV

Institutional Food Management

MSc.(Home Science) (Spl. Grp 'B'and General) III Semester/

Semester IX

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives

This course aims to prepare students for careers in food service management by equipping them with the knowledge, skills, and practical experience needed to effectively oversee food service operations, deliver high-quality meals, and meet the diverse needs of institutional clientele while adhering to industry standards and regulations

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

	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

	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.

	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

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

Course Outcomes:

After completing this course, student is expected to learn the following:

CO1:To develop a knowledge base about the different types of food service units and its evolution.
CO2:To impart necessary expertise to function as a food service manager.
CO3:To provide practical experience in managing food material for food service management.

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	1	2	3
CO2	2	2	1	2	2	1	1	2
CO3	1	2	2	3	2	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

PAPER – XVI

Advanced Apparel Designing and Production

M.Sc. (Home Science) III Semester General/

Semester IX

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objective: To acquaint students, with marketing process so that they can correlate theory with practical aspect of marketing. Understanding the documentation and regulations will helps students in developing and marketing their products.

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

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

SESSIONAL WORK

S. N.	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.

Course Outcomes:

CO-1: Students will be able to develop and create patterns for mass and niche market.

CO-2: Students can explore their creativity by learning the concept of pattern making.

CO-3: Students will be able to create garments using different fashion components.

CO-4: Developed understanding about market and retail will help them to develop their career in the same.

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	3	3	3	3	3	2	-
CO2	3	3	3	3	3	3	2	-
CO3	3	3	3	3	3	3	2	-
CO4	3	3	3	3	3	3	2	-
CO5	3	3	3	3	3	3	2	-

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper- XVII

Food Microbiology and Food Safety

MSc. (Home Science) (General & Spl. Grp 'B') III Semester

Semester-IX

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives

This course will enable the students:

- To understand the basis of microbial growth in various foodstuffs and its beneficial and harmful effects.
- To learn the ways and means to prevent microbial contamination during and after food processing to contain spoilage and poisoning.
- To 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
	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.

	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

Course Outcomes

After completing this course, student is expected to learn the following:

CO1: Learn the concepts of microbial growth in various foodstuffs.
CO2: Understand the microbial contamination during and after food processing.

CO3: Able to explain the microorganisms in food product development.

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	1	1	3
CO2	2	2	1	2	2	1	1	2
CO3	1	1	2	2	3	2	2	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper- XVIII

Computer Application in Designing

M.Sc (Home Science)

(General, Spl. Grp. 'A', 'B' & 'E') III Semester

Semester IX

Course Type: Practical Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives: The Course aims to equip students with the knowledge, skills, and practical experience needed to create innovative and visually compelling designs using digital tools, prepare them for careers in various design fields, and adapt to the evolving demands of the design industry

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	4
	Page Maker	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

Course Outcomes:

This course will enable the students-

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

CO-2: To understand the work of computers while designing.

CO-3: To develop creativity in designing A.V.Aids.

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

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	1	2	1	2	2	1	2	2
CO2	1	2	1	2	2	2	1	2
CO3	1	2		2	2	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper – XIX

Research Project

M. Sc. (Home Science)

(General, Spl. Grp. 'A', 'B' & 'E') III Semester/

Semester IX

CIE – 25 Marks
UE – 75 Marks

Credits: 4

Course Objectives:

- Demonstrate advanced critical research skills, to establish links between theory and methods within their field of study
- Acquire research skills to develop a research proposal, understand protocol, design and manage a piece of original project work

Course Outcomes:

CO-1: Help to develop in-depth knowledge of the major subject/field of study, including deeper insight into current research
CO-2: Develop capability to use a holistic view to critically, independently and creatively identify, formulate and deal with research topic

Course Content:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	1	2	1	2	1	1	1	3
CO2	1	2	1	2	1	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

SEMESTER

X

PAPER - XX

Advanced Physiology

MSc (Home Science)

(Spl. Grp. 'A', 'B' and General) IV Semester/

Semester X

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives

This course will enable the students:

- To understand the functions of physiological systems including the lymphatic system, circulatory system, respiratory and digestive system, excretory and endocrine system ,reproductive and nervous system.
- To perform, analyse and report on different experiments (slides of different human organs)and observations in physiology
- To recognize and identify principal tissue structures.

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
	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.

	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

Course Outcomes

After completing this course, student is expected to learn the following:

CO1: Learn the concepts of circulatory system, respiratory system and digestive system

CO2: Understand the functions of physiological systems.

CO3: Able to explain the different human organs in physiology

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	2	2	2	2	2	1	2	3
CO2	2	2	1	2	2	1	1	2
CO3	2	1	2	2	1	2	2	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

PAPER - XXI

Clinical Nutrition with Compulsory Internship

MSc. (Home Science)

(Spl Grp 'B'and General) IV Semester/

Semester X

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives:

This course aims to advance knowledge in the field of Clinical Nutrition, enhance patient care practices, and contribute to the development of evidence-based guidelines and interventions to address nutrition-related health concerns in clinical populations and Evaluate the nutritional status of individuals or populations through anthropometric measurements, biochemical analyses, dietary assessments, and clinical evaluations.

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 counseling	1
	3. Diet, Nutrition and drug interaction	2
	4. Nutrition support : EnteralandParenteral Nutrition	2
Unit-II	**WEIGHT MANAGEMENT, DIABETES and HEART DISEASE**	
	Pathophysiology, metabolic and clinical aberrations, diagnosis , complications, treatment, MNT, dietary counseling 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 counseling 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 – 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.

	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 - 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.

Course Outcomes

After completing this course, student is expected to learn the following:

CO1:To learn about the nutrition care process and principles of dietary counselling

CO2:To understand causative factors and metabolic changes in various diseases/ disorders.

CO3:To understand the symptoms, diagnosis, complication and treatment in diseases

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	1	2	3
CO2	2	2	1	2	2	1	2	2
CO3	1	1	2	2	1	2	2	3

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

PAPER- XXII

Food Processing and Preservation

M.Sc. (Home Science) IV Semester

(General, Spl. Grp. 'B') /

Semester X

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives:

The course aims to equip students with the knowledge, skills, and practical experience needed to effectively manage food processing operations, ensure food safety and quality, innovate in product development, and contribute to the sustainable and responsible advancement of the food processing industry.

CONTENTS

UNIT- I	FOOD PRESERVATION	PERIODS
	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 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.

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.

Course Outcomes

After completing this course, student is expected to learn the following:

CO1:To understand the principles and processes involved in food processing

CO2:To understand the technological innovations for various food stuffs.
CO3:To gain the knowledge of fortification and extrusion technology.

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	2	2	3
CO2	2	2	1	2	2	1	1	2
CO3	3	1	2	2	1	2	2	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper: XXIII

Indian Socio-Economic Environment: Development Perspectives

M.Sc (Home Science) (Spl. Grp. 'E' & General) IV Semester/

Semester X

Course Type: Theory Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives: Students will 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, causes of poverty, population explosion and its impact, programmes to alleviate poverty. 4. Tribal welfare – historical overview, Tribal development strategies and policies	3 4 4 3
2.	Employment: **1.** Occupational structure in India **2.** primary and subsidiary occupations	3 3 4

	3. problems of unemployment, measures taken by the government to solve the problem of unemployment. Women and employment in India.	
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

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:

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.

Course Outcomes:

The course will enable the students to -

- **CO-1:** Become aware of the socio-economic structure, organization of problems of rural, urban and tribal communities.
- CO-2: Understand the implications of the socio-economic environment in the process of development.

Abbreviations:

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

Course Mapping

	PO1	PO2	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	1	1	2	1	2	2	2	-
CO2	2	1	1	1	2	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper-XXIV

Food Preservation Techniques

M.Sc. (H.Sc.) (General, Spl. Grp. 'B') IV Semester

Semester-X

Course Type: Practical Major

CIE – 25 Marks
UE – 75 Marks

Teaching Periods: 4/Week
Credits: 4

Course Objectives:

The course aims to equip students with the knowledge, skills, and practical experience needed to effectively manage food processing operations, ensure food safety and quality, innovate in product development, and contribute to the sustainable and responsible advancement of the food processing industry.

	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

Course Outcomes

After completing this course, student is expected to learn the following:

CO1:To understand the principles and processes involved in food processing

CO2: To understand the technological innovations for various food stuffs.

CO3: To gain the knowledge of fortification and extrusion technology.

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	2	2	2	3
CO2	2	2	1	2	2	1	1	2
CO3	3	1	2	2	1	2	2	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Paper – XXV

Research Project

M. Sc. (Home Science)

(General, Grp. 'A', Grp. 'B' and Grp. 'E') IV Semester/

Semester X

CIE – 25 Marks
UE – 75 Marks

Credits: 4

Course Objectives:

- Demonstrate advanced critical research skills, to establish links between theory and methods within their field of study
- Acquire research skills to develop a research proposal, understand protocol, design and manage a piece of original project work

Course Content:

Report writing and finalization of Research project

Course Outcomes:

CO-1: Help to develop in-depth knowledge of the major subject/field of study, including deeper insight into current research

CO-2: Develop capability to use a holistic view to critically, independently and creatively identify, formulate and deal with research topic

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	2	2	1	2	1	1	1	3
CO2	2	2	1	2	1	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

P.G.D.R in Subject

SEMESTER

XI

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

Courses Objective: This course aims to give insight about need of research in home science, thrust areas of home science and funding agencies for research projects.

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, 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	**7**

	institutions	
	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

Course Outcomes:

This course will enable the students-

CO-1: To understand the need and significance of Research in different areas Home Science.

CO-2: To know the different funding agencies for Research Projects

CO-3: To gain the knowledge of different Research Applications in various fields of Home Science

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	2	2	1	1	2	2
CO2	3	2	1	2	1	1	1	2
CO3	3	2	2	2	1	1	2	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

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

Course Outcomes:

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

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**
	Resource mobilization finance technology, raw material, site and	**3**

	manpower	
	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.

Course Outcomes:

CO-1: Understand the key resources required to develop an existing business such as ideas and finance, launch a new venture, or initiate a business enterprise

CO-2: Be able to state, understand and evaluate the key factors needed to develop a successful business

CO-3: Understand the central role of opportunity recognition and marketing to business development

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	2	2	2	2	3	1	1	3
CO2	2	2	1	2	3	1	1	2
CO3	1	2	2	2	3	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

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

Course Objectives:

This course aims

- To help students in understanding 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 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**

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**

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. The Student's Guide to Preparing Dissertations and Thesis. London: Kogan.
6. MLA Handbook for writers of research papers, East West Press, New Delhi.
7. Thesis Writing: A manual for Researchers. New Age International Ltd.
8. Write and publish a scientific paper by Robert A. Day Oryse Press.
9. Research Projects and Research proposals. A guide for Students seeking funding by Paul G. Chaplin. Cambridge University Press.
10. Write Mathematics Right: L Radhakrishnan, Narosa.
11. Satarkar, S.V. (2000), Intellectual Property Rights And Copy Right, Ess Ess Publications.

Course Outcomes:

This course will enable the students-

CO-1: To understand the role of Statistics in Research.
CO-2: To apply Statistical Techniques to Research Data for analyzing and interpreting data meaningfully.
CO-3: To be able to appreciate and understand importance of writing scientifically.

Abbreviations:

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

Course Mapping:

	PO 1	PO 2	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	2	2	1	2	1	1	1	3
CO2	2	2	1	2	1	1	1	2
CO3	2	2	1	2	1	1	1	2

Matching: * 0 to 30% = 1; *30% to 60% = 2; * 60% to 100% =3

Research Project

(Qualifying)