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National Education Policy-2020

Common Minimum Syllabus for Uttarakhand State Universities and Colleges

Four Year Undergraduate Programme Bachelor of Science (Home Science)/ Honours Programme/Master in Home Science (Foods and Nutrition)/ Textile and Apparel Designing

PROPOSEDSTRUCTURE FOR FYUP/MASTER'S HOME SCIENCE SYLLABUS

DEPARTMENT OF HOME SCIENCE

EXPERT COMMITTEE

S.NO.	NAME	DESIGNATION	DEPARTMENT	AFFILIATION
1.	PROF. LATA PANDEY	PROFESSOR	HOME SCIENCE	KUMAUN UNIVERSITY, NAINITAL
2.	DR. CHHAVI ARYA	ASSOCIATE PROFESSOR	HOME SCIENCE	KUMAUN UNIVERSITY, NAINITAL
3.	DR. MEENA BATHAM	ASSOCIATE PROFESSOR	HOME SCIENCE	DELHI UNIVERSITY
4.	DR. MUKTA SINGH	PROF. & HOD HOME SCIENCE	M.M.V.	B.H.U., UTTAR PRADESH
5.	DR. MANISHA GHALOT	PROF. & HOD	APPAREL & TEXTILE SCIENCE	GBPUA&T, PANTNAGAR
6..	DR. REKHA NAITHANI	PROFESSOR	HOME SCIENCE	BGR CAMPUS, PAURI, C.U. GARHWAL
7.	DR. SUNITA RANI	HOD HOME SCIENCE	HOME SCIENCE	KUMAUN UNIVERSITY, NAINITAL
8.	DR. HIMANI VERMA	ASSISTANT PROFESSOR	HOME SCIENCE	KUMAUN UNIVERSITY, NAINITAL
9.	MR. SATISH KANDPAL	REGISTRAR	GYANARTHI COLLEGE	KUMAUN UNIVERSITY, NAINITAL

SYLLABUS PREPARATION COMMITTEE

S. NO.	NAME	DESIGNATION	DEPARTMENT	AFFILIATION
1.	DR. SUNITA RANI	HOD & ASSISTANT PROFESSOR	HOME SCIENCE	KUMAUN UNIVERSITY, NAINITAL
2.	DR. JANKI JOSHI	ASSISTANT PROFESSOR	HOME SCIENCE	KUMAUN UNIVERSITY, NAINITAL
3.	DR. NEHA TIWARI	ASSISTANT PROFESSOR	HOME SCIENCE	KUMAUN UNIVERSITY, NAINITAL
4.	DR. HIMANI VERMA	ASSISTANT PROFESSOR	HOME SCIENCE	KUMAUN UNIVERSITY, NAINITAL
5.	DR. JYOTI PANT	ASSISTANT PROFESSOR	HOME SCIENCE	KUMAUN UNIVERSITY, NAINITAL
6.	MRS.ANKITA PUNETHA	TEACHING ASSISTANT	HOME SCIENCE	KUMAUN UNIVERSITY, NAINITAL
7.	DR. RUSHDA ANAM MALIK	ASSISTANT PROFESSOR	HOME SCIENCE	KUMAUN UNIVERSITY, NAINITAL

Contents

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Course Title- Introduction to Clothing Construction
Course Title- Practical based on DSC-2
Course Title- General English & Technical Writing

Semester- II

Course Title- Fundamental of Human Development
Course Title- Household Dynamics and Management of Resources
Course Title- Communication and Instructional Technology
Course Title- Computer Application

Semester –III

Course Title- Food Processing and Storage
Course Title- Indian Embroidery and Traditional Textile
Course Title- Practical based on DSC-7 and DSC-8
Course Title- Ergonomic Design
Course Title- Life Span Development

Semester –IV

Course Title- Introductory Textile Science
Course Title- Fundamentals of Baking
Course Title- Practical based on DSC-10 and DSC-11
Course Title- Community Nutrition
Course Title- Family Financial Management & Consumer Economics

Semester V

Course Title- Therapeutic Nutrition and Diet Counseling
Course Title- Fabric Formation and Finishes
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Course Title- Entrepreneurship Development
Course Title- Population and Family Life Education

Semester VI

Course Title- Food Science
Course Title- Fundamentals of Housing and Interior Decoration
Course Title- Practical on DSC-17
Course Title- Textile Designing & use of CAD
Course Title- Programme Planning, Implementation and Evaluation

Semester VII

Course Title- Food Service Management
Course Title- Research Methodology
Course Title- Marriage and Family Dynamics
Course Title- Early Childhood Education
Course Title- Introduction to Extension Education
Course Title- Principles of Food Preservation

Semester VIII

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Course Title- Food Safety and Quality Control
Course Title- Textile Industry and Trade
Course Title- Retailing and Merchandizing in Textile and Apparel
Course Title- Management of Childcare Centre and Nursery School
Course Title- Household Equipment and Appropriate Technology

Master in Home Science (Food and Nutrition)

Semester-IX

Course Title- Basics of Nutrition and Hygiene
Course Title- Food Microbiology
Course Title- Nutrition through life cycle
Course Title- Dissertation/ Project/Internship/Training

Semester-X

Course Title- Clinical Nutrition and Dietetics
Course Title- Food Quality Analysis
Course Title- Food Product Development and Marketing
Course Title- Dissertation/ Project/Internship/Training

Master in Home Science (Textile and Apparel Designing)

Semester-IX

Course Title- Advanced Textile Designing and Woven Fabric Analysis
Course Title- Eco Textile and Environment
Course Title- Fashion Designing and Accessories
Course Title- Dissertation/ Project/Internship/Training

Semester-X

Course Title- Historic Textiles and Costumes
Course Title- Textile Quality Analysis
Course Title- Garment Manufacturing -Draping
Course Title- Dissertation/ Project/Internship/Training

List of Papers (DSC, DSE,GE, VAC, SEC) with Semester Wise Titles for 'Home Science'					
Year	**Semester**	**Course**	**Paper Title**	**Theory/ Practical**	**Credits**
Undergraduate Certificate in Home Science					
FIRST YEAR		DSC-1	Principles of Nutrition	Theory	4
		DSC-2	Introduction to Clothing Construction	Theory	4
		DSC-3	Practical on Introduction to Clothing Construction	Practical	4
		GE-1	General English & Technical Writing	Theory	4
		AEC-1	Indian language **(as decided by university**)	-	2
		SEC-1	Personality Development	Theory	2
		VAC-1	Value Addition of Apparels	Practical	2
	II	DSC-4	Fundamental of Human Development	Theory	4
		DSC-5	Household Dynamics and Management of Resources	Theory + Practical	3+1
		DSC-6	Communication and Instructional Technology	Practical	4
		GE-2	Computer Application	Theory + Practical	2+2
		AEC-2	Indian language **(as decided by university**)	Theory	2
		SEC-2	Fashion Apparel Designing	Theory +Practical	1+1
		VAC-2	Value Added product from fruits and Vegetables	Practical	2
Undergraduate Diploma In Home Science					
		DSC-7	Food Processing and Storage	Theory	4
		DSC-8	Indian embroidery and Traditional Textiles	Theory	4
SECOND YEAR	III	DSC-9	Practical based on DSC-7 and DSC-8	Practical	4
		DSE-1 or GE-3	Ergonomic design or Life Span Development	Theory + Practical or Theory	2+2 or 4
		AEC-3	Indian language **(as decided by university**)	-	2

		IAPC or SEC-3	Internship/Apprenticeship/ Project/ Community Outreach or Guidance and Counseling	Practical Theory	2
		VAC-3	Ayurveda and Nutrition	Theory + Practical	1+1
	IV	DSC-10	Introductory Textile Science	Theory	4
		DSC-11	Fundamentals of Baking	Theory	4
		DSC-12	Practical based on DSC-10 and DSC- 11	Practical	4
		DSE-2 or GE-4	Community Nutrition or Family Financial Management & Consumer Economic	Theory + Practical or Theory	2+2 or 4
		AEC	Indian language **(as decided by university**)		2
		IAPC Or SEC-4	Internship/Apprenticeship / Project/Community outreach Or Public Speaking	Practical	2
		VAC-4	Fashion Illustration	Practical	2
Bachelor in Home Science (Honours)					
		DSC-13	Therapeutic Nutrition and Diet Counseling	Theory	4
		DSC-14	Fabric Formation and Finishes	Theory	4
THIRD YEAR	V	DSC-15	Practical based on DSC-13 and DSC-14	Practical	4
		DSE-3	Entrepreneurship Development	Theory+Practical	3+1
		GE-5	Population and Family Life Education	Theory	4
		IAPC Or SEC-5	Internship/Apprenticeship/ Project/Community outreach Or Sustainable Development	Theory	2
	VI	DSC-16	Food Science	Theory	4
		DSC-17	Fundamentals of Housing and Interior Decoration	Theory	4

		DSC-18	Practical on DSC-17	Practical	4
		DSE-4	Textile Designing & Use of CAD	Theory+ Practical	2+2
		GE-6	Programme Planning , Implementation and Evaluation	Theory	4
		IAPC Or SEC-6	Internship/Apprenticeship/ Project/Community outreach Or Food Authenticity and Fraud Detection	Practical	2
Bachelor of Home Science (Honours with Research)					
FOURTH YEAR	**VII**	DSC-19	Food Service Management	Practical	4
		DSE-5 DSE-6 DSE-7	Research Methodology Marriage and Family Dynamics Introduction to Extension Education	Theory Theory Theory	4 4 4
		OR			
		DSE-5 DSE-6 GE-7	Research Methodology Marriage and Family Dynamics Early Childhood Education	Theory Theory Theory	4 4 4
		OR			
		DSE-5 GE-7 GE-8	Research Methodology Early Childhood Education Principles of food preservation	Theory Theory Theory+Practical	4 4 3+1
		Dissertation	Dissertation on Major or Minor/Academic project/Entrepreneur ship		6
	VIII	DSC-20	Apparel Designing	Practical	4
		DSE-8 DSE-9 DSE-10	Food Safety and Quality control Textile Industry and Trade Management of Childcare Centre and Nursery School	Theory+ Practical Theory Theory+Pr actical	2+2 4 2+2

		DSE-8 DSE-9 GE-9	Food Safety and Quality control Textile Industry and Trade Retailing and Merchandizing in Textile and Apparel	Theory+ Practical Theory Theory	2+2 4 4
		DSE-8 GE-9 GE-10	Food Safety and Quality control Retailing and Merchandizing in Textile and Apparel Household equipment and appropriate technology	Theory+ Practical Theory Theory+Practical	2+2 4 3+1
		Dissertation	Dissertation on Major or Minor/Academic project/Entrepreneurship		6
Master in Home Science (Food and Nutrition)					
FIFTH YEAR	**IX**	DSC-21 DSE-11 GE-11 Dissertation	Basics of nutrition and hygiene Food Microbiology Nutrition through life cycle Dissertation on Major or Minor/Academic project/Entrepreneurship	Theory + Practical Theory+ Practical Theory Practical	2+2 3+1 4 10
	X	DSC-22 DSE-12 GE-12 Dissertation	Clinical Nutrition and dietetics Food Quality Analysis Food product Development and Marketing Dissertation on Major or Minor/Academic project/Entrepreneurship	Practical Theory+ Practical Theory+ Practical Practical	4 2+2 2+2 10

Master in Home Science (Textile and Apparel Designing)					
		DSC-21	Advanced Textile Designing and Woven Fabric Analysis	Practical	4
		DSE-11	Eco textile and Environment	Theory	4

	IX	GE-11	Fashion Designing and Accessories	Theory	4
		Dissertation	Dissertation on Major or Minor/Academic Project/ Internship/Training	Practical	10

FIFTH YEAR	**X**	DSC-22	Historic Textiles and Costumes	Theory	4
		DSE-12	Textile Quality Analysis	Theory	4
		GE-12	Garment Manufacturing-Draping	Theory+ Practical	2+2
		Dissertation	Dissertation on Major or Minor/Academic Project/ Internship/Training	Practical	10

ABILITY ENHANCEMENT COURSE (AEC) PREPARED FOR THE POOL OF COURSES

Course Code	Course Title	Theory /Practical	Credits
AEC-1	Indian Language **(As decided by university)**	Theory	2
AEC-2	Indian Language **(As decided by university)**	Theory	2
AEC-3	Indian Language **(As decided by university)**	Theory	2
AEC-4	Indian Language **(As decided by university)**	Theory	2

VALUE ADDITION COURSE (VAC) PREPARED FOR THE POOL OF COURSES

Course Code	Course Title	Theory /Practical	Credits
VAC-1	Value Addition of Apparels	Practical	2
VAC-2	Value Added Products from fruits & Vegetables	Practical	2
VAC-3	Ayurveda and Nutrition	Theory+ Practical	1+1
VAC-4	Fashion Illustration	Practical	2

SKILL ENHANCEMENT COURSE (SEC) PREPARED FOR THE POOL OF COURSES

Course Code	Course Title	Theory /Practical	Credits
SEC-1	Personality Development	Theory	2
SEC-2	Fashion Apparel Designing	Theory+ Practical	1+1
SEC-3	Guidance and Counseling	Theory	2
SEC-4	Public Speaking	Practical	2
SEC-5	Sustainable development	Theory	2
SEC-6	Food Authenticity and Fraud Detection	Practical	2

Abbreviations-
DSC-Discipline Specific Course; DSE-Discipline Specific Electives; GE-Generic Electives; AEC- Ability Enhancement Course; VAC-Value Addition Course

Programme Specific Outcomes (PSOs) (Undergraduate Programme) **After this programme the learners will be able to:**	
PSO 1	The courses are structured according to the industry-academia requirements and global world.
PSO 2	Courses offered by the college are absolutely in tune with its goals and objectives of generating employment, generating skills, entrepreneurship and sustainable development.
PSO 3	Home Science is a unique and follows interdisciplinary approach in synthesizing knowledge drawn from all fields of sciences, humanities and creative arts which has enriched its educational programs still including the Indian traditional in its curriculum.
PSO 4	It also caters to the present day needs of multidisciplinary education and provides solutions in societal and environmental contexts and demonstrates the knowledge and need for sustainable development.
PSO 5	To cater to the needs of Textiles and Apparel industry, the Clothing and Textiles department has focused course in Apparel and Textile Design.
PSO 6	It inculcates an awareness of current trends, new developments and technological changes in the field of fabric and apparel industry.
PSO 7	The curriculum equips the students with the knowledge and skills necessary for creative, managerial and technical careers as well as entrepreneurship in the field of Textiles and Apparel industry.
PSO 8	The curriculum of Nutrition has a strong practical base to keep pace with the dynamics and changing educational and professional needs in the field of nutrition and health care.
PSO 9	It trains the students as nutritionists and health experts to work in various health clubs, hospitals, schools, colleges, Non-Governmental Organizations.
PSO 10	The course of Human Development and Family Relations provides an in- depth knowledge and skill training to students.
PSO 11	Human Development and Family studies provides scope for the students to work with various agencies dealing with Child Welfare, Social Welfare, Education and Human Development. Students also get placements in various Non-Governmental Organizations, hospital setups, and institutes of higher education.
PSO 12	The course has scope for numerous job opportunities in private (corporate and commercial) and public sector related to Interior design area.
PSO 13	Students can work as freelancers and can also be co-workers with architects, interior decorators and real estate companies, teachers in schools, colleges and Polytechnic institutes.
PSO 14	The course makes students familiar with a wide array of subjects to equip them with challenging tasks in the modern day world. The course enables them to take up specializations in Honours degree or any of the two master programs offered by the institute.

Programme Specific Outcomes (PSOs) (Honours Degree) **After this programme, the learners will be able to:**	
PSO 1	The aim of journal club is to stimulate continuing intellectual curiosity in students to discover new ideas so that they can re-look at old ideas and develop insightful connections among ideas.
PSO 2	Furthermore, it encourages them to exchange ideas focused on a source, thereby providing a unique and intellectual experience to the students.
PSO 3	Understand the role of food and nutrition for the welfare of the community Excel in the area of personal and public health nutrition and apply skill based knowledge in food industry.
PSO 4	To make them easy how to preserve the food and learn to understand about the jam, jelly and pickle processing methods. Acquire entrepreneurial skills in the field of food science and nutrition, Excel as academicians and research personnel,
PSO 5	The students are able to understand about the food service management and setup their own canteen after studying this. Develop comprehensive and analytical skills in food industries.
PSO 6	Enable them to understand the laws of food safety and detect the adulteration in foods. Take up professions in community upliftment programmes. Gain insight in public health nutrition for employment in State and Central government.
PSO 7	The aim is to orient students to the latest advances in the field of Clothing and Textiles and to provide a link between theory and applied initiatives in the field of Design, Research, Quality assurance and CAD.
PSO 8	To understand the merchandizing and retailing concept and work in export and import houses in textile industry.
PSO 9	The apparel designing course make perfect to construct designer dresses and give opportunities to open own boutique.
PSO 10	Explore the connection between family after marriage and to understand the gender and social justices in today's world context. The main purpose is to orient students to the latest advances in the field of Human Development with a focus on cultural perspectives and to provide a link between theory and applied initiatives.
PSO 11	Acquire in-depth knowledge of nursery school management and setup their own play school and nursery school for welfare of the society.
PSO 12	The purpose of teaching research methodology is to acquaint students with research and statistical methods and imparting knowledge of Computer applications for data analysis
PSO 13	The primary aim of the programme is to train the students in the method of scientific inquire and independent research. This is accomplished through advanced coursework and active participation with the faculty in their research programmes.

Department of Home Science
Semester-I
Undergraduate Certificate in Home Science
DISCIPLINE SPECIFIC COURSE (DSC-1) - Principles of Nutrition

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-1 Principles of Nutrition	4	4	0	0	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE CERTIFICATE IN HOME SCIENCE		
Programme/Class: Certificate in Home Science	**Year: First**	**Semester: First Paper- DSC**
Subject : Home science		
Course DSC	**Course Title: Principles of Nutrition**	
Course outcomes: After studying this course, the students will be able to: • To understand the principles and basic knowledge about nutrients. • To understand the role of essential nutrients (macro and micro) in human nutrition.		
Credits: 4	**Discipline Specific Course**	
Max. Marks: As per Univ. rules	**Min. Passing Marks: As per Univ. rules**	

Unit	Topics	No. of Hours
Unit I	**Food:** • Definition of food, nutrition, functions of food – Physical, social and mental. • Food groups. Meal planning, balanced diet, nutritional value of food	10
Unit II	**Composition and importance of following foods:** • Cereals and legumes • fats and oilseeds, • Fruits and vegetables, • Milk and milk products, • Eggs, meat, fish and poultry, • Sugar.	10

Unit III	**Macronutrients:** • Carbohydrates – Classification, sources, functions and requirements • Protein and amino acids – Classification, sources, functions and requirements, nitrogen balance, deficiency of protein. • Fat and lipids- Classification, sources, functions and requirements	20
Unit IV	**Water and electrolytes:** • Functions, requirements and sources • Water balance **Electrolytes:** • Sodium Chloride, Potassium – sources, RDA, functions	10
Unit V	**Energy:** • Factor affecting energy requirements. • BMR, DIT(diet induced thermogenesis)	10

Recommended Readings

1. Bamji, M.S Rao, NP and Reddy, V. 1996.Text book of Human Nutrition.
2. B. Srilakshmi, Food science, New Age Publishers,2002.
3. B. Srilakshmi, Nutrition Science,8th Edition New Age Publishers, 2023

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature- study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-I
Undergraduate Certificate in Home Science

DISCIPLINE SPECIFIC COURSE (DSC-2)-Introduction to Clothing Construction

Programme/Class : Certificate in Home Science	**Year: First**	**Semester: I**
Course Code:DSC-2	**Course Title: Introduction to Clothing Construction**	

Course outcomes:

- To develop knowledge about sewing machine, parts of sewing machine, analyze basic constructional processes.
- To develop the skills in clothing construction for children's garments

Credits: 4	**DISCIPLINE SPECIFIC COURSE**
Max. Marks: As per Univ. rules	**Min. Passing marks: As per Univ. rules**

Unit	**Topics**	**No. of Lectures**
I	**Sewing machine and its equipment/tools** • Sewing machine: Parts of machine, their use and care • Tools required: Measuring, drafting, cutting and stitching;	9
II	Clothing Construction Terminology	8
III	**Constructional processes:** • Hand stitches, • seam and seam finishes, • disposal of fullness, • Plackets and edge finishing, • Suitability for different fabrics and clothing articles	15
IV	Preparation of fabric for layout and cutting; stay stitching	6
V	Unit construction method and fitting	6
VI	Importance and function of clothes	6
VII	Clothing requirements of infants, toddler, pre-school and elementary school children	8
VIII	Anthropometric measurements: Importance and techniques	5
	Total	**60**

Suggested Readings:

1. Carson, B. 1969. How you look dress. 4th Ed. New yark . Webster Division., McGrw-Hill book company.
2. Doongaji, S. and Deshpande, R. Basic process and clothing construction. 2nd Ed. New Delhi,New Raj book Depot.
3. Lewis, V. S. *Comparative Clothing Construction Techniques*. Surjeet Publication, Delhi
4. Mansfield, E. A. and Lucas, E.L. 1974. Clothing construction. 2nd ed. London, Houghton Mifflin Company.

Suggested Digital Platform:
http://ecoursesonline.iasri.res.in/course/index.php?categoryid=104

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-I

Undergraduate Certificate in Home Science

DISCIPLINE SPECIFIC COURSE (DSC-3) - Practical on Introduction to Clothing Construction

No. of Hours-120

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-Requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-3 Practical on Introduction to Clothing Construction	4	0	0	4	Passed class XII with science, Arts and commerce	Nil

UNDERGRADUATE CERTIFICATE IN HOME SCIENCE

Programme/Class: Certificate in Home Science	Year: First	Semester: First Paper: DSC-3

Subject: Home Science

Course: DSC-3	Course Title: Introduction to Clothing Construction

Course outcomes:

After studying this course, the students will be able to:

- To develop knowledge about sewing machine, parts of sewing machine, analyze constructional processes.
- Gain the practical knowledge for construction of children's garments.

Credits: 4	Discipline Specific Course
Max. Marks: As per Univ. rules	Min. Passing Marks: As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Demonstration on: sewing equipment and tools, sewing machine and its care	20
Unit II	Preparation of samples of basic hand stitches, machine stitches, edge finishing, fullness, finishing of necklines, placket opening, fasteners, mending and patching	20
Unit III	Demonstration on the preparation and layout of the different fabrics of plain, print, plaid, check and lines	20
Unit IV	Introduction to anthropometric measurement	20

Unit V	Drafting, cutting and stitching of different children's garments • Bib, • Panty, • Bloomer, • Jhabla, • Frock	20
Unit VI	Stitching of • Apron, • Hand bag or Laundry bag	20

Suggested Readings:

1. Carson, B. 1969. How you look dress. 4th Ed. New yark . Webster Division., McGrw-Hill book company.
2. Doongaji, S. and Deshpande, R. Basic process and clothing construction. 2nd Ed. New Delhi,New Raj book Depot.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-I
Undergraduate Certificate in Home Science
GENERIC ELECTIVE (GE-1)- General English & Technical Writing

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
GE-1 General English & Technical Writing	4	4	0	0	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE CERTIFICATE IN HOME SCIENCE		
Programme/Class: Certificate in Home Science	Year: First	Semester: First Paper: GE-1
Subject: Home science		
Course: GE-1	Course Title: General English & Technical Writing	
Course outcomes: After studying this course, the students will be able to: • To improve ability in English to form comprehends writing and speaking in modern English.		
Credits: 4	Generic Elective	
Max. Marks: As per Univ. Rules	Mini. Passing Marks: As per Univ. Rules	

Unit	Topics	No. of Hours
Unit I	Word – Formation	5
Unit II	Preposition	5
Unit III	Idiomatic Expressions	5
Unit IV	Conditional Sentences and Modal verbs	5
Unit V	Synthesis and Transformation	5
Unit VI	Writing related concepts-writing process, aspects and basic principles of good writing	5
Unit VII	Communication through writing- reasons and needs, word function, formulas of language, sentence and paragraph sense	10
Unit VIII	Introduction and importance of styles of writing-technical writing,	10

Unit IX	Types of reports-recommendations, proposals, progress report, oral reports, business letters and professional	10

Recommended Readings:

- LN, W. Standard. Living English structure, Orient Longmans, London.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-II Undergraduate Certificate in Home Science

DISCIPLINE SPECIFIC COURSE (DSC-4)- Fundamentals of Human Development

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-4 Fundamentals of Human Development	4	4	0	0	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE CERTIFICATE IN HOME SCIENCE		
Programme/Class: Certificatein Home Science	**Year: First**	**Semester: Second Paper: DSC-4**
Subject: Home Science		
Course : DSC-4	**Course Title: Fundamentals of Human Development**	

Course outcomes: After studying this course, the students will be able to:

- Define human development and summarize several theories of development.
- Apply developmental theories to personal development.

Credits: 4	**Discipline Specific Course**
Max. Marks: As per Univ. rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
Unit I	Importance of human development from a life span perspective, Issues in human development, stages of human development.	10
Unit II	a. Methods of studying human development, steps of studying behaviour scientifically b. Non experimental and experimental studies, naturalistic studies; clinical studies; cross-sectional and longitudinal designs	10
Unit III	Ethical considerations in studying human development subjects	10
Unit IV	The psychology of behaviours: Definition of Psychology; meaning of sensation; perception; concept formation; imagination and creativity	15

Unit VI	Major development theories: • Freud's theory • Erikson's theory • Piaget's theory • Kohlberg's theory	15

Recommended Readings:

- Laura, B.E. (2013). Exploring life span development. 3rded. McGraw Hill, New York. Papalia,
- D.E. and Olds, S. W. (2008). Human development. 11thed. McGraw Hill, New York.
- Bronfenbrenner, V. (1979). The ecology of human development. Cambridge, Harvard Univ. Press.
- Berk, L. E. (2007). Development through the lifespan. Delhi: Pearson Education •
- Rice. F. P. (1998). Human Development: A lifespan approach. New Jersey: Prentice Hall.
- Santrock, J. W. (2007). A topical approach to life-span development. New Delhi:
- McGraw-Hill. • Singh, A. (Ed). 2015. Foundations of Human Development: A life span approach. New Delhi: Orient Black Swan.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-II
Undergraduate Certificate in Home Science
DISCIPLINE SPECIFIC COURSE (DSC-5)- Household Dynamics and Management of Resources

No. of Hours-45+30

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-5 Household Dynamics and Management of Resources	4	3	0	1	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE CERTIFICATE IN HOME SCIENCE		
Programme/Class: Certificate in Home Science	**Year: First**	**Semester: Second Paper: DSC-5**
Subject: Home Science		
Course: DSC-5	**Course Title: Household Dynamics and Management of Resources**	

Course Outcomes:
After studying this course, the students will be able to:

- To give insight about management principle and ability to apply the knowledge for problem solving.
- To become good managers and understand the importance of managing resources to achieve goals.

Credits:4	Discipline Specific Course
Max. Marks: As per Univ. rule	Min. Passing Marks: As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Family: Meaning, definition, classification, functions of family and family life cycle.	5
Unit II	Management concepts: Meaning of management, purpose of home management, major home and family responsibilities.	10
Unit III	Motivating factors for management: Values, Goals and Standard, Decision making: Decision making process, Role and scope of decision making, Classification of decision, methods of resolving conflicts.	10
Unit IV	Management process: Meaning, importance, and steps of management process. System approach to management: System concepts applied to households.	5

Unit V	Energy management: Fatigues, and its types, work simplification and its techniques, Mundel'classes of change, Inter linking time and energy resources.	10
Unit VI	Time management: Time demands in different stages family life cycle, Time Plan and Tools of Time management	5
	Practical	
I	Identification of individual and family values	5
II	Identification of immediate, short term and long term goals of individual and family, Standards for individual and family goals	5
III	Management of personal time record for daily, a week and semester. Presentation of personal time record.	10
IV	Application of management process to organize an event– planning, organization, evaluation	10

Recommended Readings:

- Mann, M.K. (2004). Home Management for Indian Families, Kalyani Publisher Ludhiana
- Nickell, P. and Dorsey, J.M. (1970). Management of Family Living. Wiley Eastern, New Delhi
- Vargeese, M.N. Ogale, N.N. and Srinivasan, K. (1992). Home Management, Wiley Eastern, New Delhi.
- Krishna Oberoi (2006). Resource Management for Better Homes. R.K. Offset, Delhi.
- Bhargava, Bela. (2005). Family Resource Management and Interior Decoration. Apple Printer and V. R. Printers, Jaipur.
- Steidle, Roze and Bratton. (1968). Work in the Home. John Wiley and Sons Inc. New York
- Gandotra, G., Oberoi, K. and Sharma, P. (2008). Appropriate technology for rural women.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature- study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-II
Undergraduate Certificate in Home Science

DISCIPLINE SPECIFIC COURSE (DSC-6)- Communication and Instructional Technology

No. of Hours-120

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisiteof the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-6 Communication and Instructional Technology	4	0	0	4	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE CERTIFICATE IN HOME SCIENCE		
Programme/Class: Certificate in Home Science	**Year: First**	**Semester: Second Paper: DSC-6**
Subject: Home Science		
Course: DSC-6	**Course Title: Communication and Instructional Technology**	
Course outcomes: The student at the completion of the course will be able to: • To develop understanding of communication process. • To develop understanding about different types of audio visual aids.		
Credits: 4	**Discipline Specific Course**	
Max. Marks: As per Univ. rule	**Min. Passing Marks: As per Univ. rules**	

Unit	Topics	No. of Hours
	Practical	
Unit I	Communication-meaning, function and barriers. Elements of communication process. Audio-visual aids -meaning, classification, advantages and limitations Preparation and use of instructional media: • Charts, Posters, Flash cards, Graphs, Models, leaflets and use of Bulletin board	40
Unit II	Demonstration as an instructional technology	20
Unit III	Organizing and participating in various types of group discussions	20
Unit IV	Preparation of radio talk scripts on various topics	20

Unit V	Visit to communication centre, Familiarization of radio, T.V and video equipments and programme production.	20

Recommended Readings:

- Adivi Reddy.A, Extension Education, seventh edition, Sri lakshmi Press,Bapatla
- Agarwal J.C. 2007 Textbook on Essentials of Educational Technology Innovations in Teaching –Learning, second edition, Vikas Publishing House Pvt Ltd.
- Sumita Roy, Tej Verma and Pushpa Gupta 2006 textbook on family approach in extension programme management,first edition, Indian council of agricultural research Newdelhi.
- Dahama O.P. and Bhatnagar O.P, Education and Communication Development, second edition, oxford and IBH publishing pvt. Ltd,calcutta.
- Ray GL (1996) Extension Communication and Management, Naya Prakash Publications, Calcutta.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-II
Undergraduate Certificate in Home Science
GENERIC ELECTIVE (GE-2)- Computer Application
No. of Hours-30+60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
GE-2 Computer Application	4	2	0	2	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE CERTIFICATE IN HOME SCIENCE		
Programme/Class: Certificate in Home Science	Year: First	Semester: Second Paper: GE-2
Subject: Home science		
Course: GE-2	Course Title: Computer Application	

Course outcomes:
The Student at the completion of the course will be able to:
- To know about the basic knowledge about the computer.
- Students will be able to understand about the internet use and E-mail.

Credits: 4	General Elective
Max. Marks: As per Univ. rule	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Basics of Computers: Definition of a Computer, Characteristics of computers Components of a computer system- Block diagrams, Central Processing Units, Input/ Output Devices, Keyboard Shortcuts, Computer Memory (primary, auxiliary and cache memory) MS Windows – Desktop, Recycle bin, My Computer, Documents, Pictures, Music, Videos, Task Bar, Control Panel.	5
Unit II	Operating Computer using GUI Based Operating System: What is an Operating System, The User Interface, Using Mouse, Using right Button of the Mouse and Moving Icons on the screen, Use of Common Icons, Status Bar, Using Menu and Menu-selection, Viewing/ Finding locations of File, and Folders, Creating and Renaming of files and folders,	5

	Opening and closing of different Windows, Using help, Creating Short cuts.	
Unit III	MS-Word: Features of MS-Word - MS-Word Window Components- Creating, Editing, Formatting and Printing of Documents, Headers and Footers, Insert/Draw Tables, Page Borders and Shading, Inserting Symbols, Shapes, Word Art, Page Numbers, Mail Merge.	10
Unit IV	MS-Excel: Overview of Excel features – Creating a new worksheet, Selecting cells, Entering and editing Text, Numbers, Inserting Rows/Columns, Changing column widths and row heights, Formulae, Referencing cells, Changing font sizes and colors, Insertion of Charts, Auto fill, Sort.	5
Unit V	MS-PowerPoint: Features of PowerPoint – Creating a Presentation, Inserting and Deleting Slides in a Presentation, Adding Clip Art/Pictures, Inserting Other Objects (Audio, Video), Resizing and scaling of an Object, Slide Transition, Custom Animation	5
	Practical	
Unit I	Interaction with personal computer components: Processor, motherboard, storage devices, multimedia components and scanners	10
Unit II	Electronic documentation through MS word: Opening/creating file, saving file, document preparation, editing, formatting, page layout, spell and grammar check. Inserting: header/footer, table, text box, picture and object. Hyperlinking. Security: Password.	10
Unit III	Creating presentation through Power Point: slide layout, design, template and background. Inserting movies and sound. Inserting picture. Slide show: transition and animation.	10
Unit IV	MS Excel basics, work book and work sheet, cell formatting. Data entry in work sheet. Chart wizard: title, axes, gridlines, legends, date label. Analyzing data: Correlation, Standard deviation, F-test, t-test. Improving data	10
Unit V	Using Outlook Express for e-mail uses: mail message, import/export, send/receive, updating address book. Setup e-mail accounts, setup multiple profiles	10
Unit VI	Internet basics. Configuring TCP/IIP. Web addresses (URLs), using web browsers Netscape/Internet explorer for web surfing. Using search Engines for knowledge bases.	10

Recommended Readings:

- Microsoft office user's guide.
- Introduction to computer science. ITL Group, Pearson Edition.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature- study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus• Test with multiple choice questions/ short and long answer questions• Attendance

Semester-III Undergraduate Diploma in Home Science
DISCIPLINE SPECIFIC COURSE (DSC-7)- Food Processing and storage
No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-7 Food Processing and storage	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

Programme/Class: Diploma in Home Science	Year: Second	Semester: Third
Course Code: DSC-7	Course Title: Food Processing and Storage (Theory)	

Course outcomes:
The Student at the completion of the course will be able to:
- Apply the principles and methods involved in the processing of different foods.
- Know the basic knowledge about the damage caused by storage condition and control measures to overcome them.

Credits: 4	Discipline Specific Course
Max. Marks: As per Univ. rules	**Min. Passing marks:** As per Univ. rules

Unit	Topics	No. of Lectures
I	**Food Processing**: • Introduction • Role • Importance • Principles	10
II	**Different processing methods of foods-** • Pounding, • Milling, • Puffing, • Cooking, • Parboiling, • Fermentation, • Sprouting • Malting.	10
III	Processing of milk products and their effect on nutritional quality characteristics.	5

IV	Processing of oilseeds for extraction of oils and use of oilseed cakes in human nutrition.	5
V	**Food Preservation-** • Definition • Objectives • Principles of food preservation • Methods of food preservation	10
VI	**Storage of Foods** • Classification of food based on perishability • Definition, importance and functions of food storage • Food losses and damages during storage- storage losses and types of storage losses • Types/ causes of damage • Control measures during storage of grain- Traditional methods and Chemical methods	10
VII	**Visit to Food Processing Industry**	10

Suggested Readings:

1. Sivasankar, B. (2014). Food processing and preservation: Hall of India Pvt., New Delhi.
2. Fellows, P. J. (2009). Food processing Technology: Principles and Practice: Woodhead Publishing.
3. Brennan, J. G. (2006). Food Processing Handbook: Weinheim: Wiley-VCH.
4. Zeuthen, P. &Bogh- Sprensen, L. (2003). Food Preservation Techniques: CRC Press, Boca raton.
5. Vonloesecka, H. W. (1998). Drying and Dehydration of Foods: Allied, Bikaner.
6. B. Srilakshmi, Food science, New Age Publishers,2002
7. Meyer, Food Chemistry, New Age,2004

Suggested Digital Platform:

https://onlinecourses.nptel.ac.in/noc22_ag03/preview

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-III Undergraduate Diploma in Home Science

DISCIPLINE SPECIFIC COURSE (DSC-8)- Indian Embroidery and Traditional Textile

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-8 Indian Embroidery and Traditional Textiles	4	4	0	0	Passed class XII with Science, Arts and Commerce	Nil
Programme/Class: Diploma in Home Science		Year: Second			Semester: Third	
Course Code: DSC-8		Course Title: (Theory)				

Course outcomes:

The Student at the completion of the course will be able to:

- To impart knowledge about traditional woven textiles and embroidery of India.
- To introduce student with the creative art of embroidery.

Credits: 4	Discipline Specific Course
Max. Marks: As per Univ. rules	**Min. Passing marks:** As per Univ. rules

Unit	Topics	No. of hours
I	**Traditional woven textiles of India:** • Hand woven Sarees: Dacca muslin and Jamdani saree, Baluchar sarees, Pochampalli sarees, Patola and Ikat sarees, Kanchipuram sarees, Chanderi sarees, Maheswari sarees, Vichitrapuri sarees and Brocades, Hand woven shawls of Kashmir, Himachal Pradesh and North Eastern states.	10
II	**Printed and Painted textiles:** • Printed Textiles: Block printed textiles, Tie and dyed textiles • Painted Textiles: Kalamkari and Madhubani	10
III	**Embroideries of states of India:** • Kashida of Kashmir, • Chamba Rumal, • Phulkari and Bagh of Punjab, • Embroideries of Gujarat, • Chikankari and Zari work of Uttar Pradesh, • Kanthas of Bengal,	10

	• Manipuri Embroidery, • Kasuti of Karnataka, • Embroidery and Patchwork of Bihar	
IV	**Traditional costumes of India:** • Kashmir, Punjab, Uttar Pradesh, West Bengal, • NE states, • Rajasthan, Gujarat, Maharashtra, • South Indian states	10
V	Importance of traditional costumes and textiles and apparel industry, Impact of adaptation of traditional motifs and designs for modern textiles	5
VI	Factors affecting diversity of textiles and costumes of India: Geographical factors, socio-economic factors, customs and traditions and religious factors	5
VII	Visit to Traditional Embroidery Unit	10

Suggested Readings:

1. Crill, R. (1999). Indian Embroidery. London: Victoria and AlbertMuseum
2. Chattopadhyay, K. 1985. The Glory of Indian Handicraft. New Delhi. Calrian book.
3. Flynnn,D. 1971. Costumes of India. New Delhi, Oxford and IBH Publishing Company.
4. Fabin, C. 1977. Indian Dress. New Delhi, Orient Longman L
5. Pandit, S.1976. Indian Embroidery: its variegated charms. Baroda.
6. Synge, L. (2005). Art of Embroidery: History of style and Technique. New York: ACC Art Book
7. Shailaja D. Naik. 1996. Traditional Embroideries of India. APH publishing.

Suggested Digital Platform:

https://textilevaluechain.in/in-depth-analysis/articles/traditional-textiles/traditional-indian-embroidery/ https://www.slideshare.net/hemaupadhayay/traditional-embroideries-of-india-76836145

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-III Undergraduate Diploma in Home Science
DISCIPLINE SPECIFIC COURSE (DSC-9)- Practical based on DSC-7 and DSC-8
No. of Hours- 120

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-9 Practical based on DSC-7 and DSC-8	4	0	0	4	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATEDIPLOMAINHOME SCIENCE		
Programme/Class: Diploma in Home Science	**Year: Second**	**Semester: Third** **Paper: DSC-9**
Subject: Home science		
Course: DSC-9	Course Title: **Practical based on DSC-7 and DSC-8**	

Course outcomes:

The Student at the completion of the course will be able to:

- Apply the principles and methods involved in the processing of different foods.
- ToimpartknowledgeabouttraditionalwoventextilesandembroideryofIndia
- To introduce student with the creative art of embroidery

Credits:4	Discipline Specific Course
Max. Marks: As per Univ. rule	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of hours
Unit I	Preparation of popped corn and sorghum.	12
Unit II	Dehydration and drying of vegetables: green leafy vegetables, tubers and others.	8
Unit III	Preparation and bottling of tomato sauce.	8
Unit IV	Preparation and bottling of fruit jam, squash and jellies.	12
Unit V	Preparation of fermented food-*dhokla, idli.*	12
Unit VI	Preparation of wheat malt.	8
Unit VII	Sample preparation of traditional Indian embroideries and Machine embroideries	20
Unit VIII	Preparation of two articles using different hand embroideries	20
Unit IX	Documentation of Indian textiles and costumes	20

Recommended Readings:

- Desroiser N. W. & Desroiser J. N. 1977. The Technology of Food Preservation. AVI Publication.
- Potty V. H. and Mulky M. J. 1993. Food Processing. Oxford & IBH Publishing House.
- Srilakshmi B. 2001. Food Science. New Age International.
- Crill, R.(1999).Indian Embroidery. London: Victoriaand Albert Museum
- Synge, L. (2005). Art of Embroidery: History of style and Technique. New York: ACC Art Book
- ShailajaD.Naik.1996. APH publishing. Traditional Embroideries of India.
- JohnGillow.1991.IndianTextiles.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature- study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-III Undergraduate Diploma in Home Science
DISCIPLINESPECIFICELECTIVE (DSE-1)-Ergonomic Design
No. of Hours-30+60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-1 Ergonomic Design	4	2	0	2	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATEDIPLOMAINHOME SCIENCE

Programme/Class: Diploma in Home Science	Year: Second	Semester: Third Paper: DSE-1
Subject: Home Science		
Course: DSE-1	**Course Title: Ergonomic Design**	

Course outcomes: The Student at the completion of the course will be able to:

- To sensitize students to the importance of ergonomics in design.
- To develop aptitude in identifying the product/space design problems at place of work.
- To understand interface of human element and the user's perspective in the evolution of product / space design.
- To develop skill in designing specific work-centres and products.

Credits:4	**Discipline Specific Elective**
Max. Marks: As per Univ. Rule	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of Hours
Unit I	**Ergonomics** – concept, significance, history and growth Applications of Ergonomics in design and work efficiency Anthropometric Measurements –History and its application in interior designing for different work areas and workers. The bio- mechanisms of work as related to the user, the work and the environment	10
Unit II	**The User:** Components of worker input – affective, cognitive, temporal and physical (physical, physiological, psycho- Physiological aspects of work.	10
Unit III	**Work Environment** Functional design and arrangement of work places. Indices of indoor comfort: ventilation, lighting, temperature, noise Work study Time and motion study Energy Studies	10
	Practical	
Unit I	Basic anthropometry– space norms/ standards	20
Unit II	Time and motion study.	20
Unit III	Designing products–furniture (multipurpose and modular, etc.).Space design–preparing floor and elevation plans- Kitchen, Workstation	20

Recommended Readings:

- Bridger. R.S., "Introduction to Ergonomics."Mc. Graw HallInc, New York, 1995.
- Chiara J.D., Panero. J., Zelnik M., "Time Saver standards for Interior Design and Space Planning", McGraw Hill, Neuferts Architect's Data, 1992.
- Lakhwinder Pal Singh, "Work Study and Ergonomics."Cambridge University Press, Noida, 2016.
- Mark.S.SandersandErnest.J.Mc.Cormick,"HumanFactorsinEngineeringand Design." Mc. GrawHallInc, New York, 1992.
- PheasantS,"Anthropometry,ergonomicsandDesignofwork",TaylorandFrancis, London, 2003.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-III Undergraduate Diploma in Home Science
DISCIPLINE SPECIFIC COURSE (GE-3)- Life Span Development
No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
GE-3 Life Span Development	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

UNDERGRADUATE DIPLOMA IN HOME SCIENCE		
Programme/Class: Diploma in Home Science	**Year: Second**	**Semester: Third** Paper: GE-3
Subject: Home Science		
Course: GE-3	**Course Title: Life Span Development**	

Course outcomes: The Student at the completion of the course will be able to:

- Learn about different stages of human development through life.
- Learn about factors that affect different developmental stages

Credits: 4	General Elective
Max. Marks: As per Univ. Rule	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of Hours
Unit I	**Prenatal development stages:** Genetic and environmental influences on prenatal development	5
Unit II	**Neonate** (neonate up to 4 weeks): physical, sensory, cognitive and social development. **Infancy** (Four weeks up to 2 years): physical and motor, social and emotional, cognitive and language development	10
Unit III	**Early childhood years(2-6 years):** physical and motor, social, emotional, cognitive and language development.	5
Unit IV	**Middle childhood:** • Physical and motor development	10
	• Language and intellectual development • Emotional development; • Social and moral development	
Unit V	**Adolescence:** • Characteristics of adolescence • Physical, social, cognitive and emotional development • Issues in adolescence, identity crisis	10
Unit VI	**Adulthood:** • Characteristics of adulthood • Physical, intellectual, cognitive and personality development	10

Unit VII	**Old age:** • Characteristics of old age • Biological, physical and social changes in old age • Attitudes towards life and death among the elderly. Special needs of elderly, status of aged in India	10

Recommended Readings:

- Hurlock E.B. (1980), *Developmental Psychology, A Life span Approach,* 5 th edition, New Delhi: Tata Mc. Graw Hill Publishing company Ltd.
- Rice. F. P. (1998). Human Development: A lifespan approach. New Jersey: Prentice Hall.
- Rutter, M. and Rutter, M. (1992) Developing Minds. Challenge and continuity across the life span. London: Penguin.
- Santrock, J. W. (2007). A topical approach to life-span development. New Delhi: Tata McGraw- Hill.
- Singh, A. (Ed). 2015. Foundations of Human Development: A life span approach. New Delhi: Orient BlackSwan.
- Tennant, M. and Pogson, P. (1995) Learing and Change in the Adult Year,San Francisco: Jossey-Bass

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study- online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-IV Undergraduate Diploma in Home Science
DISCIPLINE SPECIFIC COURSE (DSC-10)- Introductory Textile Science
No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-10 Introductory Textile Science	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

UNDERGRADUATE DIPLOMA IN HOME SCIENCE

Programme/Class: Diploma in Home Science	Year: Second	Semester: Fourth Paper: DSC-10
Subject: Home Science		
Course: DSC-10	**Course Title: Introductory Textile Science**	

Course outcomes: The Student at the completion of the course will be able to:

- To understand basic knowledge about the textiles fibers, yarns and fabric.
- To educate students about the use of laundering process and its equipment as well as the cleansing agents.

Credits: 4	DISCIPLINE SPECIFIC COURSE
Max. Marks: As per Univ. Rule	Min. Passing Marks: As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Introduction, terminology and classification of textile fibers	5
Unit II	Natural fibers: Cotton, flax, jute, hemp, ramie, silk, wool, specialty hair fibers and asbestos	5
Unit III	Manmade fibers: Rayon, acetate, nylon, polyester, acrylic, glass fibers	8
Unit IV	Yarn classification; characteristics and their use	8

Unit VII	Labels and tags used in textiles and consumer education	8
Unit VIII	Laundry equipment; their use and care, principles and methods of washing and finishing	6
Unit IX	Cleansing agents: water, detergents, soaps and other laundry reagents- acidic, alkaline reagents and bleaching agents	5
Unit X	Additives used in laundry: stiffening and blueing agents	5
Unit XI	Visit to Textile Industry	10

Recommended Readings:

- Vastala. R (2003), Text book of Textiles & Clothing, ICAR, New Delhi
- Andrea Wynne 1997. Textiles. Macmillian.
- Hollen N & Saddler (1993) Textiles, New York, John Wiley.
- Bernard P Corbman 1983. Textiles - Fiber to Fabric. McGraw-Hill.
- Marjory L. Joseph 1966. Introductory Textile Science. Rinehart & Winston.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature- study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-IV Undergraduate Diploma in Home Science
DICIPLINE SPECIFIC COURSE (DSC-11)- Fundamentals of Baking

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-11 Fundamentals of Baking	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

UNDERGRADUATE DIPLOMA IN HOME SCIENCE		
Programme/Class: Diploma in Home Science	**Year: Second**	**Semester: Fourth** **Paper: DSC- 11**
Subject: Home Science		
Course: DSC-11		**Course Title: Fundamentals of Baking**

Course Outcomes: At the end of the term / course the Students will be able to:

- Explain the different ingredients used in bakery
- Explain the different working temperatures for bakery products
- Define the bread faults and remedies of bakery products
- Draw and explain the layout of a bakery
- Write recipes of different breads, pastries and gateaux

Credits: 4	GENERAL ELECTIVE
Max. Marks: As per Univ. Rule	**Min. Passing Marks:** As per Univ. rules

Units	Topic	No. of Hours
Units I	**Introduction** Scope of Bakery, Bakery terms, Organization chart of Bakery	10
Units II	**Wheat and Flour** Different types of flours available, Constituents of flours, pH Value of flour, Water absorption power of flour, Gluten, Grade of flour.	10
Units III	**Raw material required for bread making** Role of flour, water, yeast, salt - Sugar, milk and fats **Characteristics of good bread** External characteristics-Volume, symmetry of shape; Internal characteristics - color, texture, aroma, clarity and elasticity	10

Units IV	**Bakery Products** Production of cakes and cookies/biscuits. Types of biscuit dough's –Developed dough, short dough's and batters. Cake making: Ingredients and their function Structure builders. Shortening and leavening agents, Tenderizers, moisteners and flavor enhancers. Problems of baking.	10
Units V	**Yeast** An elementary knowledge of Baker's yeast, fermentation of dough and conditions influencing it's working.	5
Units VI	**Oven & Baking** Knowledge and working of various types of oven. Baking temperatures for bread, confectionery goods.	5
Unit VII	Visit to Baking Food Industry	10

Recommended Readings:

- Neelam Khetarpaul, Bakery Science and Cereal Technology.
- N. Shakuntala Manay, Food Facts and Principles.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-IV Undergraduate Diploma in Home Science
DISCIPLINE SPECIFIC COURSE (DSC-12)- Introductory Textile Science and Fundamental of Baking

No. of Hours-120

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-12 Introductory Textile Science and Fundamental of Baking	4	0	0	4	Passed class XII with science, Arts and commerce	Nil

UNDERGRADUATE DIPLOMA IN HOME SCIENCE

Programme/Class: Diploma in Home Science	**Year: Second**	**Semester: Fourth** **Paper: DSC-12**
Subject: Home Science		
Course: DSC-12	**Course Title: Introductory Textile Science and Fundamental of Baking**	

Course outcomes: The Student at the completion of the course will be able to:

- To understand basic knowledge about the textiles fibers, yarns and fabric.
- To educate students about the use of laundering process and its equipments as well as the cleansing agents.
- Draw and explain the layout of a bakery
- Explain the different working temperatures for bakery products

Credits: 4	**DISCIPLINE SPECIFIC COURSE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Practical	No. of Hours
Unit I	Identification of fibers: visual inspection, burning, microscopic and solubility tests	10
Unit II	Study and identification of common fabrics available in the market and thread count	10
Unit III	Removal of common stains from fabrics	12

Unit IV	Demonstration of laundry equipment	10
Unit V	Washing, ironing and finishing of textile articles: cotton, silk, wool, synthetic/blend, zari embroidery and lace articles	16
Unit VI	Visit to Processing unit/ Textile mill	8
Unit VII	Introduction to ingredients / Equipment used in Bakery: Identification and uses of equipment – large, small and other utilities. Ingredients – Types of flour, Sugar, Nuts and Dry fruits, Shortenings, Leavening	10
Unit VIII	Quality Checking & Basic Mixing Methods Flour: W.A.P Test, Gluten Content Yeast : Flying fermentation	10
Unit IX	Mixing Methods Basic steps involved in mixing ingredients –Kneading, stirring, whipping, creaming.	10
Unit X	Flavored Breads and Biscuits Flavored Breads, Cakes, Muffins, Biscuits, Basic Buns, Fruit Buns	14
Unit XI	Visit to a Baking Unit	10

Recommended Readings:

- Vastala. R (2003), Text book of Textiles & Clothing, ICAR, New Delhi
- Andrea Wynne 1997. Textiles. Macmillian.
- Hollen N & Saddler (1993) Textiles, New York, John Wiley.
- Bernard P Corbman 1983. Textiles - Fiber to Fabric. McGraw-Hill.
- Marjory L. Joseph 1966. Introductory Textile Science. Rinehart & Winston.
- Neelam Khetarpaul, Bakery Science and Cereal Technology.
- N. Shakuntala Manay, Food Facts and Principles.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-IV Undergraduate Diploma in Home Science
DISCIPLINE SPECIFIC COURSE (DSE-2)- Community Nutrition

No. of Hours-30+60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-2 Community Nutrition	4	2	0	2	Passed class XII with science, Arts and commerce	Nil

UNDERGRADUATE DIPLOMA IN HOME SCIENCE		
Programme/Class: Diploma in Home Science	**Year: Second**	**Semester: Fourth Paper: DSE-2**
Subject: Home science		
Course: DSE-2	**Course Title: Community Nutrition**	
Course outcomes: The Student at the completion of the course will be able to: • To provide information regarding nutritional assessment. • To enable students to impart nutrition education among rural and needy people. • To acquaint them knowledge regarding food security and government and international program running in the field of community nutrition.		
Credits: 4	**DISCIPLINE SPECIFIC ELECTIVE**	
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**	

Unit	Topics	No. of Hours
Unit I	Role of nutrition education programme in eradication of malnutrition: improving amount and variety of food supplies, improving family income and its influence on nutritional status, improving food consumption to meet individual needs in the family, improving environmental hygiene.	3
Unit II	Planning, implementation and evaluation of a nutrition education programme.	2
Unit III	Assessment of nutritional knowledge by informal discussion and by simple questionnaire and rapid rural appraisal.	3
Unit IV	Introduction to national nutrition programmes and policies programmes for improving nutritional status at national level, ICDS, NRDP, NREP, miscellaneous monofocal programmes.	2
Unit V	Role of international agencies and programmes in community nutrition, FAO, WHO, UNICEF; other voluntary and government agencies.	5
Unit VI	Food production systems in India; Their influence on food supply; major foods and their statewise production in India.	5
Unit VII	Food distribution system: Public Distribution System, Food Corporation of India, intra household distribution and per capita availability of food.	5

Unit VIII	Magnitude of nutrition problem in India: PEM, vitamin A deficiency, endemic goiter, flourosis and lathyrism, strategies for control of malnutrition	5
	PRACTICALS	
Unit I	Identifying nutritional problems in a community.	10
Unit II	Formulation of nutrition and health related messages for presentation to the community through radio script, popular article, charts/posters; leaflets, games.	20
Unit III	Organization of a campaign in the community through prepared nutrition education media.	10
Unit IV	Evaluation of the programme in the community.	10
Unit V	Visit to an ICDS block/ongoing project site where nutrition education is a part of programme.	10

Recommended Readings:

- Bamji,M.S Rao, NP and ReddyV. 1996.Text book of Human Nutrition
- Bagchi,K. 1990. Guidelines for the management of nutrition programmes- a manual for nutrition officers.WHO EMRO Technical Publication no. 15, WHO,Geneva
- Bendich, A and Deckelbaum,RJ, 1997. Preventive Nutrition.The Comprehensive guide for health professional.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-IV Undergraduate Diploma in Home Science

GENERAL ELECTIVE (GE-4)- Family Financial Management and Consumer Economics

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
GE-4 Family Financial Management and Consumer Economics	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

UNDERGRADUATE DIPLOMA IN HOME SCIENCE

Programme/Class: Diploma in Home Science	Year: Second	Semester: Fourth Paper: GE-4
Subject: Home science		
Course: GE-4	**Course Title: Family Financial Management and Consumer Economics**	

Course outcomes:

The Student at the completion of the course will be able to:

- To learn the basic of financial management which have an impact on family consumption patterns?
- To educate the students to become good consumers.

Credits: 4	DISCIPLINE SPECIFIC ELECTIVE
Max. Marks: As per Univ. Rule	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of Hours
Unit I	**Family Finance:** Meaning, Definition and importance of family finance, guidelines for family financial management. **Family income:** Income concepts: productive income, hidden income, money income, real income, psychic income, Analyzing income: income profile, methods of handling income, account keeping	10

Unit II	**Family budget and saving:** Steps of budget making, factors influence on budget making, advantages of budget making, and Engel's law of consumption, controlling and evaluation of budget. Savings and Investment- types of savings / investment, saving institution and its importance.	8
Unit III	Credit- Meaning, Definition, Needs, Types, use and source of credit Taxation- objectives, characteristics and classification.	8
Unit IV	• Meaning of consumer, Basic concepts of consumer economics: Goods, wealth, economic and non-economic activities, utility, Value and price, Consumer problems. • Consumer education: Meaning, Definition, Objectives and need of in India. • Consumer rights and responsibilities in today's world.	8
Unit V	• Consumer decision making • Determinants of consumer choices • Market and merchandising – types of market, definition and Structure and functioning of consumer retail markets • Pricing process	8
Unit VI	**Consumerism and consumer protection** a) History of consumer movement in the developed and developing countries b) Consumer protection and Govt. legislation-Act and orders c) Govt. and NGO for consumer protection and welfare	8
Unit-VII	Visit to financial Institutions and Consumer Organizations	10

Recommended Readings:

- Maneesha Shukul and VeenaGandotra. (2006). Home Management and Family Finance. Dominant Publishers and Distributors, New Delhi.
- Mann, M.K. (2004) Home Management for Indian Families. Kalyani Publishers, New Delhi.
- Rice, Nickel and Tucker. (1976). Management in Family Finance. John Wiley and Sons., New York
- Seetharaman P. Sethi M. (2002). Consumerism Strategies and Tactics. CBS Publishers and Distributors. New Delhi.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-V
Bachelor in Home Science (Honours)

DSC-13 Therapeutic Nutrition and Diet Counseling

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisiteof the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-13 Therapeutic Nutrition and Diet Counselling	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

Bachelor in Home Science (Honours)		
Programme/Class: Bachelor in Home Science (Honours)	**Year: Third**	**Semester: Fifth** **Paper: DSC- 13**
Subject: Home Science		
Course- DSC-13	**Course Title: Therapeutic Nutrition and Diet Counselling**	
Credits: 4	**DISCIPLINE SPECIFIC COURSE**	
Max. Marks: As per Univ. Rule	**Min. Passing Marks:** As per Univ. rules	

Unit	Topics	No. of Hours
Unit I	**Introduction:** • Nutrition and immunity • Catabolic effects of infections. • Effect of illness on food acceptance and utilization • Types of feeding. • Use of food exchange list in diet planning.	10
Unit II	**Fever:** • Metabolic alteration • Types of fever • Dietary management of short (typhoid) and long duration fever (tuberculosis)	10

Unit III	**Principles of dietetic management of disorders of the gastrointestinal tract –** • Gastritis • Peptic ulcer • Diarrhea • Constipation. • Ulcerative colitis • Regional enteritis	10
Unit IV	**Etiology, symptoms, metabolic alterations and nutritional management of liver disease-** • Hepatitis • Cirrhosis	5
Unit V	**Diabetes mellitus:** • Clinical characteristics, • risk factors, • dietary management • Complications	5
Unit VI	**Risk factors, metabolic anomalies and principles of nutritional management in-** • Hypertension • hyperlipidemias, • atherosclerosis	8
Unit V	**Nutritional considerations in weight management-** 1) **Obesity:** • Etiology • Energy balance • Metabolic changes • Dietary management 2) **Underweight** • Etiology • Metabolic changes • Dietary management	8
Unit VI	**Principles of nutritional therapy in diseases of the kidney-** • Glomerulonephritis, • Renal failure • Renal calculi.	2
Unit VII	**Visit to Hospital**	2

Recommended Readings

- Antia F.P. (1989). Clinical Dietetics and Nutrition. Third Edition. (pp- 226-239), Bombay, Oxford University Press.
- Bamji . S.M., Rao,P.N., and Reddy, V. Textbook of Human Nutrition. Pp-360-67. Oxford and IBH publishing Co Pvt Ltd.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study- online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-V
Bachelor in Home Science (Honours)
DSC-14 Fabric Formation and Finishes

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-14 Fabric Formation and Finishes	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

Bachelor in Home Science (Honours)		
Programme/Class: Bachelor in Home Science	**Year: Third**	**Semester: Fifth** **Paper: DSC-14**
Course Code: DSC-14	**Course Title: Fabric Formation and Finishes**	

Course outcomes:

The Student at the completion of the course will be able to:

- To study the chemicals used in textile processing from sizing to finishing, along with the essential properties of raw materials used in their manufacture and study the recent developments in various finishing processes.

Credits: 4	**DISCIPLINE SPECIFIC COURSE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of Hours
Unit I	**Method of fabric formation:** • Weaving • Knitting • Non-woven	15
Unit II	**Looms:** Shuttle looms, shuttle less looms, gripper loom, rapier loom, water jet and air jet loom	15
Unit III	**Introduction to fabric finishes** a) Processes of removing impurities from fabrics: scouring, degumming, carbonizing	15

	b) Basic finishes that alter hand or texture; felting, singeing, stiffening, decatazing c) Surface finishes: Bleaching, delustering, calendaring, beetling, napping, flocking, burnt out design, plisse design, acid design, tenetring, shearing and brushing d) Functional finishes: water proof and water repellent finish, soil repellent finish, shrinkage control, wrinkle resistance, durable press finish, flame retardant finish, mildew proof, rot proof, moth proof finishes, antistatic and antibacterial finishes	
Unit IV	**Adding colour to textiles** • Natural dyes • Syntheticdyes	15

Recommended Readings:

- Banerjee, P.K. Principles of Fabric Formation 2014.1st Edition19 December 2014. ISBN-13: 978-1466554443 ISBN-10: 1466554444.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester- V
Bachelor in Home Science (Honours)
DISCIPLINE SPECIFIC COURSE (DSC-15)- Practical based on DSC-13 and DSC-14

No. of Hours- 120

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-Requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-15 Practical based on DSC-13 and DSC-14	4	0	0	4	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE DIPLOMA IN HOME SCIENCE		
Programme/Class: Bachelor in Home Science (Honours)	Year: Third	Semester: Fifth Paper: DSC-15
Subject: Home science		
Course : DSC-15	Course Title: Practical based DSC-13 and DSC-14	

Course outcomes:
The Student at the completion of the course will be able to:

- Understand the basics of normal diet, therapeutic diet related with specific disease condition.
- Students will be able to know different feeding methods used in hospitals.
- To study the chemicals used in textile processing from sizing to finishing, along with the essential properties of raw materials used in their manufacture and study the recent developments in various finishing processes.

Credits: 4	Discipline Specific Course
Max. Marks: As per Univ. rule	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Planning normal diet for patients who do not require special diets: adults, children	12
Unit II	Planning soft diet and liquid diets.	12
Unit III	Planning diet in fevers	12
Unit IV	Diet for underweight children	12
Unit V	Diet for obese	12
Unit VI	Identification of common textile fibers, yarns and fabrics	20
Unit VII	Preparation of basic weaves on cardboard	15
Unit VIII	Preparation of samples: Screen printing, Block printing, stencil printing, tie and dye and batik with different dyes	15
Unit IX	Visit to Dyeing & Printing	10

Recommended Readings:

- Antia F.P. (1989). Clinical Dietetics and Nutrition. Third Edition. (pp- 226-239), Bombay, Oxford University Press.
- Bamji . S.M., Rao,P.N., and Reddy, V. Textbook of Human Nutrition. Pp-360-67. Oxford and IBH publishing Co Pvt Ltd.
- Banerjee, P.K. Principles of Fabric Formation 2014.1st Edition19 December 2014. ISBN-13: 978-1466554443 ISBN-10: 1466554444.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature- study- online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-V
Bachelor in Home Science (Honours)

DSE- Entrepreneurship Development

No. of Hours-45+30

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-3 Entrepreneurship Development	4	3	0	1	Passed class XII with science, Arts and commerce	Nil

Bachelor in Home Science (Honours)		
Programme/Class: Bachelor in Home Science	**Year: Third**	**Semester: Fifth** **Paper: DSE-3**
Subject: Home Science		
Course: DSE-3	**Course Title: Entrepreneurship Development**	

Course outcomes:
The student at the completion of the course will be able to:

- To learn about the importance of entrepreneurship Development and Business Management in the development of Indian economy
- Creating awareness regarding entrepreneurial traits, entrepreneurial support system,
- Opportunity identification, project report preparation and understanding of legal and managerial aspects.

Credits: 4	**DISCIPLINE SPECIFIC ELECTIVE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of Hours
Unit I	**Entrepreneurship:** concepts, definition, need and significance of entrepreneurship development in India, Entrepreneur-their characteristics, types, Challenges faced by women entrepreneurs.	5

Unit II	**Business organizations:** Meaning and definitions, types of business organizations and their characteristics. **Business opportunities:** Meaning and definition, characteristics of business opportunities, sources of business opportunities, types of business opportunities and analysis of business opportunities. **Business environment:** Meaning and definition of business environment, factors affecting business environment, importance of business environment analysis.	10
Unit III	**Steps involved in functioning of an enterprise**: Selection of the product / services, selection of form of ownership; registration, selection of site, capital sources, legal requirement for starting an enterprise.	10
Unit IV	**EDP:** Entrepreneurship development program, types of EDPs, role of financial institutions, and other Agencies in entrepreneurship development.	10
Unit V	Enterprise management, Basic management concepts, personnel management, product management, material management, financial management, market management and crises management. natural etc.	10
	Practical	
I	Assessment of entrepreneurial traits Thematic Appreciation Test (TAT); Who am I? Paired comparison Test (PCT) Sentence Completion Test (SCT) Risk Taking Behavior (Ring Toss)	5
II	Interaction with successful entrepreneurs	10
III	Visit to financial institutions and support agencies	5
IV	Preparation of project proposal for funding by different agencies	10

Recommended Readings:

- Bhawal, C. P. 2005. Entrepreneurship and Entrepreneurial Development. New Royal Company, Lucknow
- . Vasant Desai. (2011). Entrepreneurial Development Potential beyond Boundaries; Himalaya PublishingHouse.
- Gundry Lisa K. &Kickul Jill R.,2007, Entrepreneurship Strategy: Changing Patterns in New Venture Creation, Growth, and Reinvention, SAGE Publications,Inc.
- Taneja& Gupta, 2001, Entrepreneur Development- New Venture Creation, Galgotia Publishing Company.

Suggested Continuous Evaluation Methods: Since the class is conceived as learner-centric and built around tasks that require learners to actively use various language skills, formative Assessment can and should be used extensively. Oral presentations, peer interviews, and group tasks can be used for this purpose. The end-semester written examination will test all the areas targeted in the course.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Semester-V
Bachelor in Home Science (Honours)

GENERAL ELECTIVE GE-5- Population and Family Life Education

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
GE-5 Population and Family Life Education	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

Bachelor in Home Science (Honours)		
Programme/Class: Bachelor in Home Science	Year: Third	Semester: Fifth Paper: GE-5
Subject: Home Science		
Course: GE-5	Course Title: Population and Family Life Education	

Course outcomes:

The Student at the completion of the course will be able to:

- To understand the perspective of population and its measures, growth and development.
- To provide knowledge about the family life education in students.

Credits: 4	DISCIPLINE SPECIFIC COURSE
Max. Marks: As per Univ. Rule	Min. Passing Marks: As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Population in perspective, theories of population education, Growth of world population, population of India, India's population problem in perspective, socio-cultural aspects of population growth in India. Population policy in India	15
Unit II	Measures of population composition and growth of population a) Measures of mortality and life table	10
	b) Measures of fertility and reproduction	
Unit IV	Population education, Meaning of population education, need and importance of population education	10

Unit V	Family life education a) Conception, pregnancy and pre-natal development process of conception, determination of sex techniques, fertilization techniques: amniocentesis, sonography, gift, I.V.F. and A.I., pregnancy and its management. b) Planning family: family planning and contraceptive technology, planned parenthood- spacing between children, size of family.	15
Unit VI	Visit to a hospital	10

Recommended Readings:

- Nye.F.I., & Berardo. F.M. (1973). The family its structure and Interaction. New York: Mac. Millan Company
- Arcus, M.E., Schvaneveldt, J.D. & Moss, J.J. (1993). *Handbook of Family Life Education: Foundations of Family Life Education*. USA : Sage Publications, Inc.
- WHO, USAID and Johns Hopkins Bloomberg School of Public Health. (2007). *Family Planning: A Global Handbook for Providers*.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VI
Bachelor in Home Science (Honours)
DICIPLINE SPECIFIC COURSE (DSC-16)- Food Science

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-16 Food Sciene	4	4	0	0	Passed class XII with Science, Arts and Commerce	Nil

Bachelor in Home Science (Honours)		
Programme/Class: Bachelor in Home Science	**Year: Third**	**Semester: sixth Paper: DSC- 16**
Subject: Home Science		
Course- DSC-16	**Course Title: Food Science**	

Course outcomes: The Student at the completion of the course will be able to:

- To provide an understanding of composition of various foodstuffs
- Familiarize students with changes occurring in various food stuffs as a result of processing and cooking.

Credits: 4	**DISCIPLINE SPECIFIC COURSE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
I	**Introduction to Food Science** • Properties of foods • Functions of foods • Factors affecting appearance, taste, texture, flavor, color.	4
II	**Changes during food processing and storage in –** • Fruits and vegetables; • milk and milk products; • meat and poultry; fish, eggs, • cereals and legumes; • nuts; oilseeds and spices.	5

III	**Carbohydrates-** • Functional role of sugars in foods- sweetness, texture, preservation, preservation, fermentation, appearance, maillard reaction, caramelization, freezing point, antioxidant activity, miscellaneous activity; sweetness; invert sugar.	5
IV	**Proteins-** • Functional properties of protein- hydration properties, precipitation, viscosity, gelation, texturization, dough formation, surface properties.	6
V	**Lipids-** • Functional properties of lipids- deep fat frying, deteriorative changes in fats/ oils, antioxidants	6
VI	**Food polysaccharides-** • Functional properties of starch; hydrocolloids, on-starch polysaccharides, gums.	4
VII	**Role of water in foods-** • Free water and bound water • Functional properties • Water activity • Intermediate moisture foods.	6
VIII	Sols, gel, emulsion; colloids, colloidal system, properties of solutions, foams.	4
IX	Enzymes and pigments: Biotechnological applications of enzymes; Natural pigments- sources and uses.	4
X	**Sensory evaluation-** • Importance • Sensory panel • Sample preparation • Hedonic scale	6
XI	**Visit to Milk processing unit**	10

Recommended Readings:

- Desroiser N. W. & Desroiser J. N. 1977. The Technology of Food Preservation. AVI Publication.
- Potty V. H. and Mulky M. J. 1993. Food Processing. Oxford & IBH Publishing House.
- Srilakshmi B. 2001. Food Science. New Age International.
- M. Shadakhsharaswamy and N. Shakuntala Manay. Food Facts and Principles, Mohindra Singh Sejwal for Wiley Eastern Limited, Ansari Road Daryaganj, New Delhi.
- Mudambi, S. 1997. Food Science. New Age International (P) Limited Pub.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VI
Bachelor in Home Science (Honours)
DSC-17 Fundamentals of Housing and Interior Decoration

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-17 Fundamentals of Housing and Interior Decoration	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

Bachelor in Home Science (Honours)		
Programme/Class: Bachelor in Home Science (Honours)	Year: Third	Semester: Sixth Paper: DSC-17
Subject: Home Science		
Course- DSC-17	Course Title: Fundamentals of Housing and Interior Decoration	

Course outcome:
The Student at the completion of the course will be able to:

1. To learn about elements and principles of art and their application in interior designing.
2. To gain better understanding of interior enrichment.

Credits: 4	DISCIPLINE SPECIFIC COURSE
Max. Marks: As per Univ. Rule	Min. Passing Marks: As per Univ. rules

Unit	Topics	No. of Hours
Unit I	**Introduction to interior planning and decoration** • Importance of interior planning and decoration • Current trends in interior decoration	5
Unit II	• Elements of design: Line, Form, Texture, Colour, Pattern, Light, Space • Objectives of interior decoration • Principles of designs: Proportion, Balance, Emphasis, Harmony, Rhythm	5
Unit III	**Colour:** • Characteristics of colour • Qualities of colour	5

	• Properties of colour • Emotional effect of colour • Colour wheel • Colour schemes • Use of colour in interior decoration • Planning of colour schemes of different areas in the house	
Unit IV	Planning for various background areas of the house and their treatment • Floor: Types of floor covering, care and maintenance and Selection of floor covering • Walls: Types of building walls, Types of wall treatments • Windows: Types of window treatment	5
Unit V	• Functional and decorative accessories for interiors, • Lighting: Importance, Types of lighting, • Flower arrangement: Materials used, principles involved and Types of flower arrangements.	10
Unit VI	**Home** • Functions of home • Renting verses owning house • Advantages and disadvantages of renting and owning a house • Factors to be considered in selection of family housing, selection of site, soil, locality, orientation and sanitation of a house, principles of planning a house, housing needs at different stages of family life cycle.	10
Unit VII	**Types of house planning** • Floor plan, • Site plan, • Cross sectional plan, • Perspective plan, • Elevation plan • Landscape plan.	10
Unit VIII	**Housing finance** • Government and non- government finance institutes. • Housing schemes	5
Unit IX	**Technology in housing** • Advance technology in housing construction • Low cost building technology • Low cost building materials.	5

Recommended Readings

- Bhargava, B. 2001. Family Resource Management and Interior Decoration. University Book House Ltd. Jaipur.
- Bhargava, B.2001 .Housing and Space Management, University Book House Ltd. Jaipur.
- Seetharaman P. and Sethi M. (2002).Interior Design and Decoration. CBS Publishers and Distributors. New Delhi.
- Gewther, M. (1970).The Home, its Furnishings and Equipment U.S.A. Mc. GrawHill.
- Gupta, G. Garg, N. and Aggarwal, N (2007). Text Book of Family Resource Management Hygiene and Physiology. Kalyani Publishers.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature- study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VI
Bachelor in Home Science (Honours) DSC-18 Practical on DSC-17

No. of Hours-120

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-18 Practical on DSC-17	4	0	0	4	Passed class XII with Science, Arts and Commerce	Nil

Bachelor in Home Science (Honours)		
Programme/Class: Bachelor in Home Science (Honours)	Year: Third	Semester: Sixth Paper: DSC-18
Subject: Home Science		
Course- DSC-18	Course Title: Practical on DSC-17	

Course outcome:
The Student at the completion of the course will be able to:

1. To learn about elements and principles of art and their application in interior designing.
2. To gain better understanding of interior enrichment.

Credits: 4	DISCIPLINE SPECIFIC COURSE
Max. Marks: As per Univ. Rules	Min. Passing Marks: As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Development of motif for primary, secondary and tertiary colours	10
Unit II	Drawing colour wheel, colour schemes, values and intensity scale	10
Unit III	Drawing for arrangement of furniture in different rooms, Bed Room, Kitchen, Drawing Room and Study Room	10
Unit IV	Drawings for different surface arrangements of interiors a) Arrangement of walls b) Arrangement of floors c) Ceiling arrangements	20
Unit V	Market survey – different types of wall and floor coverings.	20
Unit VI	Learning architectural symbols, planning, preparing and reading of blue prints, development of master plan	20

Unit VII	Drawing of house plans for different income levels.	10
Unit VIII	Learning of drawing, isometric projections of house plan	10
Unit IX	Market survey to study the available building materials in the local market	10

Recommended Readings

- Bhargava, B. 2001. Family Resource Management and Interior Decoration. University Book House Ltd. Jaipur.
- Bhargava, B.2001 .Housing and Space Management, University Book House Ltd. Jaipur.
- Seetharaman P. and Sethi M. (2002).Interior Design and Decoration. CBS Publishers and Distributors. New Delhi.
- Gewther, M. (1970).The Home, its Furnishings and Equipment U.S.A. Mc. GrawHill.
- Gupta, G. Garg, N. and Aggarwal, N (2007). Text Book of Family Resource Management Hygiene and Physiology. Kalyani Publishers.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VI
Bachelor in Home Science (Honours)
DSE-4 Textile Designing and Use of CAD

No. of Hours-30+60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisiteof the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-4 Textile Designing and Use of CAD	**4**	**2**	**0**	**2**	**Passed class XII with science, Arts and commerce**	**Nil**

Bachelor of Home Science (Honours)		
Programme/Class: Bachelor of Home Science	**Year: Third**	**Semester: Sixth Paper: DSE-4**
Subject: Home science		
Course-DSE-4	**Course Title: Textile Designing and Use of CAD**	

Course outcomes: The Student at the completion of the course will be able to:

- To introduce them about various advanced Textile and Apparel Designing software packages and develop the creativity of the students in use of CAD software.

Credits: 4	**Discipline Specific Elective**
Max. Marks: As per Univ. Rules	**Min. Passing marks:** As per Univ. Rules

Unit	Topics	No. of Hours
Unit I	**Introduction to textile designs.** • Woven design: simple and compound structures of the fabric • Decorative designs: Ethnic designs, historic designs, contemporary designs, abstract designs, stylized designs, geometric designs, naturalistic designs, Realistic designs	6
Unit II	Application of various design elements and principles in textile designing	6
Unit III	Fancy and ornamental weaves: Pile weave, leno weave, tapestry weave, dobby, jacquard weave and extra yarn figuring	6
Unit IV	Automatic Printing techniques: Roller, screen, heat transfer printing, flock printing, resist printing.	4

Unit V	Basics of Design and Repeat software: Types of design repeats, Tools for designing, Drawing and Editing different menus	4
Unit VI	Creating and editing motifs, Adaptation of basic motif for design organization, use of computer colour palette for colouring the designs	4
	Practical	
Unit I	Demonstration of Basic of design and repeat software CAD	5
Unit II	Demonstration of Coral Draw Window	5
Unit III	Creation of textile design in Coral Draw	10
Unit IV	The Harmony of Colour Form • Colour Wheel and Colour Scheme • Harmony according to colour wheel	5
Unit V	Design development: All over design, Border design, Spot design and Pallav design	5
Unit VI	Design Development from Basic Motifs	5
Unit VII	Weaving: Graphical representation of straight draft plan, lift plan and tie-up of plain weave and its variations	5
Unit VIII	Creating library for various designs (Ethnic designs, historic designs, contemporary designs, Abstract designs, Stylized designs, Geometric designs, Naturalistic designs, Realistic designs)	5
Unit IX	Preparing two dress material/household articles using CAD software.	5
Unit X	Visit to Fashion Institute	10

Suggested Readings:

- CAD design software manuals
- Davis L Msrisn. 1980. *Visual Design in Dress.* PrenticeHall.
- Rene Weiss Chase 1997. *CAD for Fashion Design.* PrenticeHall.
- Winfred Aldrich 1992. *CAD in Clothing &Textiles.* BSP ProfessionalBooks.
- Yates MP. 1996. *Textiles – A Handbook for Designers.* W.W.Norton.

Suggested Digital Platform:
http://ecoursesonline.iasri.res.in/course/view.php?id=196

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VI
Bachelor in Home Science (Honours)
GE6- Programme Planning, Implementation and Evaluation

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
GE-6 Programme Planning, Implementation and Evaluation	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

Bachelor in Home Science (Honours)		
Programme/Class: Bachelor in Home Science	Year: Third	Semester: Fifth Paper: GE-6
Subject: Home science		
Course: GE-6	Course Title: Programme Planning, Implementation and Evaluation	

Course outcomes:
The Student at the completion of the course will be able to:

- To understand about importance, objectives and principles of extension programme planning.
- To learn about execution, monitoring and evaluation of extension programme planning.

Credits: 4	GENERIC ELECTIVE
Max. Marks: As per Univ. Rule	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Extension Programme: meaning and definition, need and Characteristic.	10
Unit II	Extension Programme Planning: meaning and definition, importance, objectives, principles, steps in programme planning.	10
Unit III	Leader: meaning and definition, qualities of a leader, Role of a leader, types of leaders.	10

Unit IV	Execution of programme: steps/ procedures in programme execution, Role of leaders, local bodies, organisations and extension agencies in programme execution, constraints in programme implementation at grass root level	20
Unit V	Monitoring and evaluation: definition, importance, types, principles,	10

Recommended Readings:

- **Dahama, O.P. and Bhatnagar, O.P. (1987).** Education and Communication for Development, Oxford and IBH Publishing Co., New Delhi.
- **Leagans, J.P. (1961).** Programme Planning to Meet People's Needs. In: Extension Education in Community Development, Directorate of Extension, Ministry of Food and Agriculture, Govt. of India. New Delhi.
- **Ray, G.L. (2001).** Extension Communication and Management. Naya Prakash, Calcutta, 4th edition.
- **Sandhu, A.S. (1994).** Extension Programme Planning. Oxford and IBH Publishing Co., New Delhi.

Supe, S.V. (1983). An Introduction to Extension Education, Oxford and IBH Co., New Delhi.

- **Swanson, Burton, E. Ed. (1984).** Agricultural Extension. A Reference Manual, Rome, Food and Agricultural Organization (FAO), of the United Nations, 2nd Edition.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VII
Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)

DSC-19 Food Service Management

No. of Hours-120

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-19 Food Service Management	4	0	0	4	Passed class XII with science, Arts and commerce	Nil

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)		
Programme: Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)	**Year: Fourth**	**Semester: Seventh** **Paper: DSC-19**
Subject- Home Science		
Course- DSC-19	**Course Title: Food Service Management (Practical)**	
Course Outcomes: The students at the completion of the course will be able to: • To learn about the concept of training • To enhance the students about different training methods and their use		
Credits: 4	**Discipline Specific Course**	
Max. Marks: As per Univ. rules	**Min. Passing Marks:** As per Univ. rules	

Unit	Topics	No. of Hours
Unit I	Standardization of recipes of snacks and meals for portion and cost.	20
Unit II	Running a canteen for fifty persons.	40
Unit III	Planning, preparation and service for special occasions.	40
Unit IV	Visit to nearby food service institutions.	20

Suggested Readings: .

- Food Service Management: How to Succeed in the High-risk Restaurant Business by Someone Who Did. By Bill Wentz. Atlantic Publishing Group.
- Restaurant Marketing for Owners and Managers**.** By Patti J. Shock. Wiley Restaurant Basics Series, publisher.
- The Non-Commercial Food Service Manager's Handbook: A Complete Guide for

Hospitals, Nursing Homes, Military, Prisons, Schools and Churches**.** By Douglas R. Brown and Shri Henkel. Atlantic Publishing Group Inc.

- Managing Food and Nutrition Services for Culinary, Hospitality, and Nutrition Professions. By Sari Edelstein, editor. Jones and Bartlett Learning, publisher.
- Catering Management.Mohini Sethi and Surjeet Malhan. Revised second edition.New Age international Limited Publishers.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus• Test with multiple choice questions/ short and long answer questions• Attendance

Semester-VII
Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)

DSE- 5 Research Methodology

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-5 Research Methodology	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)		
Programme: Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)	**Year: Fourth**	**Semester: Seventh** **Paper: DSE-5**
Subject- Home Science		
Course- DSE-5	**Course Title: Research Methodology**	

Course Outcomes: The students at the completion of the course will be able to:

- To learn about the concept of training
- To enhance the students about different training methods and their use

Credits: 4	**Discipline Specific Elective**
Max. Marks: As per Univ. rules	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of hours
Unit I	Research Methodology: An Introduction, Meaning of Research, Objectives of Research, Types of Research, Research Approaches, Significance of Research, Research Process.	12
Unit II	Sampling Design: meaning and definition of sampling, Steps in Sampling Design, Criteria of Selecting a Sampling Procedure, Characteristics of a Good Sample Design, Different Types of Sample Designs, probability sampling and non- probability sampling. Hypotheses, types of hypothesis, variables and types of variables.	12

Unit III	Methods and tools of data collection: Collection of Primary Data, Observation Method, Interview Method, Collection of Data through Questionnaires, Collection of Data through Schedules, Difference between Questionnaires and Schedules, Collection of Secondary Data,	12
Unit IV	.Data processing methods, Graphical Representation of data, General guidelines for presenting data, tables, graphs and illustrations, Interpretation and generalization and analysis of data.	12
Unit V	Scientific reporting, points to be considered in report writing, Footnotes, Bibliographic citation, Citation style, Preparation of an abstract	12

Suggested Readings:

- C. R. Kothari, GauravGarg, 2014 Research Methodology Method and Techniques, (IIIrdedition), New age International Publishers.
- C R. kothari research methodology methods and techniques Wiley eastern.limited
- Bandarker, P.L. and Wilknson T.S. 2000, Methodology and Techniques of Social Research, Himalaya Publishing House, Mumbai.
- Bhatnagar, GL. 1990: Research Methods and Measurements in Academy, New Delhi.
- Dooly, D, 1995, Strageies for interpreting Qualitative data: sage Publication California

Suggesteddigital platform

- **Chrome**extension://efaidnbmnnnibpcajpcglclefindmkaj/https://southcampus.uok.edu.in /files/link/
- downloadlink/rm%20u1%20p1.pdf
- **chrome**extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.uou.ac.in/sites/defa ult/files/
- slm/BHM-503T.pdf
- **chrome**extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.uou.ac.in/sites/defa ult/files/
- slm/BHM-503T.pdf

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VII
Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)

DSE-6 Marriage and family dynamics

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisiteof the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-6 Marriage and family dynamics	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)		
Programme: Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)	**Year: Fourth**	**Semester: Seventh** **Paper: DSE-6**
Subject- Home Science		
Course- DSE-6	**Course Title: Marriage and family dynamics**	

Course outcomes: The Student at the completion of the course will be able:

- To provide students with an overview of changing families in changing times.
- To help students examine the issues related to close interpersonal relationships in the family.

Credits: 4	**Discipline Specific Elective**
Max. Marks: As per Univ. rules	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of hours
Unit I	**Marriage concept and meaning**: • Readiness of marriage-physiological, social, psychological and others • premarital guidance and counseling	10
Unit II	**Family**: • Definition, function, composition and type	10
	• Family life cycles	

Unit IV	**Break up of family**: • Divorce • Separation • single parenthood • death of a partner, **Crisis in family life**: • prolonged illness • death • suicide • mental illness • unemployment	15
Unit V	**Family planning motivation and responsibility-** • Planning parenthood-spacing between children • Size of the family	15
Unit VI	**Legal aspects**: : • laws regarding marriage	10

Suggested Readings:

1. Introduction to family life education. Dr. Subhakanta Mahapatra. SOITS, IGNOU.
2. Lemme, B. (2006) Patterns of changes in family relationship. Pregnancy and infant in the family. Families with pre-school and school age child and adolescent. Development in adulthood (4th ed.). New York, NY: Pearson.
3. Gottman, J.,· & Silver, N. (2015). The seven principles for making marriage work. New York, NY: Harmony.
4. Lamanna, M. A., Riedmann, A.,· & Stewart, S. (2015). Marriages, families, and relationships: Making choices in a diverse society (12th ed.). Belmont, CA: Wadsworth , Cengage Learning.
5. Olson, D. H., DeFrain, J. & Skogrand, L. (2013). Marriage and families: Intimacy, diversity, and strengths (8th ed.). New York, NY: McGraw-Hill Education.

Suggested Digital Platform:

- https://onlinecourses.nptel.ac.in/noc22_ag03/preview

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VII

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)

GE- 7 Early Childhood Education (Theory)

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
GE-7 Early Childhood Education	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)		
Programme: Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)	**Year: Fourth**	**Semester: Seventh** **Paper: GE-7**
Subject- Home Science		
Course- GE-7	**Course Title: Early Childhood Education**	

- To developanunderstandingregardingthesignificanceofearlychildhoodyears.
- To equip the students to plan and conduct Early Childhood care and Education, Programme

Credits: 4	**Generic Elective**
Max. Marks: As per Univ. rules	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of hours
I	**Early Childhood Period and education:** • Characteristics of early childhood period • Significance of early childhood period • Early Childhood Education: Meaning, Concept and significance • Need for ECE	3
II	**Origin of early childhood education in India and abroad:** • Status of ECE - Pre independence period • Status of ECE during Post independence Period:	5
III	**Different types of Pre School programmes:** • Montessori, • Kindergarten,	5
	• Nursery, • Pre-Basic, • Balwadi	
IV	**Early Childhood Education Center:** • Need for ECE centers • Objectives of Early Childhood Education center • ECE center Basic requirements	5

V	**Western philosophers and their contributions for ECCE:** • Contributions of John Amos Commonius • Contributions of Jean Jacques Rousseau • Contributions of Henry Pestalozzi • Contributions of Maria Montessori	8
VI	**Contributions of Indian Philosophers to Early Childhood Education:** • Contributions of Mahatma Gandhi • Contributions of Rabindranath Tagore • Contributions of Tarabai Modak	8
VII	**Curriculum planning in ECE Programme:** • Types of planning • Steps in Curriculum Planning • Characteristics of curriculum planning • Factors influencing Curriculum Planning in ECE: Child related, Parent related, Center/ School related	8
VIII	**The play-way method for ECE:** • Origin of the Term Play-Way • Selection of Play-Way Activities • Various types of Play-Way Activities • Principles of Play-Way • Advantages of Play-Way • Application of Play-Way Attitudes in progressive methods of teaching	8
IX	**Play Activities in the ECE center:** • Nature of Play, • Purpose and functions of play • Types and purpose of different play activities	5
X	**The Qualities of an ECE Teacher:** • Important characteristics of an early childhood teacher • Teachers' role in promoting learning	3
XI	**Records and** Reports **maintained in ECE center**	2

References

- Bhatia&Bhatia(1995).TheoryandprinciplesofEducation,DoabaHouse,Delhi.
- Brewe,J.A.1998IntroductiontoearlychildhoodEducation3rdEd.Boton: Ahyn&Bacaon.
- Murlidharan,R.[1996].Guide to nursery school teacher .New Delhi NCERT.
- Pankajam,G.[1994]Preschool Education .Ambala: India Pub.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VII

Bachelor in Home Science (Honours with Research)

DISCIPLINE SPECIFIC ELECTIVE (DSE-7)- Introduction to Extension Education

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/Practice		
DSE-7 Introduction to Extension Education	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

Bachelor in Home Science (Honours with Research)		
Programme/Class: Bachelor in Home Science (Honours with Research)	**Year: Fourth**	**Semester: Seventh** **Paper: DSE-7**
Subject: Home Science		
Course : DSE-7	**Course title: Introduction to Extension Education**	

Course Outcomes:

After studying this course, the students will be able to:

- To understand the concept, philosophy, principles and objectives of extension education and its contribution.
- To learn and understand about the different development programmes

Credits: 4	**Discipline Specific Course**
Max. Marks: As per Univ. Rules	**Mini. Passing Marls: As per Univ. Rules**

Unit	Topics	No. of Hours
Unit I	Origin and concept of extension education, objectives, functions of extension education, Principles of extension education	10
Unit II	**Pre-Independence Extension and Rural Development Programmes:** Gurgaon project, Sri Niketan Experiment, Marthandam Project, Sarvoday Programme.	10

Unit III	**Post-Independence Extension and Rural Development Programmes:** Itawa Pilot Project (1948), Nilokheri Experiment, Communitiy Development Project, National Extension Service, Training and Visit System, Integrated Rural Development Programme.	10
Unit IV	First-line extension system of ICAR; National demonstration (ND), Operational Research Project (ORP), Krishi Vigyan Kendra (KVK), Lab to Land Project (LLP).	10
Unit V	Extension teaching methods: individual, group and mass contact methods, Factors influencing in selection of extension teaching methods	10
Unit VI	Visit to nearby KVK	10

Recommended Readings:

- Adivi Reddy.A, Extension Education, seventh edition, Sri lakshmi Press, Bapatla
- Agarwal J.C. 2007 Textbook on Essentials of Educational Technology Innovations in Teaching –Learning, second edition, Vikas Publishing House Pvt Ltd.
- Sumita Roy, Tej Verma and Pushpa Gupta 2006 textbook on family approach in extension programme management, first edition, Indian Council of Agricultural Research, New Delhi.
- Dahama O.P. and Bhatnagar O.P, Education and Communication Development, second edition, oxford and IBH publishing pvt. Ltd,calcutta.
- Ray GL (1996) Extension Communication and Management, Naya Prakash Publications, Calcutta.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VII
Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)

GE-8 Principles of Food Preservation

No. of Hours-45+30

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
GE-8 Principles of Food Preservation	4	3	0	1	Passed class XII with science, Arts and commerce	Nil

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)		
Programme: Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)	**Year: Fourth**	**Semester: Seventh** **Paper: GE-8**
Subject- Home Science		
Course- GE-8	**Course Title: Principles of Food Preservation**	

Course outcomes: The Student at the completion of the course will be able to:

- Describe different processing and food preservation techniques based on different food materials like low temperature processing, high temperature processing, irradiation, preservation by chemicals and high concentration.
- List different food processing techniques, various methods used to preserve foods and factors influencing the shelf-life of the food products.
- Identify different packaging techniques used for food packaging and also effects of different processing techniques on palatability and nutritive value of food.
- Write down the basic principles of different preservation methods.

Credits: 4	**Generic Elective**
Max. Marks: As per Univ. rules	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of hours
Unit I	Food processing and preservation principles, method of preservation: pasteurization (definition, time-temperature combination and equipment) sterilization (definition, time-temperature combination	10
	and equipment), blanching (definition, time-temperature combination and equipment, adequacy in blanching), canning (definition, manufacturing process, defects of cans)	

Unit II	Freezing and Refrigeration: Introduction to refrigeration, cool storage; Freezing: introduction, principle of freezing, freezing methods- air freezing, plate freezing, liquid immersion freezing and cryogenic freezing, changes during freezing, advantages and disadvantages of freezing and changes in food during freezing storage; introduction to thawing, changes during thawing and its effect on food.	15
Unit III	Food drying/ dehydration: definition, free and bound moisture, concept of water activity, factors affecting drying, moisture content (wet basis and dry basis), drying methods and equipment: sun/solar drying, cabinet dryer, tunnel dryer, spray dryer, freeze dryer, fluidized bed dryer; changes in food during drying	10
Unit IV	Food irradiation- definition, units of radiation, mechanism of actions, uses of radiation processing in food industry, kinds of ionizing radiation used in food irradiation; food fermentation.	10
	Practical	
Unit-1	Preparation and pasteurization of fruit juice	10
Unit-1I	Dehydration and drying of fruits and vegetables, Preservation by freezing and refrigeration	10
Unit -III	Visit to Food Processing Industry	10

References

- Fellows, P. Food Processing Technology Principles and Practices. CRC Press, Boca Raton Boston New York Washington, DC.
- Jongen, W. M. F. 2002. Fruit and Vegetable Processing: Improving quality, Woodhead Publishing Ltd, England
- Somogayi, L. P., Ramaswamy, H. S. and Hui, Y. H. 1996. Processing Fruits: Science and Technology, Vol 1. Biology, Principles and Applications. CRC Press, Florida
- Smith, D. S., Cash, J. N., Nip, Y. K. and Hui, Y. H. 1997. Processing vegetables: Science and Technology. Technomic Publishing Company Inc, USA.
- Dauthy, M. E. 1995. Fruit and Vegetable Processing. Food and Agriculture Organization of the United Nations, Rome.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VIII
Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)

DSC-20 Apparel Designing

No. of Hours-120

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC-20 Apparel Designing	4	0	0	4	Passed class XII with science, Arts and commerce	Nil

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)		
Programme: Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)	**Year: Fourth**	**Semester: Eighth Paper: DSC-20**
Subject- Home Science		
Course- DSC-20	**Course Title: Apparel Designing**	

Course outcomes: The Student at the completion of the course will be able to:

- To enable student to make pattern from sketch/photograph
- To enable them to obtain perfect fit and harmony between the fabric and design of the garment.

Credits: 4	**Discipline Specific Course**
Max. Marks: As per Univ. rules	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of hours
	Practical	
Unit I	Fashion illustrations: Figure drawing with different poses and styles, Designing of various colors, yokes, sleeves and accessories	**40**
Unit II	Designing and styling with the application of principles of pattern making rules a) Moving, dividing and combining darts: Pivot and slash method b) Converting dart into seam lines Adding fullness in blouse by gathers and darts	**20**
Unit III	Construction of different types of yokes, Collars and Sleeves	**15**
Unit IV	Skirts: six gored skirt, circular skirt and skirt on bias	**15**
Unit V	Construction of 3 formal dresses for different age group using different construction and decorative features	**20**
Unit VI	Visit to Garment Manufacturing Unit	**10**

Suggested Readings:

- Connie Amaden-Crawford. 1989. *The Art of Fashion Draping*. Fair ChildPubl.
- Janine Mee & Michal Purdy. 1987. *Modelling on the Dress Stand.* BSP Professional Books.
- Natalie Bray. 1994. *Dress Fitting.*Blackwell.

Suggested Digital Platform:

- **http://ecoursesonline.iasri.res.in/course/view.php?id=196**

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VIII

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)

DSE-8 Food Safety and Quality Control

No. of Hours-30+60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE- 8 Food Safety and Quality Control	4	2	0	2	Passed class XII with science, Arts and commerce	Nil

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)		
Programme: Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)	**Year: Fourth**	**Semester: Eighth Paper: DSE-8**
Subject- Home Science		
Course- DSE-8	**Course Title: Food Safety and Quality Control**	

Course outcomes: The Student at the completion of the course will be able to:

- To familiarize students to apply protocol for safe food handling techniques, water and waste management
- To understand the role of food packaging and the importance of Nutrition labeling.
- To analyse consequences of food poisoning and infection on the health of individuals
- To Understand the basic principles food preservation methods

Credits: 4	**Discipline Specific Elective**
Max. Marks: As per Univ. rules	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of Lectures
Unit I	Quality standards, assurance and factors affecting quality.	5
Unit II	Methods and techniques for assessment of food quality. 1. Objective evaluation: Physical parameters and their testing. 2. Sensory evaluation: Sensory characteristics of foods, conducting sensory tests, selection of taste panel, type of tests- difference, ranking, sensitivity and descriptive tests. 3. Nutritional evaluation: Proximate composition, iron, calcium, phosphorus, vitamin C.	5
Unit III	Food safety: Microbiological evaluation of raw material/products, microbiological limits, colony count, coliform streptococci and their indicators.	5
Unit IV	Food adulteration: common adulterants and their ill effects.	5
Unit V	Food standards, food laws and regulations: PFA, Essential Commodity Act, FPO, MPO, MMPO, Misbranding, BIS, Agmark, Export Quality Control and Inspection Act.	5

Unit VI	Food safety, safety hazards and risks, HACCP as a method to prevent food bore illness, ISO.	5
	PRACTICALS	
Unit I	Estimation of proximate principles (moisture, crude fiber, total ash, crude protein and fat).	10
Unit II	Estimation of iron and calcium.	10
Unit III	Estimation of vitamin C.	4
Unit IV	Physical testing of grains.	2
Unit V	Estimation of gluten in wheat.	10
Unit VI	Detection of adulterant in milk: Water and starch.	4
Unit VII	Detection of mineral oil and argemone oil in edible oils.	6
Unit VIII	Detection of adulterant in spices and condiments.	6
Unit IX	Sensory evaluation of foods using sensory score card and hedonic scale.	8

Suggested Readings:

- Mahindra N. S, 2008, Food Additives, Characteristics, Detection and Estimation, APH Publishing Corporation, New Delhi
- Ward law G.M, Hamp J S, 2007, Perspectives in Nutrition, 7th edition, Mc Graw Hill
- The Food Safety and Standards Act along with Rules and Regulations, 2011, Delhi, Commercial Law Publishers (India) Pvt Ltd.
- Khanna K et al, 2013, Text Book of Nutrition and Dietetics, Phoenix publications
- Sethi P and Lakra P, Aahaarvigyaan, Poshanevam suraksha, 2015, Elite Publishing House. 6. Sharma S, Wadhwa A, 2003, Nutrition in the Community- a text book, Elite publishing house.

Suggested Digital Platform: http://ecoursesonline.iasri.res.in/course/view.php?id=196

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VIII
Bachelor in Home Science (Honours)
DSE-9 Textile Industry and Trade

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-9 Textile Industry and Trade	4	4	0	0	Passed class XII with Science, Arts and Commerce	Nil

Bachelor in Home Science (Honours)		
Programme: Bachelor of Home Science (Honours)	**Year: Fourth**	**Semester: Eighth Paper: DSE-9**
Home science		
Course: DSE-9	**Course Title: Textile Industry and Trade**	

Course outcomes:
The Student at the completion of the course will be able to:

- Students will be able to understand about the textile related trades and recent practices.

Credits: 4	**Generic Elective**
Max. Marks: As per Univ. rules	**Min. Passing marks:** As per Univ. rules

Unit	Topics	No. of hours
Unit I	Textiles Industries of India including cottage industries of handloom, hosiery and sericulture	5
Unit II	Importance of entrepreneurs and textile industries in the Indian Economy	5
Unit III	Five year plans and Textile industries	5
Unit IV	Marketing concept	5
Unit V	Co-ordination of production with consumer preference for various textiles products	5
Unit VI	Factors influencing the production and consumption of textiles	5
Unit VII	Factors affecting the cost of textile and pricing policies	5
Unit VIII	Causes for price fluctuations	5
Unit IX	Sales promotion techniques	5
Unit X	Import and export transaction	5
Unit XI	Quality control institutions and quality regulation in India	5
Unit XII	Different textile mills, khadi and village industry commission, weaving service centers, handloom sector, co-operative societies, research associations	5

Suggested Readings:

- Cooklin, G., *Introduction to Clothing Manufacture*. Blackwell Scientific Publications.
- Karpan., *Change in Trends in Apparel Industry.* Abhiskeh Publcation.
- Kathryn Moore Greenwood. *Fashion Innovation & Marketing.* MacmillanCo.
- Kitty Dickerson. *Textiles & Apparels in Global Economy.* Merrill PrenticeHall.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VIII

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)

GE-9 Retailing and Merchandizing in Textile and Apparel

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
GE-9 Retailing and Merchandizing-Textile and Apparel	4	4	0	0	Passed class XII with science, Arts and commerce	Nil

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)		
Programme: Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)	**Year: Fourth**	**Semester: Eighth** **Paper: GE-9**
Subject- Home Science		
Course- GE-9	**Course Title: Retailing and Merchandizing in Textile and Apparel**	

Course outcomes: The Student at the completion of the course will be able to:

- To develop in depth knowledge about Merchandizing.
- To learn about sales promotion techniques and export import procedures

Credits: 4	**Generic Elective**
Max. Marks: As per Univ. rules	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of hours
Unit I	Merchandizing: terminology, concept and principles.	3
Unit II	Factors affecting Merchandizing	3
Unit III	Role and responsibilities of a merchandiser	3
Unit IV	Merchandizing for buying houses, departmental stores and export houses.	3
Unit V	Retailing- terminology and concept	5
Unit VI	Evolution of retail and retail formats	5
Unit VII	Sale promotion and promotion mix: Advertising, Sale promotion techniques, personal selling, and publicity.	10
Unit VIII	Pricing methods and pricing of textiles	6
Unit IX	Marketing research: meaning, scope and classification. Steps in marketing research	8
Unit X	Fashion analysis, forecasting and significance in product planning.	7
Unit XI	Export and Import: Channels of distribution, starting of export and import business and its procedure, organizations involved in export promotion in India.	7

Suggested Readings:

- Mike Easey (1995) Fashion Marketing Blackwell science Lts,USA
- Pamela Stecker (1996) Fashion Design Manual Macmillan Education Australia Pvt, Ltd, South Yarra.
- Elaine Stone and jean A. Samples (1985) Fashion Merchandising –An Introduction Mc Graw-Hill Book Co, New York USA
- Jeanette Jarnow and Kitty Dickerson (1997) Inside the Fashion Business Merill Prntice Hall New Jersey
- Nancy .J. Rabolt & Judy .K.Miler (1997) Concepts and Cases IN Retail Management Fair Child Publications ,New York
- Pradhan, S. 2009. Retailing Mangement, rd edn. New Delhi, Tata McGraw-Hill Publishing Company Limit. 613p

Suggested Digital Platform:

- **https://egyankosh.ac.in/bitstream/123456789/15023/1/Unit-1.pdf**
- **http://ecoursesonline.iasri.res.in/mod/page/view.php?id=30821**

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VIII

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)

DSE- 10 Management of Child Care Center and Nursery School

No. of Hours-30+60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE-10 Management of Child Care Center and Nursery School	4	2	0	2	Passed class XII with science, Arts and commerce	Nil

Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)		
Programme: Bachelor of Home Science (Honours with Research/Academic projects/ Entrepreneurship)	**Year: Fourth**	**Semester: Eighth** **Paper: DSE-10**
Subject- Home Science		
Course- DSE-10	**Course Title: Management of Child Care Center and Nursery School**	

Course outcomes: The Student at the completion of the course will be able to:

- Student will be able to learn about child care centers and its management.
- To aware the student about curriculum and planning syllabus

Credits: 4	**Discipline Specific Elective**
Max. Marks: As per Univ. rules	Min. Passing Marks: As per Univ. rules

Unit	Topics	No. of hours
I	**Introduction** • Child Care Centers and Nursury School • Survey on community needs with regard to day care centre/child care centre.	5
II	**Management of the centre** • Management committee for administrative task, • layout planning of day care centre/child care centre, • Planning policies of the centers, • Procedures and rules, • Budgeting, • Building, • Equipments and closed room planning.	5

III	**Utilization of resources:** • Hiring staff, • qualification and salary, • procuring toys, • equipments and furniture, • Maintaining records and registers.	2
IV	**Training in service staff:** • Methods of communicating with children, • Learning methods of handling children, • Setting class room limits, • Observing and testing children.	3
V	**Involving parents**: • Building rapport with children, • Arranging parent teacher conferences.	2
VI	**Curriculum planning for young children:** Planning syllabus- • Annual, • Monthly, • Weekly and daily planning of activities.	3
VII	**Planning play environment:** Preparation and putting up play room for teaching young children, teaching strategies in child care centre. a). Play way teaching methods. b). Planning science-nature experiences. c). Planning music dramatization and story session. d). Putting up display of play equipment in classroom and teaching methods. e). Preparation and submission of project report.	5
VIII	• Observation of teaching in Nursery School and Building rapport with the children. • Organizing and participating in the pre-school activities in: 1. Laboratory Nursery School. 2. Community Balwadi.	5
	Practical	
Unit	**Topics**	**No. of hours**
Unit I	Plan out different activities and preparation of teaching aid and play materials for nursery school children	**20**
Unit II	Visit to Day Care Centre and Participating in different activities conducting in a nursery school with children and report writing	**40**

Suggested Readings:

- Contractor,M., 1984, Creative drama and puppetry in education, National book trust of India, Delhi
  Devadas P. Rajammal and N. Jaya (1996), "A Textbook on child development", MacMillan India Ltd. New Delhi.
- Nasim Siddiqi, Suman Bhatia and Suptika Biswas (2007) Early Childhood Care and Education – Book IV, DOABA HOUSE, New Delhi.
- Sen Gupta, M. (2009). Early Childhood Care and Education. New Delhi: PHI Learning Pvt. Ltd.
- Soni,R., 2015,Theme based early childhood care and education programme- A Resource Book, NCERT.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus• Test with multiple choice questions/ short and long answer questions• Attendance

Semester-VII
Bachelor of Home Science (Honours with Research)
GENERAL ELECTIVE (GE-10) Household Equipment and Appropriate Technology

No. of Hours-45+30

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
GE- 10 Household Equipment and Appropriate Technology	4	3	0	1	Passed class XII with science, Arts and commerce	Nil

Bachelor of Home Science (Honours with Research)		
Programme/Class: Bachelor of Home Science (Honours with Research)	**Year: Fourth**	**Semester: Seventh** **Paper: GE-10**
Subject: Home Science		
Course- GE-10	**Course Title: Household Equipment and Appropriate Technology**	

Course outcome:
The student at the completion of the course will be able to:

1. To understand the students and innovative technology in household equipment.
2. To understand the students about market of the household equipment.
3. To enable the students about conservation of time and energy saving.
4. To study about the drudgery reduction of home maker through appropriate technologies.

Credits: 4	**DISCIPLINE SPECIFIC COURSE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
Unit I	• Work-worker and workplace relationship • Work simplification techniques • Mundel's classes of change • Factors affecting work capacity	10
Unit II	• Energy cost work : meaning, methods of to calculate energy cost of work • Technology used for calculating Energy cost work • Fatigues, types of fatigues, methods of relieving from fatigues. • Measurement of the physiological cost of work.	10
Unit III	• Household drudgery- definition, drudgery prone areas in home, drudgery reduction technologies used in household	10
Unit IV	• Household equipment- introduction, definition, classification and base materials used in construction, selection, use, care and maintenance	15
	Practical	
I	• Market survey for household appliances	10
II	• Use of different kitchen appliances (available in laboratory).	10
III	• Identification of different finishes.	5
IV	• Scrapbook (collection of different) innovative equipments.	5

Recommended Readings

- Grandjean, E. (1981). Ergonomics of the Home Taylor and Francis Ltd. New York.
- Grandjean, E. and Kroemer, K.H.E. (1999). Fitting the Task to the Human a Text Book of Occupational Ergonomics. Taylor and Francis, New York.
- Peet, I.J and Arnold, M.G. (1993). Household Equipment. John Wiley, New York.
- Science and Technology for Women. (1993). Complied by Center of Science for Village. Waradha. Department of Science and Technology, New Delhi.
- Singh, S. (2007). Ergonomics Integration for Health and Productivity. Himanshu Publication, Udaipur, New Delhi.
- Gandotra, G., Oberoi, K. and Sharma, P. (2008). Appropriate technology for rural women.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-IX
Master in Home Science (Food and Nutrition)
Discipline Specific Course (DSC-21)- Basics of Nutrition and Hygiene
No. of Hours-30+60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical / Practice		
Discipline Specific Course (DSC-21)- Basics of Nutrition and Hygiene	4	2	0	2	Passed B.Sc. with Home Science or Science	Nil

Master in Home Science (Food and Nutrition)		
Programme/Class: Master in Home Science (Food and Nutrition)	**Year: Fifth**	**Semester: Ninth Paper: DSC-21**
Subject: Home Science		
Course- DSC- 21	**Discipline Specific Course (DSC-21)- Basics of Nutrition and Hygiene**	

Course outcome:
The student at the completion of the course will be able to:
- Students will get familiar with different methods of cooking.
- Acquaint students with practical knowledge of nutrient-rich foods.

Credits: 4	**DISCIPLINE SPECIFIC COURSE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
Unit I	Introduction to food and its functions, food groups, meaning of nutrition, concept of health.	5
Unit II	Composition, classification, functions, sources, digestion, absorption and utilization of macronutrients (Carbohydrates, Fat, Protein) and Energy.	5
Unit III	Composition, functions, sources, digestion, absorption and utilization of micronutrients (Vitamins and Minerals), sources, functions, requirement and deficiency diseases.	5
Unit IV	Food Spoilage, factors contributing to food spoilage, personal hygiene, evaluating food for freshness, evaluating canned food for spoilage, food hygiene during cooking and serving, public health department and food sanitation. Food sanitation at household level.	5
Unit V	Agents of contamination, sources and reservoirs of infection, modes of transmission of infection, mode of entry into a susceptible host, prevention and control of infection and disease.	10
	PRACTICAL	
I	Basic Cooking skills -Weighing of raw materials	10

II	Preparation of various dishes using different methods of cooking - Steaming - Roasting - Baking	15
III	Different styles of cutting fruits and vegetables - Salad Decoration/Dressing - Table setting, Napkin Folding	15
IV	Preparation of nutrient rich dishes - Protein rich dish - Carbohydrate rich dish - Fat rich dish - Vitamins rich dish - Minerals rich dish - Fiber rich dish	20

Suggested Reading:

- Dr. Brinda Singh, Manav Sharirevam Kriya Vigyan Panchcheel Prakashan, Jaipur, 2015, 15th Ed.
- Chatterjee, C.C, "Human Physiology" Medical Allied Agency: Vol I, II.
- Sumati R Mudami, "Fundamentals of food Nutrition and Diet Therapy",New Age International Pvt. Ltd, New Delhi, 6th Ed. (2018)
- Punita Sethi and Poonam Lakda, "Aahar Vigyan, Suraksha evamPoshan"; Elite Publishing House, New Delhi; 2015
- Dr. Anita Singh, Aahar Evam Poshan Vigyan, star Publication, Agra
- Dr. Devina Sahai, Aahar Vigyan, New Age International Publishers, New Delhi

Suggestive digital platforms web links-ePG-Pathshala, IGNOU & UPRTOU online study material
Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study- online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-IX
Master in Home Science (Food and Nutrition)
Discipline Specific Elective (DSE-11)- Food Microbiology

No. of Hours-45+30

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/Practice		
Discipline Specific Course (DSE-11)- Food Microbiology	4	3	0	1	Passed B.Sc. with Home Science or Science	Nil

Master in Home Science (Food and Nutrition)		
Programme/Class: Master in Home Science (Food and Nutrition)	**Year: Fifth**	**Semester: Ninth** **Paper: DSE-11**
Subject: Home Science		
Course- DSE -11	**Course Title: Discipline Specific Elective (DSE-11)- Food Microbiology**	

Course outcome:

The Student at the completion of the course will be able to:

- To know about different microorganism occurring in food.
- To be able to know food spoilage and factors responsible for food spoilage.

Credits: 4	**DISCIPLINE SPECIFIC ELECTIVE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
I	Microbiology of foods- • Basic concepts • Role of micro-organisms in fermented foods.	5
II	Micro-organisms in foods: • Bacteria, • Fungi, • Yeasts, • Moulds, • Viruses, • Parasites.	10
III	Occurrence and growth of micro-organisms in food: • Microbiology of air, water and soil, • Sources of food contamination,	5
IV	Factors affecting the growth of micro-organisms- • Nutrition, oxygen, temperature, moisture, osmotic pressure, pH, light, control and destruction of micro-organisms.	5

V	Food spoilage- • Factors responsible for food spoilage • Chemical changes due to spoilage • Spoilage of meat, poultry and fish; fruits and vegetables; cereals and • cereal products; milk and milk products; soft drinks; fruit juices, fruit preserves.	10
VI	Food hazards of microbial origin: • Food borne diseases; • Food borne intoxications- staphylococcal poisoning, bacillus cereus poisoning, botulism; • Food borne infections- Salmonellosis, Shigellosis, Vibrio Parahaemolyticus gastroenteritis, E. coli Diarrhoea, Hepatitis A, Shellfish poisoning; • Food borne toxic infections- clostridium perfringens gastroenteritis, E.coli gastroenteritis, cholera, listeriosis, Yersinia Enterocolitica gastroenteritis, Campylobacter Jejuni Diarrhoea; mycotoxins	10
	Practical	
I	Familarization with instruments used in microbiological lab, their principles and working: Microscope, Autoclave, Laminar Flow Bench, Hot air oven, Incubator, Centrifuge, pH meter, spectrophotometer etc.	5
II	Glass ware washing and sterilization for microbiological work	5
III	Microbial staining techniques a. Simple direct staining b. Gram staining techniques	10
IV	Preparation of culture media	5
V	Isolation of bacteria from food sample	5

Suggested Readings:

- Frazier, W.C. 1988. Food Microbiology. Tata McGraw Hill

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Semester-IX
Master in Home Science (Food and Nutrition)
General Elective (GE-11)- Nutrition Through Life Cycle

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/Practice		
Discipline General Elective (GE-11)- Nutrition Through Life Cycle	4	4	0	0	Passed B.Sc. with Home Science or Science	Nil

Master in Home Science (Food and Nutrition)		
Programme/Class: Master in Home Science (Food and Nutrition)	**Year: Fifth**	**Semester: Ninth** **Paper: GE-11**
Subject: Home Science		
Course- GE-11	**Course Title: General Elective (GE-11)- Nutrition Through Life Cycle**	

Course outcome:
The Student at the completion of the course will be able to:
- Know the role of diet in preventing the degenerative diseases
- Know major milestones in different age groups.

Credits: 4	**GENERAL ELECTIVE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
Unit I	Nutritional status: malnutrition, under nutrition, over nutrition, factors associated with malnutrition, morbidity, and mortality. Global and national data on malnutrition, recommended dietary intake.	10
Unit II	Nutritional in Pregnancy and Lactation: Stages of gestation, maternal weight gain, complications of pregnancy, nutritional problems and dietary management, the importance of nutrition during and before pregnancy, teenage pregnancy - nutritional problems, and dietary management. Nutrition in Lactation: Physiology of lactation, hormonal control, and reflex action, the efficiency of milk production, problems of breastfeeding, the nutritional composition of breast milk, nutritional concerns during lactation, special foods during lactation, dietary modification.	15

Unit III	Nutrition in Infancy, Pre-School and School Children Infant feeding: nutritional needs, premature infant and their feeding, weaning foods. Feeding problems, infant formulae lactose intolerance. Nutrition in Pre-school - Physiological development related to nutrition, feeding problems, behavioral characteristics, nutritional requirement. Nutrition in school children - feeding school children and factors to be considered. Nutritional requirements, feeding problems.	15
Unit IV	Nutrition in Adolescents and Adults – Physical changes, Nutritional requirements dietary practices, Nutritional problems.	10
Unit V	Geriatric Nutrition- Nutritional requirements of the elderly & dietary management to meet nutritional needs.	10

Suggested Reading

- Srilakshmi B, Dietetics, sixth edition, New age Publishing Press, New Delhi,2011 2.
- Gopalan C., Ramanathan, P.V. Balasubramanian, S.C., Nutritive value of Indian foods, NIN, Hyderabad, 2001.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-X
Master in Home Science (Food and Nutrition)
Discipline Specific Course (DSC-22)- Clinical Nutrition and Dietetics

No. of Hours-120

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/Practice		
Discipline Specific Elective (DSE- 22)- Clinical Nutrition and Dietetics	4	0	0	4	Passed B.Sc. with Home Science or Science	Nil

Master in Home Science (Food and Nutrition)		
Programme/Class: Master in Home Science (Food and Nutrition)	**Year: Fifth**	**Semester: Tenth Paper- DSC-22**
Course : DSC-22	**Course Title: Discipline Specific Course (DSC-22)- Clinical Nutrition and Dietetics**	

Course outcomes:
The student at the completion of the course will be able to:

- Understand the basics of normal diet, therapeutic diet related with specific disease condition
- Students will be able to know different feeding methods used in hospitals.

Credits: 4	**DISCIPLINE SPECIFIC COURSE**
Max. Marks: As per Univ. rules	**Min. Passing marks: As per Univ. rules**

Practical	Topics	No. of Lectures
I	Planning and preparation of Normal diet for children.	10
II	Planning and preparation of diet for a high BP patient.	10
III	Planning and preparation of diet for a heart disease patient.	10
IV	Planning and preparation of diet for a patient suffering from peptic ulcer.	10
V	Planning and preparation of diet for a patient suffering from liver disease.	10
VI	Planning and preparation of diet for a patient suffering from gastro intestinal diseases.	10
VII	Planning and preparation of diet for a patient suffering from coronary heart diseases.	20
VIII	Planning and preparation of diet for a patient suffering from – • Stress • Trauma • Surgery • Burns	20
IX	Planning and preparation of diet for an eating disorder • Anorexia nervosa, • Bulimia nervosa, • Binge eating	20

Suggested Readings:

- Anderson L., Dibble M.V., Turkki P.R., Mitchel H.S. & Rynbergen H.1982. Nutrition in Health and Disease. JB Lippincott Co2
- RDA, 2020.Recommended Dietary Allowance for Indians.ICMR.
- Khanna K., Gupta S., Seth R.& Puri S.1997.TextBook of Nutrition and Dietetics.PhoenixPubl.
- Srilakshmi B.2002.Nutrition Science.New Age International.
- Swaminathan, M.1988. Principles of Nutrition and Dietetics.BAPPCO.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-X
Master in Home Science (Food and Nutrition)
Discipline Specific Elective (DSE-12)- Food Quality Analysis
No. of Hours-30+60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/Practice		
Discipline Specific Elective (DSE-12)- Food Quality Analysis	4	2	0	2	Passed B.Sc. with Home Science or Science	Nil

Master in Home Science (Food and Nutrition)		
Programme/Class: Master in Home Science (Food and Nutrition)	**Year: Fifth**	**Semester: Tenth** **Paper: DSE-12**
Subject: Home Science		
Course- DSE-12	**Course Title: Discipline Specific Elective (DSE-12)- Food Quality Analysis**	

Course outcome:
The Student at the completion of the course will be able to:
- To understand physical, rheological properties of foods
- To get acquainted with sensory analysis of food.
- To get knowledge about food intoxicants.

Credits: 4	**DISCIPLINE SPECIFIC ELECTIVE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
Unit I	Chemical changes in foods during processing.	5
Unit II	Physical and rheological properties of foods.	5
Unit III	Changes in flavor components and natural food pigments during processing and storage.	5
Unit IV	Bioavailability of micronutrients: vitamins and minerals.	5
Unit V	Sensoryevaluation methods for foods.	5
Unit VI	Food intoxicants: Enzyme inhibitors; lathyrogens; goitrogens; cyanogenic glycosides; phenolics; oxalates; phytates; alkaloids; carcinogens; polycyclic aromatic hydrocarbons; allergens.	5

Practical		
I	Physical tests of grain quality	15
II	Sensory evaluation of foods: Selection of panel, training of panel members, objective test of sensory evaluation and consumer acceptability	20
III	Adulteration tests: a. Milk b. Spices c. Oil d. Tea leaves **e.** Honey	20
IV	Visit to a quality analysis unit of food processing industry	5

Suggested Readings:

1. AOAC. 1975. Official Methods of Analysis of the Association of Official Analytical Chemists. 12th edition, Washington. D. C.
2. Raghuramulu, N.; Nair, K.M. and Kalyanasundaram, S. 2003. A Manual of Laboratroy Techniques. National Institute of Nutrition. ICMR. Hyderabad.
3. Ranganna , S. 1986. Handbook of Analysis and Quality Control for Fruit and Vegetable Product. Tata McGraw Hill Pub. Co. Ltd., New Delhi

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study-online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-X
Master in Home Science (Food and Nutrition)
General Elective (GE-12)- Food Product Development and Marketing
No. of Hours-30+60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
General Elective (GE-12)- Food Product Development and Marketing	4	2	0	2	Passed B.Sc. with Home Science or Science	Nil

Master in Home Science (Food and Nutrition)		
Programme/Class: Master in Home Science (Food and Nutrition)	**Year: Fifth**	**Semester: Tenth Paper: GE-12**
Subject: Home Science		
Course- GE-12	**Course Title: General Elective (GE-12)- Food Product Development and Marketing**	

Course outcome:
The student at the completion of the course will be able to:
- To understand various aspects of the development of a food product.
- Standardize and generate the process flow chart for a new food product

Credits: 4	**GENERAL ELECTIVE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
I	Product development – • Need for product development • factors influencing product development, • Sensoryevaluation during product life cycle. • Trends in Social Change as a Base for New Product Development. • Food product development in India, • Advantages of new food product development and its new trends.	10
III	Food fortification- • Objectives • Principles • Technologies.	5
IV	Food packaging • Principles in the development of safe and protecting packing • Packaging materials (metals, glass, paper and plastics)	5
V	Sweetening agents- • Natural sweeteners • Artificial sweeteners • Composition and use of sweeteners	5

VI	Food additives- • Functions • Uses • Chemical, technological and toxicological aspects of food additives	5
	PRACTICAL	
I	A. Product Development and Standardization • Cereal and Pulse Based Foods • Fruit Juices, Squash and Jams • Pickles, Ketchup, Sauce • Weaning Foods • Convenience foods, RTS, and RTE foods • Healthy Bakery foods	30
II	Marketing of a Food Product • Selection of a Product, Preparation, Standardization, and Cooking • Selection of Packaging Material, Labeling, Cost Calculation, and Marketing • Presentation of Report	30

Suggested Readings:

- Pomeranz, Yeshajahu, ed. Food analysis: theory and practice. Springer Science & Business Media,2013.
- Nollet, Leo ML, and Fidel Toldrá, eds. Food analysis by HPLC. CRC press, 2012.
- Hart, Frank L., and Harry J. Fisher. Modern food analysis. Springer Science & Business Media, 2012.
- Fuller, Gordon W. New food product development: from concept to marketplace. CRC Press, 2016.
- Smith, Jim, and Edward Charter, eds. "Functional food product development."2011.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-IX
Master in Home Science (Textile and Apparel Designing)
Discipline Specific Course (DSC-21)- Advanced Textile Designing and Woven Fabric Analysis

No. of Hours-120

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Discipline Specific Course (DSC)- Advanced Textile Designing and Woven Fabric Analysis	4	0	0	4	Passed graduation withscience, Arts and commerce	Nil

Master in Home Science (Textile and Apparel Designing)		
Programme/Class: Master in Home Science (Textile and Apparel Designing)	**Year: Fifth**	**Semester: Ninth Paper: DSC-21**
Subject: Home Science		
Course- DSC-21	**Course Title: Discipline Specific Course (DSC-21) Advanced Textile Designing and Woven Fabric Analysis**	

Course outcome:
The Student at the completion of the course will be able to:
- To develop in depth knowledge about use of cad in textiles.
- To learn about the complex weaves and dobby, jacquard mechanism and carpet making process.

Credits: 4	**DISCIPLINE SPECIFIC COURSE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
Unit I	History and development of spinning, weaving and handlooms. Spinning of yarns, classification of woven fabrics. Operation in woven cloth production	10
Unit III	Study of design, draft and peg plan for different weaves; weave calculations; advantages and disadvantages. Construction of elementary weaves: plain, twill,satin and sateen weaves. Colour and weave effects.	10
Unit IV	Complex and fancy structures- leno, crepe, double and back cloth, honey comb, mock leno, diaper, diamond, warp and weft figuring, and pile weave	10
Unit IV	CAD commands; creating stripes and checks using various commands.	10
Unit V	Developing motifs by scanning and drawing using the CAD commands	10

Unit VI	Simulation and graph/ point paper; Developing a computer aided portfolio of different motifs, Creation of special effects layers and layer settings	10
Unit IV	Creation of grid and editing the object.	20
Unit IV	Development of woven samples using basic and other fancy weaves.	20
Unit IV	Product development (apparel and household articles) by using CAD software.	20

Suggested Readings:

1. Grosicik. Z. J. *Watson's Textile Design & Colour*. Butterworths.
2. Grosick Z. J. *Watson's Advanced Textile Design.* Universal Publication.
3. Grosick Z. J. *Watson's Advanced Textile Design - Compound Woven Structures.*
4. Marjory Joseph. Illustrated Guide for Textiles. Rine Hort & Winsoten, New York.
5. Radha Krema. Manual of Non Wovens. Textile Trade Press.
6. Sen Gupta. Weaving Calculations. DB Taraporawala Sons.
7. Talukdar M. K. Weaving Machines, Mechanism and Management.
8. Davis L. Marisn. *Visual Design in Dress*. Prentice Hall.end-semester written examination will test all the areas targeted in the course.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study- online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-IX
Master in Home Science (Textile and Apparel Designing)
Discipline Specific Elective (DSE-11)- Eco textile and Environment

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Discipline Specific Course (DSE)- Eco textile and Environment	4	4	0	0	Passed graduation with Science, Arts and Commerce	Nil

Master in Home Science (Textile and Apparel Designing)		
Programme/Class: Master in Home Science (Textile and Apparel Designing)	**Year: Fifth**	**Semester: Ninth Paper: DSE-11**
Subject: Home Science		
Course- DSE-11	**Course Title: Discipline Specific Elective (DSE- 11)- EcoTextile and Environment**	

Course outcome:
The Student at the completion of the course will be able to:
- To impart in depth knowledge of different banned and eco-friendly dyes.
- To impart knowledge about health hazards due to textile industries

Credits: 4	**DISCIPLINE SPECIFIC ELECTIVE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
Unit I	✓ Industrialization, eco-balance and textile ecology. ✓ Air, noise and water pollution by mechanical and chemical textile processing and their effect.	15
Unit II	✓ German Ban ✓ Indian Ban, ✓ Banned dyes ✓ Eco-parameters ✓ Eco-friendly Textiles	10
Unit III	Oeko- Tex Standard 100.	10
Unit IV	Red listed chemicals as per Eco- specification, Testing of textiles and auxiliaries, effluents discharge.	10
Unit V	Health hazards of textile workers working in various textile units and their remedial measures.	15
	Total	**60**

Suggested Readings:

1. Banerjee, S. 1995. Principle and Practices of management. New Delhi and Oxford, IBH publishing co. Pvt. Ltd
2. .Davis L. Marisn. *Visual Design in Dress*. Prentice Hall.end-semester written examination will test all the areas targeted in the course.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study- online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-IX
Master in Home Science (Textile and Apparel Designing)
General Elective (GE-11)- Fashion Designing and Accessories

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course if any)
		Lecture	Tutorial	Practical/ Practice		
GENERAL Elective (GE-11)- Fashion Designing and Accessories	4	4	0	0	Passed graduation with Science, Arts and Commerce	Nil

Master in Home Science (Textile and Apparel Designing)		
Programme/Class: Master in Home Science (Textile and Apparel Designing)	**Year: Fifth**	**Semester: Ninth Paper: GE-11**
Subject: Home Science		
Course- GE-11	**Course Title: Fashion Designing and Accessories**	

Course outcome:
The Student at the completion of the course will be able to:

- To understand about the fashion terminologies, evolution, psychology, fashion forecasting, fashion cycle and factors affecting fashion.
- This course also helps to give the knowledge about the national and international
- fashion designs, fashion careers and opportunities of jobs in this area. It is also provides the knowledge about the fashion accessories.

Credits: 4	**GENERAL ELECTIVE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
Unit I	Fashion terminology	2
Unit II	Evolution of fashion and fashion theories	8
Unit III	Current fashion trends, Factor determining fashion trends	6
Unit IV	Fashion forecasting and creation, factors affecting fashion forecasting	8
Unit V	Fashion life cycle: trickle up, trickle down and trickle across theory	4
Unit VII	Techniques and tools used for fashion sketching	4
Unit VII	National and international fashion designers	7
Unit VIII	Fashion careers and job opportunities	6
Unit IX	Fashion Accessories: Introduction to Fashion accessories, its types and use	5
Unit X	Visit to Fashion Designing Industry	10
	Total	**60**

Suggested Readings:

- Brockman, H.L., *The Theory of Fashion Design*. Sydney, Johan, Wiley and Sons.
- Ireland, P. J., Fashion *Design Drawing*. London. B.T. batsford Ltd.
- Ireland, P. J. *Basic Fashion Design*. London. B.T. batsford Ltd.
- Ireland, P. J., *Fashion Drawing for Advertising*. London, B. T. batsford Ltd.
- Jabenis, E., *The Fashion Director*. Sydney, Johan, Wiley and Sons.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-X
Master in Home Science (Textile and Apparel Designing)

Discipline Specific Course (DSC-22)- Historic Textiles and Costumes

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Discipline Specific Course (DSC)- Historic Textiles and Costumes	4	4	0	0	Passed graduation with Science, Arts and Commerce	Nil

Master in Home Science (Textile and Apparel Designing)		
Programme/Class: Master in Home Science (Textile and Apparel Designing)	**Year: Fifth**	**Semester: Tenth Paper: DSC-22**
Subject: Home Science		
Course- DSC-22	**Course Title: Discipline Specific Course (DSC-22)- Historic Textiles and Costumes**	

Course outcome:

The Student at the completion of the course will be able to:

- Understand about historic costume and textiles of various countries

Credits: 4	**Discipline Specific Course**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
Unit I	Introduction: Historic background and detailed study of ancient and medieval Indian costumes	10
Unit II	**Study of traditional dyed, printed, embroidered and non-woven textiles of :** • America, • China, • Egypt • France, • Greece, • Japan and • Rome.	10
Unit III	**History and evolution of traditional costumes of** • America, • China, • Egypt • France, • Greece, • Japan and • Rome.	10

Unit IV	**Fiber content, fabrics, motifs, colours and designs used in:** • America, • China, • Egypt • France, • Greece, • Japan and • Rome.	10
Unit V	Historical development of tradition textiles from different state of India	5
Unit VII	Introduction: Historic background and detailed study of ancient and medieval Indian costumes	5
Unit VII	Study of traditional dyed, printed, embroidered and non-woven textiles of : • America, • China, • Egypt • France, • Greece, • Japan and • Rome.	10

Suggested Readings:

- Blanche Payne., *History of Costumes from the Ancient Egyptian to the TwentiethCentury.* Harper & Row.
- Jack Cassin Scott., *The Illustrated Encyclopedia of Costume and Fashion.* StudioVista
- Pandit, S., *Indian Embroidery – It's variegated charms. Latest edition.*Vinu BaiPatel, Baroda.
- Dhamija, J.S., *Handicrafts of India*. National book trust, India.
- Dhaniya, J and Jain, J., *Handwoven Fabrics of India*. Mapin publishing Ltd.,Ahmedabad.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus• Test with multiple choice questions/ short and long answer questions• Attendance

Semester-X
Master in Home Science (Textile and Apparel Designing)
Discipline Specific Elective (DSE-12)- Textile Quality Analysis

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Discipline Specific Elective (DSE-12)- Textile Quality Analysis	4	4	0	0	Passed Graduation with Science, Arts and Commerce	Nil

Master in Home Science (Textile and Apparel Designing)		
Programme/Class: Master in Home Science (Textile and Apparel Designing)	**Year: Fifth**	**Semester: Tenth Paper: DSE-12**
Subject: Home Science		
Course- DSE-12	**Course Title: Discipline Specific Elective (DSE-12)- Textile Quality Analysis**	

Course outcome:
The Student at the completion of the course will be able to:
- To develop knowledge about testing methods of different fibers, yarns and fabrics

Credits: 4	**DISCIPLINE SPECIFIC ELECTIVE**
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**

Unit	Topics	No. of Hours
Unit I	Importance of textile testing, standardization and quality control, functions of BIS and other standards.	10
Unit II	Fiber length, fineness, evenness, fiber strength, elongation, diameter, air permeability	10
Unit III	Yarn strength, elongation, count, denier, crimp, twist, stress-strain curve, elastic recovery	10
Unit IV	Fabric strength, breaking, bursting, tear and ballistic strength, thermal conductivity, air permeability, water repellency, thickness, shrinkage, pilling, abrasion resistance,colour fastness to washing, light, rubbing or crocking and Perspiration	10
Unit V	Apparel Testing- seam strength, button and print etc.	5
Unit VI	National and International organization and objectives of various organizations related to textile testing	5
Unit VII	Visit to Textile Industry	10
	Total	**60**

Suggested Readings:

1. Kotler, P., Marketing *Management*. McGraw Publishing.
2. Wells Burnette Morianty. *Advertising- Principles and Practices*. Prentice Hall.
3. Frings, *Fashion from Concept to Consumer*. Prentice Hall.
4. Sen Gupta. *Brand Positioning*. Tata McGraw Hill Publishing.

Suggested equivalent online courses: On Swayam, Vidyamitra.inflibnet.ac.in, literature-study- online.com, epg-pathshala, egyankosh.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-X

Master in Home Science (Textile and Apparel Designing)

General Elective (GE-12)- Garment Manufacturing- Draping

No. of Hours-120

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
General Elective (GE-12)- Garment Manufacturing- Draping	4	0	0	4	Passed Graduation with Science, Arts and Commerce	Nil

Master in Home Science (Textile and Apparel Designing)		
Programme/Class: Master in Home Science (Textile and Apparel Designing)	**Year: Fifth**	**Semester: Tenth** **Paper: GE-12**
Subject: Home Science		
Course- GE-12	**Course Title: General Elective (GE-12)- Garment Manufacturing- Draping**	
Course outcome: The Student at the completion of the course will be able to: ➢ To impart technical knowledge and skills in garment designing and manufacturing by draping		
Credits: 4	**GENERAL ELECTIVE**	
Max. Marks: As per Univ. Rule	**Min. Passing Marks: As per Univ. rules**	

Unit	Topics	No. of Hours
Unit I	Garment designing through draping: definition and related terminology	20
Unit II	Tools and supplies for draping	20
Unit III	Draping principles and techniques	20
Unit III	Designing and construction of following garments using different construction features: a) Children garment b) Male garment c) Female garment	20
Unit IV	Pattern development	20
Unit V	Visit to fashion institute; project preparation and report writing	20

Suggested Readings:

- Bane, A. 1972. Flat Pattern Design. New York. McGraw Hill Book
- Waren, G.S. 1969.Principles for creative clothing.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

VALUE ADDITION COURSE (VAC) PREPARED FOR THE POOL OF COURSES

I	Value Addition of Apparels	Practical	2
II	Value Added Products from fruits & Vegetables	Practical	2
III	Ayurveda and Nutrition	Theory+ Practical	1+1
IV	Fashion Illustration	Practical	2

Undergraduate Certificate in Home Science
VALUE ADDITION COURSE (VAC-1) Value Addition of Apparels

No. of Hours-60

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
VAC - 1 Value Addition of Apparels	2	0	0	2	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE CERTIFICATE I HOME SCIENCE		
Programme/ Class: Certificate in Home Science	**Year: First**	**Semester: First**
Subject : Home science		
Course Code: VAC-1	**Course Title: Value Addition of Apparels**	

Course outcomes:
The Student at the completion of the course will be able to:

- To introduce and train students on value addition aspects.
- To enable students to learn methods of value addition through various techniques.

Credits: 2	**Value Addition Course**
Max. Marks: As per Univ. rules	**Min. Passing marks: As per Univ. rules**
Total No. of lectures-Tutorials-Practical (in hours per week): L-T-P: 0-0-2	

Unit	Topics	No. of Hours
Unit I	Value addition: Introduction, Techniques of value addition, Importance of Value Addition	6
Unit II	Preparation of samples using different techniques a. Screen printing, b. Block printing, c. Stencil printing, d. Spray printing e. Batik	20
Unit III	Preparation of samples using different tie –dye techniques	10
Unit IV	Preparation of samples using patch work	4
Unit V	Preparation of one household and one apparel articles by using value addition techniques	20

References:

- V. A. Sehnai, Chemistry of Dyes and principle of Dyeing. Sevak Prakasahan, Mumbai
- Hall AJ. 1955. *Handbook of Textile Dyeing & Printing.* The National Trade Press.
- Shenai VA. 1994. *Technology of Dyeing.* SevakPubl.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus• Test with multiple choice questions/ short and long answer questions• Attendance

Undergraduate Certificate in Home Science

VALUE ADDITION COURSE (VAC-2) - Value added products from fruits and vegetables

No. of Hours - 60

CREDIT DISTRIBUTION ELIGIBILITY AND PRE REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
VAC-2 Value added products from fruits and vegetables	2	0	0	2	Passed class XII with Science, Arts and Commerce	Nil

UNDRGRADUATE CERTIFICATE IN HOME SCIENCE		
Programme/Class: Value added products from fruits and Vegetables	**Year: First**	**Semester: Second Paper- VAC-2**
Subject : Home Science		
Course VAC-2	**Course Title: Value added products from fruits and vegetables**	

Course outcomes: After studying this course, the students will be able to:

- Explain various methods of preservation for fresh fruits and vegetables.
- Get to know the value-added products made from fruits and vegetables.

Credits: 2	Value Addition Course
Max. Marks: As per Univ. rules	**Min. Passing Marks**: As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Processing and preservation by application of heat(Blanching, pasteurization and sterilization)	10
Unit II	Chemical preservatives, drying, addition of sugar, Refrigeration and freezing	10
Unit III	Fruit juices: extraction, clarification, preservation and packaging.	10
Unit IV	Preparation of fruit juice and beverages *viz.* Juices, nectars, squashes, crushes, cordials, syrups.	10
Unit V	Methods of preparation, flow charts, packaging, storage and spoilage of pickles, tomato ketchup, spoilage and packaging	10
Unit VI	Visit to Food Processing Unit	10

Recommended Readings:

- Giridharilal, G. S. Siddappa and G.L.Tandon (2007) Preservation of Fruits and Vegetables, Indian Council of Agri. Res., New Delhi.
- Srivastava, R.P., and Sanjeev Kumar (2019) Fruit and Vegetable Preservation : Principles and Practices, CBS Publishers & Distributors Pvt., Ltd., New Delhi
- Thompson, A.K. (1995) Post Harvest Technology of Fruits and Vegetables. Blackwell Sci.,U.K.
- Verma, L.R. and V.K. Joshi (2000) Post Harvest Technology of Fruits and Vegetables. Indus Publ., New Delhi

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Undergraduate Diploma in Home Science
VALUE ADDITION COURSE (VAC-3) - Ayurveda and Nutrition

No. of Hours - 15+30

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
VAC-3 Ayurveda and Nutrition	2	1	0	1	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE DIPLOMA IN HOME SCIENCE		
Programme/Class: Diploma in Home Science	**Year: Second**	**Semester: Third Course: VAC-3**
Subject: Home science		
Course: VAC-3	**Course Title: Ayurveda and Nutrition**	
Course outcomes: After studying this course, the students will be able to: • To Understand Indian Knowledge Systems (IKS) and key Vedic principles with respect to Food and Nutrition		
Credits: 2	**VALUE ADDITION COURSE**	
Max. Marks: As per Univ. Rules	**Mini. Passing Marks: As per Univ. Rules**	

Unit	Topics	No. of Hours
Unit I	**Introduction to Ayurvedic Nutrition**	
	● Ayurveda and Indian food cultures ● Nutrition and lifestyle transition over the years ● Regional Food Traditions of India	5
Unit II	**Basic principles of Food and Nutrition and Ayurveda**	
	● Understanding rich sources of nutrients ● Concept of *Doshas* & assessment ● Ayurvedic Principles of food habits and factors determining quality of food *(Ahara vidhi visheshaayatana*) ● FSSAI regulations on Ayurvedic Aahar	5
Unit III	**Ayurvedic Diets** ● Principles of Diet: *Aharavidhi vidhan, Sattvic, Rajasi, Tamasic* foods ● Incompatible food (*Viruddha Ahara*), *Pathya; Apathya; Viprita Ahaar* ● Lifestyle Management with *Dincharya* and *Ritucharya* ● Application of Ayurvedic diets to stress linked food behaviour	5
Practical		
Unit I	Visit your local market and classify the available food items according to *Sattvic, Rajasi, Tamasic* foods	10
Unit II	To study the food consumption patterns and intake of incompatible food: *Viruddha Ahara, Pathya; Apathya; Viprita Ahaar*	10
Unit III	The students may share their experiences in the form of audio-visual presentations of 15-30 minutes.	5
Unit IV	Visit to Ayurveda Hospitals	5

Essential Readings

- Rastogi S (2014) Ayurvedic Science of Food and Nutrition. ASIN: BOOHWMV094, Springer: ISBN-13:978-1461496274
- Rastogi S (2010) Building bridges between Ayurveda and modern science. Int J Ayurveda Res. 1(1):41- 46.
- FSSAI regulations on Ayurveda Aahar Regulations 2022. Gazette of India CG-DL-E-07052022- 235642. New Delhi, Friday, May 6, 2022/ Vaisakha 16, 1944.
- Frawley D (2012) Ayurvedic healing: A comprehensive guide. Lotus Press, India.
- https://iksindia.org/: Indian Knowledge Systems Suggested Readings
- Charaka Samhita, Charaka (1998) In: Tripathi BN (ed) Sutra Stahan Maharashitiya Adhyay. Chaukhamba Orientelia, Varanasi.

Kapoor Kapil & Singh AK Indian Knowledge Systems Volume – 1. Indian Institute of Advanced Study Shimla. Published by DK Printworld (P) Ltd, N.Delhi. https://www.lkouniv.ac.in

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Undergraduate Diploma in Home Science
VALUE ADDITION COURSE (VAC-4) -Fashion Illustration

No. of Hours - 60

CREDIT DISTRIBUTION ELIGIBILITY AND PRE REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
VAC- 4 Fashion Illustration	2	0	0	2	Passed class XII with Science, Arts and Commerce	Nil

Programme/Class: Diploma in Home Science	Year: Second	Semester: Fourth Paper- VAC-4
Subject : Home science		
Course VAC-4	**Course Title: Fashion Illustration**	

Course outcomes: After studying this course, the students will be able to:

- To develop knowledge and skill about basic figure drawing and illustration of human features.
- To enable students to sketch their imagination into reality by using stylish figure and fashion figures.
- To apply various types of textures and mediums in the figures.

Credits:	Value Addition Course
Max. Marks: As per Univ. rules	**Min. Passing Marks**: As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Fashion Illustration: Introduction, Tools for Sketching and Illustration.	10
Unit II	Designing of Clothing: Design, Classification of Design, Element of design, Principle of Design.	10
Unit III	Create and practice the type of lines and apply different lines in dress designing.	10
Unit IV	Create and apply the colors Schemes in Dress Designing by using Acrylic or Water colors.	10
Unit V	Create and apply the effect of line/variety of lines in Dress Designing by using pencil and brushes.	10
Unit VI	Draw the different Sketch of fashion detail by using pencil and brushes- ● Different types of necklines ● Different types of sleeves ● Different types of collars ● Different types of skirts	10

Recommended Readings:

- Figure Drawing for Fashion, Isao Yajima, Graphic-Sha; First Edition (1987)
- Fashion Art for the Fashion Industry, Rita Gersten, Fair child Books(1989).
- Fashion Drawing–The Basic Principles, Anne Allen and Julian Seaman, Anova Books.
- Fashion illustration and Presentation, Manmeet Sodhia, Kalyani Publishers.
- Fashion Source Book, Kathryn Mckelvey, Blackwell Science
- Encyclopedia of fashion details, Patrick John Ireland, Batsford.
- Fashion Illustration, Colin Barnes, Little Brown and Co.(UK)(April1995).
- Snap Fashion Sketch Book, Bill Glazer, Prentice Hall;2 edition(2007).

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

SKILL ENHANCEMENT COURSE (SEC) PREPARED FOR THE POOL OF COURSES

Course Code	Course Title	Theory /Practical	Credits
SEC-1	Personality Development	Theory	2
SEC-2	Fashion Apparel Designing	Theory + Practical	1+1
SEC-3	Guidance and Counseling	Theory	2
SEC-4	Public Speaking	Theory+ Practical	1+1
SEC-5	Sustainable Development	Theory	2
SEC-6	Food Authenticity and Fraud Detection	Theory+ Practical	1+1

Semester-I Undergraduate certificate in Home Science
SKILL ENHANCEMENT COURSE (SEC-1) -- Personality Development
No. of Hours: 30

DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
SEC-1 Personality Development	2	2	0	0	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE DIPLOMA IN HOME SCIENCE		
Programme/Class: Certificate in Home Science	Year: First	Semester: First Paper- SEC
Subject : Home science		
Course: SEC-1	Course Title: Personality Development	

Course outcomes:

The students at the completion of the course will be able to:

- Develop understanding of the concepts and principles of basic psychological skills
- Apply techniques and methods to enhance productivity and time management
- Develop critical thinking skill and organize human resources with improved leadership qualities

Credits:2	Value Addition Course
Max. Marks: As per Univ. rules	**Min. Passing Marks**: As per Univ. rules

Credits: 2	SKILL ENHANCEMENT COURSE	
Unit	**Topics**	**No. of Hours**
Unit I	**Interpersonal Skills:** a) Communication-Concept and characteristics b) Effective communication c) Skills for successful interview d) Leadership	5
Unit II	**Self-development skills:** a) Introduction to personality b) Types of personality c) Trace of personality d) Self-confidence	5
Unit III	**Critical Thinking and Human resources:** a) Logical fallacies b) Cognitive biases c) Mental Model d) Critical Thinking e) Evaluation and improvement	8

Unit IV	**Dealing Negativity:** a) Work-life balance b) Stress management c) Coping with failures and depression.	5
Unit V	**Goal-setting** a) Concept of goal-setting b) Importance of goal-setting c) Types of goal d) Time-management	7

Recommended Readings:

1. Bast,F.(2016). Crux of time management for students.Available at: https://www.ias.ac.in/article/fulltext/reso/021/01/0071-0088
2. Cialdini, R.B. (2001). Influence: The Psychology of Persuasion, Revised Edition. Harper Collius.
3. Green, C.J. (2015). Leadership and soft skills for students: Empowered to succeed in High School, College and beyond. Dog Ear Publishing.
4. Velayudhan, A. and Amudha devi, N. V. (2012). Personality Development for College Students. LAP Lambert Academic Publishing.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester- II
Undergraduate Certificate in Home Science
Skill Enhancement Course (SEC-2)- Fashion Apparel designing

No. of Hours-45

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
SEC-2 Fashion Apparel Designing	2	1	0	1	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE CERTIFICATE IN HOME SCIENCE		
Programme/Class: Certificate in Home Science	**Year: First**	**Semester: Second**
Subject : Home science		
Course SEC-2	**Course Title: Fashion Apparel designing**	

Course outcomes: After studying this course, the students will be able to:

- Gain the practical knowledge for construction of children's garments.
- Create skilled candidate who could work from home too or they can establish their own boutique.
- Many standard companies provides lots of opportunity in this area.

Credits: 2	**Discipline Specific Course**
Max. Marks: 100	**Min. Passing Marks:** As per Univ. rules

Total No. of Lectures-Tutorials-Practical (in hours per week): 03

Unit	Topics	No. of Lectures/ Theory
Unit I	Introduction To Indian Fashion Industry, The basics of designing, elements of art and principles of design. The process of designing apparels.	5
Unit II	Fabric types, fabric preparatory steps for stitching a garment-preshrinking, straightening, layout, pinning, marking, and cutting, handling different fabrics for clothing construction.	5
Unit III	Fundamentals of sewing, appropriate sewing techniques of different components of garments, seams and its finishing, attaching different fasteners, disposal of fullness-darts, gathers, tucks and pleats, neckline finishing.	5
	Practical	
Unit I	Introduction to anthropometric measurement Collection of different types of fabrics	10
Unit II	Preparation of samples of basic hand stitches, machine stitches, edge finishing, fullness, finishing of necklines, placket opening, fasteners, mending and patching	10
Unit II	Preparation of articles using different stitching techniques	10

Suggested Readings:

1. Carson, B. 1969. How you look dress. 4th Ed. New yark . Webster Division., McGrw-Hill book company.
2. Doongaji, S. and Deshpande, R. Basic process and clothing construction. 2nd Ed. New Delhi,New Raj book Depot.

Suggested Digital Platform: https://onlinecourses.nptel.ac.in/noc22_ag03/preview

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-III Undergraduate Diploma in Home Science
SKILL ENHANCEMENT COURSE (SEC-3) - Guidance and Counselling

No. of Hours - 30

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
SEC-3 Guidance and Counselling	2	2	0	0	Passed class XII with Science, Arts and Commerce	Nil

UNDERGRADUATE DIPLOMA IN HOME SCIENCE		
Programme/Class: Diploma in Home Science	**Year: Second**	**Semester: III Paper- SEC**
Subject : Home science		
Course SEC-3	**Course Title: Guidance and Counseling**	

Course outcomes: After studying this course, the students will be able to:

- The students will become a perfect counselor.
- The students will be able to solve day to day problems of the clients.
- The students will become able to solve social problems.

Credits: 2	Skill Enhancement Course
Max. Marks: As per Univ. rules	**Min. Passing Marks**: As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Introduction to Guidance and Counselling: Nature, Principle, Goal and Adjustment Problem	6
Unit II	Approaches to Guidance and Counselling I: Personal Centered approach, Psychodynamic approach, Behavioural approach and Cognitive behavioural approach	8
Unit III	Approaches to Guidance and Counselling II: Narrative therapy, Solution focused therapy, Music therapy and Yoga and meditation	6
Unit IV	Applications: Child Counselling, Family Counselling, Career Counselling, Crisis intervention: suicide, grief and sexual abuse	10

Recommended Readings:

1. Aguilera, D. C. (1998). Crisis intervention: Theory and methodology (8th Ed.) Philadelphia: Mosby.
2. Belkin, G. S. (1998). Introduction to Counselling (3rd Ed.) Iowa: W. C. Brown.
3. Capuzzi, D. & Gross, D. R. (2007). Counselling and Psychotherapy: Theories and interventions (4th Ed). New Delhi. Pearson.
4. Corey, G. (2009) Counselling and Psychotherapy: Theory and practise. (7th Ed.) New Delhi: Cengage Learning.
5. Friedlander, M. L. and Diamond, G. M. (2012). Couple and Family Therapy. In E.M. Altmaier and J. C.
6. Gibson, R. L., & Mitchell, M. H. (2009). Introduction to Counselling and Guidance (7th Ed) New Delhi: PHI Learning Pvt. Ltd.
7. Hansen (Eds.) The Oxford Handbook of Counselling Psychology. New York: Oxford University Press
8. Kapur, M. (2011). Counselling Children with Psychological Problems. New Delhi, Pearson.
9. Parti, V. R. (2008). Counselling Psychology. New Delhi: Authors Press.
10. Rao, S. N. Sahajpal, P. (2013). Counselling and Guidance, New Delhi: Tata Mc Graw-Hill.
11. Rao, S. N. (2004). Guidance and Counselling. New Delhi: Discovery Publishing House.
12. Sharf, R. S. (2012). Theories of Psychotherapy and Counselling: Concepts and Cases. 5th Edition. Belmont: Brooks/Cole (Cengage Learning).
13. S. Brown & R. Lent (Eds.). Handbook of Counselling Psychology (4th Ed) (pp. 267- 283). NY: Wiley.
14. Sharma, R.A. (2014). Fundamentals of Guidance and Counselling, Meerut: R. Lall Book Depot.

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-IV Undergraduate Diploma in Home Science
SKILL ENHANCEMENT COURSE (SEC-4) - Public Speaking

No. of Hours – 15+30

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
SEC-4 Public Speaking	2	1	0	1	Passed class XII with Science, Arts and Commerce	Nil

Programme/Class: Diploma of Home Science	Year: Second	Semester: Fourth Paper- SEC-4
Subject: Home science		
Course SEC-4	**Course Title: Public Speaking**	

Course outcomes: After studying this course, the students will be able to:

- Overcome the fear of public speaking and enhance their confidence to gain practical experience in effective public speaking.

Credits: 2	Skill Enhancement Course
Max. Marks: As per Univ. rules	**Min. Passing Marks**: As per Univ. rules

Unit	Theory	No. of Hours
I	Public Speaking: Meaning and Significance, Types of Public Speaking: Media, Corporate and Political.	7
II	Art of Public Speaking: Language, Etiquettes and Communication Skills. Techniques of Public Speaking: Audience Applause Technique, Practice with a mini-audience, Practice in front of camera, Soft Sale Storytelling Strategy.	8
	Practical	
1	Art of Public Speaking: Language, Etiquettes and Communication Skills. Techniques of Public Speaking: Audience Applause Technique, Practice with a mini-audience, Practice in front of camera, Soft Sale Storytelling Strategy	15
III	Tools for Public Speaking: Vocal delivery, Body language, Audio Visual aids. Effective Speaking: Presentation	15

Recommended Readings:

- Davidson, Jeff, The Complete Guide to Public Speaking, Breathing Space Institute, 2003
- DiSanza, J. R., &Legge, N. J, Business and professional communication: Plans, processes, and performance (3rd ed.). Needham Heights, MA: Allyn & Bacon, 2005.
- Goleman, Daniel, Working with Emotional Intelligence, London: Banton Books, 1998
- Hall, Calvin S, et.al., Theories of Personality, New Delhi: Wiley, rpt.2011 Hamilton, C, Essentials of public speaking (5th ed.). Belmont, CA: Wadsworth Cengage Learning, 2012
- Holtz, Shel, Corporate Conversations, New Delhi: PHI.2007
- King, Dale, Effective Communication Skills: The Nine-Keys Guidebook for Developing the Art of Persuasion through Public Speaking, Social Intelligence, Verbal Dexterity, Charisma and Eloquence, Hamatea Publishing Studio, 2020
- Kumar, Sanjay and Pushp Lata, Communication Skills, New Delhi: OUP, 2011

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-V Bachelor in Home Science (Honours)
SKILL ENHANCEMENT COURSE (SEC-5) – Sustainable Development

No. of Hours- 30

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
SEC-5 Sustainable Development	2	2	0	0	Passed class XII with Science, Arts and Commerce	Nil

BACHELOR IN HOME SCIENCE (HONOURS)		
Programme/Class: Bachelor in Home Science (Honours)	**Year: Third**	**Semester: V Paper- SEC-5**
Subject : Home science		
Course SEC-5	**Course Title: – Sustainable Development**	

Course outcomes: After studying this course, the students will get to know about the importance and need of Sustainable approaches in today's consumerist era. They will also know about the efforts attempted on international as well as on national level for optimum utilization of resources through viable technique.

Credits: 2	**Skill Enhancement Course**
Max. Marks: As per Univ. rules	**Min. Passing Marks:** As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Sustainable Development: Meaning, Concept, Definition, History, Components and Scope; Ecology and Environmental conservation, Biodiversity loss and ecological imbalance; Sustainable Development Goals. UNFCCC, COP, IPCC.	10
Unit II	Challenges to Sustainable Development; Sustainable Agriculture and forestry; Sustainable resource utilization: Water, mineral, soil and forest; Human Development; The human right to health and education; Poverty and disease.	10
Unit III	Inclusive Development: Education, Health; Climate Change: Carrying Capacity; Sustainable Development Policies and Programmes; Summits related to environment: Stockholm conference, Montreal Protocol, Brundtland Commission, Earth Summit, Paris Agreement (COP 21); NITI Aayog and Sustainable Development; National Environmental Policy.	10

Suggested Readings:

1. G. Arjun, Sarkar A. & others (2019): Environmental Issues & Sustainable Development, Notion India Press, Chennai
2. Ahlawat, A. (2019): Sustainable development Goals, Notion India Press, Chennai
3. Ossewarde, M.J. (2018): Introduction to Sustainable Development, Sage Publication, New Delhi
4. Mishra, J. (2018): Growth with Sustainability, Notion India Press
5. Sedana, N. & Indapurkar, K.: Susainable Development Goals, Bloomsberry Publication House, London

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance

Semester-VI Bachelor in Home Science (Honours)
SKILL ENHANCEMENT COURSE (SEC-6) - Food Authenticity and Fraud Detection
No. of Hours – 15+30

DISTRIBUTION ELIGIBILITY AND PRE- REQUISITES OF THE COURSE

Course Title	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
SEC- 6 Food Authenticity and Fraud Detection	2	1	0	1	Passed class XII with Science, Arts and Commerce	Nil

Programme/Class: Bachelor in Home Science (Honours)	**Year: Third**	**Semester: Sixth Paper-SEC-6**
Subject: Home science		
Course SEC-6	**Course Title: Food Authenticity and Fraud Detection**	

Course outcomes: The student at the completion of the course will be able to:
1. Understand the concepts of food authenticity and fraud.
2. Identify the types of food fraud and their impact on the food industry.
3. Analyze the methods and techniques used to detect food adulteration.
4. Evaluate the role of food authenticity and fraud detection in ensuring food safety and quality.

Credits:	**Value Addition Course**
Max. Marks: 100	**Min. Passing Marks**: As per Univ. rules

Unit	Topics	No. of Hours
Unit I	Definition of food authenticity and fraud, The significance of food authenticity in consumer safety, quality assurance, and regulatory compliance	5
Unit II	Common types of food fraud: Adulteration, mislabeling, substitution, counterfeiting, and dilution	5
Unit III	Supply chain management and traceability, Quality control and quality assurance, Regulatory frameworks and enforcement	5
	Practical	
Unit I	Identification of common types of food fraud: Adulteration, mislabeling, substitution, counterfeiting, and dilution	10
Unit II	Sensory evaluation and organoleptic testing for Food Authentication: Visual, taste, and smell analysis in detecting fraudulent products	20

Recommended Readings:

1. Food Authenticity and Traceability – M. Lees
2. Food Fraud Prevention – John Spink
3. Chemical Analysis of Food: Techniques and Applications – Yolanda Picó

Suggested Continuous Evaluation Methods: Seminar/ Presentation on any topic of the above syllabus Test with multiple choice questions/ short and long answer questions Attendance