

## 12. HOME SCIENCE (Code No. 064)

### (CLASSES - XI AND XII)

Home Science as a discipline aims to empower learners by developing understanding of five different areas namely:

- Food and Nutrition
- Human Development, Childhood Studies
- Resource Management
- Fabric and Apparel Science
- Development Communications and Extension

The subject helps students to understand changing needs of Indian society, academic principles as well as develop professional skills.

This would make them competent to meet challenges of becoming a responsible citizen.

**Objectives:** The syllabus at Senior Secondary level develops an understanding in the learners that the knowledge and skills acquired through Home Science facilitates development of self, family and community. It endeavours to -

- Acquaint learners with the basics of human development with specific reference to self and child.
- Help to develop skills of judicious management of various resources.
- Enable learners to become alert and aware consumers.
- Impart knowledge of nutrition and lifestyles to enable prevention and management of diseases.
- Inculcate healthy food habits.
- Help to develop understanding of textiles for selection and care of clothes.
- Develop skills of communication to assist in advocacy and dissemination of knowledge to community.

### CLASS XI (2016-17)

#### COURSE STRUCTURE

#### (THEORY)

**One Paper (Theory)**

**70 Marks**

**Time: 3 Hours**

**Periods: 220**

Unit		No. of periods	Marks
I	Concept of Home Science and its Scope	5	25
II	Human Development: Life Span Approach (Part I)	40	
III	Food, Nutrition, Health and Fitness	45	30
IV	Family and Community and Resources	45	
V	Fabric and Apparel	45	15
VI	Community development extension (Part I)	5	
	Practical	35	30
	<b>Total</b>	<b>220</b>	<b>100</b>

**Unit I: Concept of Home Science and its Scope****05 Periods**

- (i) Evolution of the discipline of Home Science
- (ii) Five major areas
- (iii) Relevance in improving the quality of life

**Unit II: Human development: life span approach (Part I)****40 Periods**

- (i) Introduction to different stages infancy, early childhood, childhood, adolescence, adulthood and old age
  - (a) Infancy (birth to 2 years): Physical - height, weight and body proportions; Motor development Social and Emotional Development; expression of emotions, socialization; Cognitive and Language development during 0-3 months, 3-6 months , 6-9 months, 9-12 months and 1-2 years (milestones only);
  - (b) Early childhood (3-6 years): characteristics
  - (c) Childhood (7-11 years): behavioural problems of children and suggestive measures
- (ii) Protection from preventable disease:
  - (a) Immunization - (i) concept and types (natural and acquired), (ii) breast feeding (one of the ways to develop natural immunity); (iii) immunization chart;
  - (b) Symptoms, prevention, after care and incubation period of childhood diseases: Tuberculosis, Diphtheria, Pertussis (whooping cough), Tetanus, Polio, Measles, Cholera, Diarrhoea and Chicken Pox.
- (iii) Substitute care at home and outside:
  - (a) By Grandparents, Crèche/day care centres
  - (b) Integrated Child Development Scheme (ICDS) - objectives and functions
- (iv) Special needs and care of disadvantaged and differently abled children: Socially Disadvantaged, Visually Impaired (partial and complete), Hearing Impaired, Orthopedically Impaired (affected/missing limb)
- (v) Managing Emergencies  
First aid to cuts, burns, fractures, bites (snake, dog and insects), poisoning, fainting, asthma, heart attack, drowning.

**Unit III: Food, Nutrition, Health and Fitness****45 Periods**

- (i) Definition of food, nutrition, health (WHO) and fitness.
- (ii) Functions of food:
  - Physiological (body building, energy giving, protective, regulatory)
  - Psychological
  - Social
- (iii) Selection of food for optimum nutrition and good health:

- (a) Nutrients: sources, functions and deficiency and its prevention; Proteins, Carbohydrates, Fats, Vitamins- Fat soluble (A, D, E, K) and water soluble (B1, B2, Niacin, Folic acid, B12 and Vitamin C), Minerals (Calcium, Iron, Zinc and Iodine).
- (iv) Maximising nutritive value of food by proper selection, preparation and storage:
  - (a) Selection of foods: Fruits, vegetables, egg, fish, poultry, meat, milk and milk products, spices, cereals and pulses and convenience food.  
Storage of foods: Perishable, semi perishable, non perishable and convenience food.
  - (b) Food Processing
    - Food spoilage & its reasons.
    - Food processing methods - Dehydration, Freezing by Use of preservatives: Natural and chemical.
  - (c) Preparation of food:
    - Principles
    - Methods: boiling, steaming, pressure cooking, deep and shallow frying, baking, sautéing, roasting, grilling, solar cooking and microwave cooking.
    - Loss of nutrients and steps to minimize nutrient loss during preparation.
    - Methods of enhancing nutrients availability: germination, fermentation, fortification and food combination.

#### Unit IV: Family and Community Resources

45 Periods

- (i) Concept of Family and Community resources
- (ii) Types, Management and Conservation of:
  - (a) *Human / Personal Resources*: knowledge, skills, time, energy, aptitude.
  - (b) *Non-human / material resources*: money, goods, property.
  - (c) *Community facilities / shared resources*: Schools, parks, hospitals, roads, transport, water, electricity, library, fuel and fodder. (Keeping community spaces clean and use of environment friendly measures)
- (iii) Management:
  - (a) Meaning and need for management.
  - (b) Steps in management: planning, organizing, controlling, implementing and evaluation.
  - (c) Decision making and its role in management.
- (iv) Time, energy and space management:
  - (a) Need and procedure for managing time and energy.
  - (b) Work simplifications: Techniques for time and energy management.
  - (c) Need and ways of space management.
  - (d) Elements of art and principles of design.
  - (e) Use of colours, light and accessories in space management; Prang colour wheel, dimensions of colours, classes and colour schemes.

## Unit V: Fabric and Apparel

45 Periods

- (i) Introduction to Fibre Science:
  - (a) Classifications of fibre
    - Natural: cotton, silk and wool
    - Manufactured: rayon, nylon and polyester
    - Blends: terry cot, terry silk, terry wool
  - (b) Characteristics of fibre
  - (c) Suitability for use
- (ii) Fabric Construction:
  - (a) *Yarn making*: Basic procedure of making yarn.
    - Simple: Two Ply, Four Ply, Multiple and Cord
    - Novelty: Slub, Knot, Flock, Spiral
    - Blended yarns
  - (b) Weaving:
    - Basic Mechanism
    - Concept of Looms
    - Types of weaves - Plain (Basket and Rib), Twill, Satin and Sateen weave.  
A brief mention of special weave: Pile and Jacquard.
    - Effect of weave on appearance, durability and maintenance of fabric.
  - (c) Other methods of fabric constructions: knitting, non-woven fabrics: felting and bonding
- (iii) Fabric Finishes:
  - (a) Meaning and importance.
  - (b) Classification of finishes:
    - Basic finishes: cleaning, scouring, singeing, bleaching, stiffening, calendering and tentering
    - Functional Finishes: Water proofing, sanforization, mercerization, moth proofing.
- (iv) Dyeing and Printing
  - (a) Importance of dyeing and printing
  - (b) Types and sources of Dyes-natural, synthetic
  - (c) Methods of Dyeing and Printing: Plain Dyeing; tie and dye; Batik printing; Block printing.

## Unit VI: Community Development and Extension (Part I)

05 Periods

- (i) Respect for girl child
- (ii) Media: Concept, Classification, Function
- (iii) Communication:
  - Concept

- Importance
  - Method
  - Types
  - Elements
  - Effective communicative skills
- (iv) Keeping community spaces clean

## HOME SCIENCE

### CLASS XI (2016 - 17)

#### PRACTICAL

Maximum Marks: 30

Periods: 35

#### I. Human Development: Life Span Approach

1. Visit a child care centre (Day Care/ Crèche/Anganwadi/Nursery Schools/ any other). Write a report on facilities and activities.
2. Select a child with special needs in the neighbourhood. Write a report about her/his special requirement related to:-
  - a) Care
  - b) Education
  - c) Physical Infrastructure needed
3. Observation of any two children in different stages of age in the neighbourhood and report on their activities and behavior.
4. Prepare an educational toy by using local material.

#### II. Food, Nutrition, Health and Fitness

1. Plan and prepare a dish rich in selected nutrients (Iron, Calcium, Protein, Fibre).
2. Prepare one preserved product; also prepare a suitable label for it.
3. Prepare dishes involving the following: Germination, Fermentation and Combination.

#### III. Family and Community Resources

1. Using elements of art and principles of design, prepare Rangoli, Flower arrangement and one accessory for decoration.
2. Critically evaluate your residential space and suggest improvements.
3. Prepare a day's routine of self, listing activities and time spent in each. Critically evaluate for improvement for time and energy saving.
4. Cleaning different surfaces & metals (glass, brass, silver, bronze etc.)

#### IV. Fabric and Apparel

1. Prepare paper samples of the following weaves: *Plain, Rib, Basket, Twill (any two), satin and sateen*.
2. Collect samples of various fabrics and identify the following weaves: Plain, rib, basket, twill, satin and sateen

3. Identification of various types of fibres using burning test.
4. Prepare five samples of tie and dye.

#### **V. Community Development and Extension**

1. Plan and prepare message for 'respect for girl child', 'women's empowerment', 'cleanliness of public spaces' using different modes of communication for different focus groups.
2. Make a leaflet or a pamphlet using original slogan for consumer education on any topic.

#### **Scheme for practical examination (Class XI)**

**30 marks**

- |                                                                                      |                    |
|--------------------------------------------------------------------------------------|--------------------|
| 1. Unit - I: Human Development: Life Span Approach - Project report                  | <b>6 marks</b>     |
| 2. Unit II: Food, Nutrition, Health and Fitness- Anyone from 1, 2 and 3 quoted above | <b>5 marks</b>     |
| 3. Unit III: Family and Community Resources- Any two from a and d quoted above       | <b>2+2=4 marks</b> |
| 4. Unit IV: Fabric and Apparel: Any two from a, b, c and d quoted above              | <b>2+2=4 marks</b> |
| 5. Unit V: Community Development and Extension- Pamphlet etc.                        | <b>4marks</b>      |
| 6. File                                                                              | <b>5marks</b>      |
| 7. Viva                                                                              | <b>2marks</b>      |

#### **Reference book for teachers:**

1. Human Ecology and Family Sciences - Part I, Class- XI, NCERT Publication
2. Human Ecology and Family Sciences - Part II, Class- XI, NCERT Publication

QUESTION PAPER DESIGN 2016 - 17									
HOME SCIENCE			CODE NO. 064					CLASS-XI	
TIME: 3 Hours			Max. Marks: 70						
S. No.	Typology of Questions	Learning outcomes and Testing Skills	Very Short Answer (VSA) (1 Mark)	Short Answer (SA) (2 Marks)	Case study and picture based (3 Marks)	Long Answer -I (LA-I) (4 Marks)	Long Answer -II (LA-II) (5 Marks)	Total Marks	% Weig htag e
01	<b>Remembering-</b> (Knowledge based Simple recall questions, to know specific facts, terms, concepts, principles, or theories; Identify, define, or recite, information)	<ul style="list-style-type: none"><li>● Reasoning</li><li>● Analytical Skills</li><li>● Critical thinking</li></ul>	2	2	1	1	1	18	26%
02	<b>Understanding-</b> (Comprehension -to be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase information)		1	1	-	1	1	12	17%
03	<b>Application</b> (Use abstract information in concrete situation, to apply knowledge to new situations; Use given content to interpret a situation, provide an example, or solve a problem)		1	2	1	2	1	21	30%
04	<b>High Order Thinking Skills</b> (Analysis and Synthesis- Classify, compare, contrast, or differentiate between different pieces of information; Organize and/or integrate unique pieces of information from a variety of sources)		1	1	-	1	1	12	17%
05	<b>Evaluation-</b> (Appraise, judge, and/or justify the value or worth of a		1	1	-	1	-	7	10%

	decision or outcome, or to predict outcomes based on values)								
	TOTAL		1×6=6	2x7=14	3×2=6	4×6=24	5×4=20	70	100%
ESTIMATED TIME			10 min.	35 min.	20 min.	50 min.	50 min.	165 min.+15 min. For revision	

**Note:** No Chapter wise weightage, care should be taken to cover all chapters.

#### Scheme of questions

- There will be no choice in the question paper.
- Weightage to difficulty level of questions

S. No.	Estimated difficulty	Percentage
1	Easy	20
2	Average	60
3	Difficult	20



**CLASS XII (2016 - 17)**  
**COURSE STRUCTURE**  
**(THEORY)**

One Paper (Theory)

70 Marks

Time: 3 Hours

Periods: 220

Unit		No. of periods	Marks
I	Human Development: Life Span Approach (Part II)	40	30
II	Nutrition during life span	40	
III	Money Management and Consumer Education	40	35
IV	Apparel: Designing, Selection and Case	40	
V	Community Development and Extension (Part II)	20	5
VI	Career Option after Home Science Education	5	
	Practical	35	30
	<b>Total</b>	<b>220</b>	<b>100</b>

**Unit I: Human Development: Life Span Approach (Part II)**

**40 Periods**

- A. Adolescence (12 - 18 years)
  - (i) Growth & Development - Domains and principles.
  - (ii) Meaning, characteristics and needs.
  - (iii) Influences on identity formation
    - (a) Biological and Physical changes-early and late maturers.(Role of heredity and environment)
    - (b) By social, culture and media.
    - (c) Emotional changes.
    - (d) Cognitive changes.
  - (iv) Specific issues and concerns
    - (a) Eating disorders-Causes, consequences and management - Anorexia Nervosa, Bulimia.
    - (b) Depression
    - (c) Substance Abuse
    - (d) Related to sex
    - (e) Handling stress and peer pressure
- B. Adulthood:
  - (i) Young & middle adulthood: Understanding and management of new responsibilities: Career marriage and family.
  - (ii) Late Adulthood/Old age:

- (a) Health and Wellness: physical, social, emotional, financial, recreational needs
- (b) Care for elderly (at home and outside - old age home)
- (c) Anger management

## **Unit II: Nutrition during the life span**

**40 Periods**

- (a) Meal Planning: Meaning and importance, principles and factors affecting meal planning; Nutritional needs, food preferences and modifications of diets in different age groups: infants, children, adolescence, adults, elderly and in special conditions: pregnancy and lactation (including traditional foods given in these conditions)
  - (i) Use of basic food groups (ICMR) and serving size in meal planning
  - (ii) Factors influencing selection of food: culture, family food practices, media, peer group, availability of foods, purchasing power, individual preference & health.
- (b) Food safety and quality:
  - (i) Safe food handling (personal, storage, kitchen, cooking and serving).
  - (ii) Safety guards against food adulteration, definition and meaning of food adulteration as given by FSSAI (Food Safety and Standard Authority of India).
  - (iii) Common adulterants present in cereals, pulses, milk and milk products, fats and oils, sugar, jaggery, honey, spices and condiments.
  - (iv) Effects of some of the adulterants present in the foods: kesari dal, metanil yellow, argemone seeds.
  - (v) Food standards (FPO, Agmark, ISI).
- (c) Therapeutic modification of normal diet with respect to consistency, frequency, foodstuffs, nutrients and methods of cooking.
- (d) Modification of diet according to common ailments: diarrhoea, fever, jaundice, hypertension, diabetes and constipation. Physiological changes, clinical symptoms, requirements and dietary requirements in each condition.

## **Unit III: Money Management and Consumer Education**

**40 Periods**

- (a) (i) Income concept:
  - (ii) Various sources of family income:
    - money income
    - real income (direct and indirect)
    - psychic income
  - (iii) Supplementing family income-need and ways; need and procedure for maintaining household accounts (daily, weekly and monthly).
- (b) Savings and Investment:
  - (i) Meaning and importance of savings.
  - (ii) Basis for selection of investment methods: risk, security, profit, tax saving.
  - (iii) Ways/methods of investment -
    - Bank schemes (saving, fixed, recurring);

- Post Office schemes (savings, recurring deposit, monthly income scheme, National saving certificate, Senior citizen scheme);
  - Insurance schemes (whole life, mediclaim);
  - Public Provident Fund (PPF), Provident Fund (PF).
- (iv) Consumer Protection and Education: Meaning, problems faced by consumer, Consumer Protection Amendment Act (2011); Consumer aids: labels, standardization marks, (ECO Mark, Hallmark, Wool mark, Silk mark), advertising, leaflets, and Consumer redressal forum, Internet.

#### **Unit IV: Apparel: Designing, Selection and Care**

**40 Periods**

- (i) Application of elements of art and principles of design in designing apparel.
- (ii) Selection and purchase of fabrics- purpose, cost, season, quality, durability, ease of maintenance and comfort.
- (iii) Selection of apparel- factors influencing selection of apparel- age, size, climate, occupation, figure, occasion, fashion, drape cost and workmanship.
- (iv) Care and maintenance of clothes:
  - (a) Cleansing agents - soaps and detergents (basic differences and their utility);
  - (b) Stain removal - General principles of stain removal, stain removal of tea, coffee, lipstick, ball pen, Grease, Curry and Blood
  - (c) Storage of clothes.

#### **Unit V: Community Development and Extension (Part II)**

**20 Periods**

- (i) Water safety: Safe drinking water-importance of potable water for good health and its qualities, simple methods of making water safe for drinking: boiling, filtering (traditional and modern technology), use of alum, chlorine.
- (ii) Salient features of income generating schemes
  - DWCRA (Development of Women and Children in Rural Area)
  - MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act, 2005)

#### **Unit VI: Career Options after Home Science Education**

**05 Periods**

Career options of self and wage employment of various fields of Home Science.

### **HOME SCIENCE CLASS XII (2016 - 17)**

#### **PRACTICAL**

**Maximum Marks: 30**

**Periods: 35**

#### **1) Human Development: Life Span Approach (Part II)**

##### *Activities*

- Identify the problems of adjustment of adolescents with the help of a tool (group activity) and make a report.
- Spend a day with an aged person and observe the needs and problems. Write a report.
- List and discuss at least 4 areas of agreement and disagreement of self with:-

- |             |            |
|-------------|------------|
| a) Mother   | b) Father  |
| c) Siblings | d) Friends |
| e) Teacher  |            |

## 2) Nutrition during the life span

### *Activities*

- Record one day diet of an individual and evaluate it against principles of balanced diet.
- Plan a meal and modify for any one physiological condition - Fever, Diarrhoea, Constipation, Jaundice, Hypertension, Diabetes, Pregnancy, Lactations, Old age and Infants. Prepare a dish.
- Identify food adulteration: using visual and chemical methods; Turmeric, Chana Dal, Bura Sugar, Milk, Tea leaves, Coriander, Black Pepper Seeds, Desi-ghee.
- Prepare ORS Solution.

## 3) Money Management and Consumer Education

- Collect and fill savings account opening form in Post Office and Bank.
- Fill up the following forms and paste in file: Withdrawal slip, Deposit slips, Draft slip and cheque (bearer or A/c payee).
- Collect labels of any three products and compare them with mandatory requirements.
- Prepare one label each of any three items bearing ISI, FPO, Agmark.

## 4) Apparel: Designing, Selection and Care

- Illustrate principles of design or elements of art on a paper or cloth and evaluate them.
- Removal of different types of stains: tea, coffee, curry, grease, blood, lipstick, ball pen.
- Examine and evaluate readymade garments for their workmanship. [at-least two garments]
- Make sample of Hemming, Backstitch, Interlocking and fasteners (Press buttons, hooks and eye)

## 5) Community Development and Extension

- Visit any two places (home/restaurant/school/business centre, etc.) and observe its measure for safe drinking water and general conditions of hygiene around it.

## Scheme for practical examination (Class XII)

**30 marks**

### 1. Unit I-Human Development: Life Span Approach (Part II)- Project Report-5 marks

### 2. Unit II- Nutrition during the life span

- Plan a meal and modify and prepare a dish for any one physiological condition;Fever, Diarrhoea, Constipation, Jaundice, Hypertension, Diabetes, Pregnancy, Lactations, Infants and Old age- **5 marks**
- Identify food adulteration: using visual and chemical methods: Turmeric, Chana Dal, Bura Sugar, Milk, Tea leaves, Coriander, Black Pepper Seeds, Desi-ghee- **2 marks**

### 3. Unit III-Money Management and Consumer Education

- Prepare one label each of any three items bearing ISI, FPO, Agmark.- **2 marks**
- Filling up of various forms/slips in bank/P.O.- **2 marks**

**4. Unit IV- Apparel: Designing, Selection and Care**

a) Removal of different types of stains- Tea, coffee, grease, blood, lipstick, ballpen( Any two)-

OR

Readymade garment- Quality check - **2marks**

b) Make sample of hemming/backstitch/interlocking/fastener- **2marks**

**5. Unit V-Community Development and Extension- Survey Report- 4 marks**

**6. File- 4 marks**

**7. Viva- 2marks**

QUESTION PAPER DESIGN 2016 - 17									
HOME SCIENCE			CODE NO. 064					CLASS-XII	
TIME: 3 Hours								Max. Marks: 70	
S. No.	Typology of Questions	Learning outcomes and Testing Skills	Very Short Answer (VSA) (1 Mark)	Short Answer (SA) (2 Marks)	Case study and picture based (3 Marks)	Long Answer -I (LA-I) (4 Marks)	Long Answer - II (LA-II) (5 Marks)	Total Marks	% Weightage
01	<b>Remembering -</b> (Knowledge based Simple recall questions, to know specific facts, terms, concepts, principles or theories; Identify, define or recite, information)	<ul style="list-style-type: none"><li>Reasoning</li><li>Analytical Skills</li><li>Critical thinking</li></ul>	2	2	1	1	1	18	26%
02	<b>Understanding -</b> (Comprehension -to be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase information)		1	1	-	1	1	12	17%
03	<b>Application -</b> (Use abstract information in concrete situation, to apply knowledge to new situations; Use given content to interpret a situation, provide an example or solve a problem)		1	2	1	2	1	21	30%
04	<b>High Order Thinking Skills -</b> (Analysis and Synthesis- Classify, compare, contrast or differentiate between different pieces of information; Organize and/or integrate unique pieces of information from a variety of sources)		1	1	-	1	1	12	17%
05	<b>Evaluation -</b> (Appraise, judge and/or justify the value or worth of a		1	1	-	1	-	7	10%

	decision or outcome or to predict outcomes based on values)								
	TOTAL		1×6=6	2×7=14	3×2=6	4×6=24	5×4=20	70	100%
	ESTIMATED TIME		10 min.	35 min.	20 min.	50 min.	50 min.	165 min.+15 min. For revision	

**Note:** No Chapter wise weightage, care should be taken to cover all chapters.

#### Scheme of questions

- There will be no choice in the question paper.
- Weightage to difficulty level of questions

S. No.	Estimated difficulty	Percentage
1	Easy	20
2	Average	60
3	Difficult	20